

SPECIFICATION R001-1-EN-SP-001-1

DRY CHEMICAL STORAGE AND MAKEDOWN SYSTEM

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish, install, test, and place in acceptable operation a complete dry chemical storage and makedown system (hereinafter as 'system') provided with all mechanical equipment and all necessary accessories as specified herein, as shown on the Drawings, and as required for a complete and operable system.
- B. The system shall include, but not be limited to, one storage silo, one volumetric feeder, one mix tank, one dust scrubber, one tank vent fan and two slurry feed pumps. The mechanical equipment shall be provided complete with all accessories, special tools, mountings, and other appurtenances as specified, and as may be required for a complete and operating installation.
- C. For compatibility of equipment and controls, all equipment for the *system* shall be furnished by a single supplier who shall assume complete responsibility through the Contractor for proper operation of the equipment, including that of coordinating power supply and controls, and furnishing all appurtenant equipment.
- D. The Work also includes coordination of design, assembly, testing by the system supplier and installation by the Contractor.
- E. Equipment shall be provided in accordance with the requirements as specified in PART 2.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Commercial Standards:

ASTM A 36	Specification for Structural Steel
ASTM A 283	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars
ASTM A 992	Standard Specification for Structural Steel Shapes
AWS D1.1 / CSA W59	Structural Welding Code – Steel / Welded Steel Construction (Metal Arc Welding)
CSA G40.20/G40.21	General requirements for rolled or welded structural quality steel / Structural quality steel
SSPC-SP No. 6	Commercial Blast Cleaning

B. System Supplier's Standards:

Conveyor Equipment System Suppliers Association (CEMA) standards

American Gear System Suppliers Association (AGMA) standards

Institute of Electrical and Electronics Engineers (IEEE) standards

National Electrical System Supplier's Association (NEMA)

C. All other applicable Federal, State, and local regulations

1.03 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

A. Dry Chemical Storage and Makedown System

Number of Storage Units	1 Bulk Silo
Minimum Useable Silo Capacity, ft ³	3,100
Inside Diameter of Silo, ft	14
Number of Bin Activator	1
Number of Silo Isolation Knife Gate	1
Number of Volumetric Feeder	1
Minimum Capacity of Each Volumetric Feeder Hopper, ft ³	5
Volumetric Feed Rate to Mix Tank, ft ³ /h	
Maximum	36.7
Minimum	12.4
Number of Mix Tank	1
Minimum Level Full Capacity of Each Mix Tank, USgal	550
Concentration of Slurry, %wt by wt.	5 - 15
Number of Slurry Feed Pump	2
Duty of Each Pump (Operating / Stand-by)	1 – Operation 1 – Standby
Slurry Feed Pump Total Discharge Head, ft	50
Slurry Feed Pump Flow Rate to customer, USgpm	50

1.04 SUBMITTALS

- A. The Contractor shall submit complete Shop Drawings and Operation and Maintenance Manual for the system.

1. Shop Drawings shall include layout, outline and component dimensions, anchor bolt plan, total weight of the shipped materials, details for installation and maintenance. Additional supplemental information should include capacities and sizes, material list, motor data, driver specification, pump performance data and catalogue cut sheets necessary to show compliance with specifications.
 2. Operation and Maintenance Manual shall includes recommended installation instruction, storage and preservation guideline, recommended procedure for operation of the *system* and its components, part list and lubrication for maintenance of the *system* and its components.
- B. The Contractor shall be responsible for coordinating all interfaces with related mechanical, structural, electrical and instrumentation and control work. The Contractor shall be responsible for providing all accessory equipment and all work associated with installation of the equipment.
- C. Structural drawings and calculations for the design of the storage silo and supports shall be submitted to the Engineer. Structural drawing shall include anchor bolt location and quantity, base-plate geometry as well as all support reactions and forces transmitted to the foundation shall be submitted to show compliance with specification. Structural drawings and calculations shall be reviewed and signed by a registered Professional Engineer.

1.05 WARRANTY

- A. The Contractor shall provide manufacturer's warranty written in the name of the Owner and/or provide the standard warranty that is part of the manufacturer's terms and conditions.
- B. The system manufacturer's warranty shall guarantee the equipment, coatings, materials, workmanship and hardware to be free of defects for period of 18 months after delivery or 12 months after start-up, whichever comes first. Warranty shall cover removal and replacement of all materials and components during the warranty period.
- C. Warranty will be extended by 6 months at no extra cost, provided that manufacturer's Field Service is contracted to provide installation inspection and start-up services. Further extended warranty terms are available at additional cost.
- D. Should the equipment need to be stored for a period longer than one (1) month after delivery, the Owner shall be responsible for implementing long term storage and handling procedures provided as part of the manufacturer's manual. A written record of preservation activities will be required for warranty claims

PART 2 -- EQUIPMENT

2.01 MANUFACTURERS

- A. The materials covered by these Specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in

the production of such equipment. The equipment furnished shall be designed, constructed, and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the Drawings and operated per manufacturer's recommendations.

- B. Specific models, equipment or catalog numbers referred to or specified herein are given as a means of describing materials, design, quality, mechanical construction, operation, and other requirements to which the equipment shall conform. To the extent possible, all major equipment items shall be supplied by one manufacturer.
- C. The *system* manufacturer shall specialize in manufacture, assembly, and field service of dry chemical storage and makedown systems with a minimum of twenty (20) years experience. The manufacturer shall have at least twenty (20) U.S. installations of the type, approximate size, and chemical service being proposed, each with a minimum of five (5) years of satisfactory service.
- D. The entire *system* shall be designed, coordinated and supplied by one supplier. The *system* supplier shall furnish all equipment to complete a functioning, integrated package. The system supplier shall take sole responsibility for the products incorporated in the package.
- E. The *system* shall be supplied by STT Enviro Corp.

2.02 GENERAL

- A. The *system* shall include all components necessary to receive dry chemical from delivery trucks equipped with pneumatic blowers; discharge the dry chemical to a mix tank at a controlled rate without bridging, clogging or flooding of the volumetric feeder; mix the dry chemical into a slurry form under controlled rates; and distribute the liquid slurry to the application point by means of a slurry feed pump. The system shall be suitable for outdoor installation and located as shown on the Drawings.
- B. The *system* shall include, but not be limited to, the following major components and/or sub-systems:
 - 1. Truck unloading station.
 - 2. Bin vent filter (dust collector)
 - 3. Bulk material storage silo with inventory controls and flow promotion to ensure reliable flow from the storage silo to the volumetric feeder via a bin activator and manual isolation knife gate.
 - 4. One (1) volumetric feeder with intermediate hopper and hopper vibrator.
 - 5. One (1) mix tank with one (1) mixer.
 - 6. Two (2) slurry feed pump.
 - 7. One (1) Wet Dust Scrubber with one (1) Scrubber Vent Fan

8. One (1) Main Control / Operator Panel
9. Electrical, controls and instrumentation.

C. Assembly

1. The *system* manufacturer shall be one who is regularly engaged in the business of designing and building dry chemical systems. The manufacturer shall maintain a qualified technical and design office. The manufacturer shall have physical plant(s) and personnel to furnish a completely factory assembled system. The manufacturer shall maintain competent service personnel to service the equipment.
2. The *system* manufacturer shall furnish a complete system, pre-assembled to the maximum extent practical. Makedown equipment shall be, factory installed / supported and assembled on an equipment skid. Other equipment that is contained in the skirted area of the silo shall be factory installed prior to delivery to the job site.
3. Factory assembly shall include all equipment, pipe and wire as specified below:
 - a. Factory pre-wiring on the equipment skid shall include all wire and necessary conduit from the main control / operator panel to all components within the equipment skid. Factory pre-wiring shall also include all wire and necessary conduit for all the components located in the skirted area, exterior and roof of the silo, including the dust collector, silo level devices, and truck fill panel.
 - b. Factory pre-piping shall include all water and slurry piping between the equipment within the equipment skid. Factory pre-piping shall also include the water distribution assembly within the silo skirt, compressed air piping from the silo skirt to the silo roof for the dust collector.
4. The *system* shall be factory tested prior to shipment to the jobsite. The system supplier shall give a minimum two-week notice to the Engineer prior factory testing of the *system*.
5. The Contractor shall be responsible for re-installing equipment that the manufacturer could not ship assembled as an integral part of the *system* due to shipping restrictions. These items shall be identified on the manufacturer's approval drawings and consist of the truck fill line assembly components, silo roof access ladder, safety cage components, silo roof handrail components, silo level devices, piping spool pieces from / to connection on equipment skid and distribution assembly located within the skirt, dust collector, mixer's shaft and/or impellers and silo skirt space heater.

2.03 STORAGE SILO FILL SYSTEM

A. Fill Pipe and Adapter for Pneumatic Conveying

1. A complete truck fill pipe assembly shall be furnished which will include a NPS 4-inch, Schedule 40 carbon steel pipe conforming to ASTM A 53 Gr. B to convey the dry chemical from delivery truck to the silo. Fill pipe shall start at a point adjacent to the truck fill panel and shall terminate at the target inlet box on the silo roof. All bends in the fill line shall be made by the use of 48-inch centerline radius elbows. Pipe shall be connected by the use of 4-bolt compression type couplings. Piping shall be supported by a suitable number of pipe supports to prevent movement and vibration during use.
2. The inlet end of the fill pipe shall be provided with a quick disconnect, malleable / cast iron or aluminum male adaptor and lockable dust cap with galvanized chain that is suitable for a 4" transfer hose from the delivery truck.

B. Inlet Target Box

1. The inlet inlet target box shall be carbon steel construction and mounted on the storage silo roof. Target box shall be at minimum 20" in diameter with 3/8" wear plate and designed to reduce the velocity of the dry chemical being conveyed and allow it to drop into the storage silo in an even pattern. Target box shall be securely mounted to a flange on the silo roof complete with a heavy duty rubber gasket to insure a dust-tight enclosure. Target box shall be provided with a removable end cap to facilitate cleaning of the fill system.

C. Bin Vent Filter (Dust Collector)

1. A complete pulse-jet bin vent filter shall be furnished as shown on the Drawings and as specified herein. The unit shall contain product within the bin or silo while discharging air displaced by product filling the storage device without the use of an exhaust fan.
2. The bin vent filter shall be furnished complete with filter cartridges, cleaning system hardware, installation and maintenance manual and replacement parts list.
3. The bin vent filter shall be provided with a carbon steel housing and provided complete with pulse jet pipework, diaphragm valves and blowpipes, pilot solenoid valves, wall tubing compressed air manifold and an access door. The overall height of the unit shall not exceed the top of the roof guardrail – nominally at 42".
4. The compressed air connection shall be at 90-100 PSIG and at a temperature not exceeding 150°F. The air line assembly shall include a brass isolation ball valve, filter, pressure gauge and Schedule 40 galvanized carbon steel pipe. The air header of the bin vent filter shall be designed and registered with a pressure vessel governing authority of CSA B51 or ASME BPV code. The registration number shall be shown on nameplate along with the capacity data and model information.
5. Filters shall be provided with a minimum of 280 square feet of polyester filter cloth. The filter cartridges shall be preassembled in a vertical configuration, serviceable from the top of the unit and on the clean side of the filter. Filter replacement shall be performed without tools.

5. Product entrained in the silo while filling shall enter at the bottom of the filter and collect on the outside surface of the filter cartridge. Clean air shall pass through the filter media and escape through the back of the filter.
6. The cleaning system shall be controlled by the PLC and progressively energize pilot solenoid valves, which cause the corresponding diaphragm valve to send a pulse of 90-100 PSIG supply compressed air into the blowpipe. The pulse shall be discharged from the air manifold through the diaphragm valves, through the blowpipe, into the filter venturis, and into the filter cartridge, discharging product from the media surface. Product shall fall into the silo.
7. The bin vent filter and gaskets shall be shipped loose. Installation and air supply shall be provided by the Contractor.

D. Storage Silo Level Instrument (Bin Level Indicators)

1. A continuous level transmitter suitable for bulk solids shall be provided for mounting in the roof of the storage silo to monitor the level in the silo. The level transmittal shall be of contacting radar type, loop-powered and with 4-20 mA readout. The transmitter shall also have corrosion resistance wetted parts and flanged type mounting.
2. A high level switch suitable for bulk solids shall be provided for mounting in the roof of the storage silo to actuate the "high" level pilot light and the audio alarm in the truck fill panel when the level of material within the silo is within 4'-2" from the top of the silo. This level switch shall be of capacitive type, with discrete output signal, corrosion resistance wetted parts, fail-safe configuration and suitable for universal voltage supply.
3. Level Instrument shall be Endress and Hauser, Milltronics, or equal.
4. All level instrument shall be installed by the Contractor.

E. Truck Unloading Control Station (Truck Fill Panel)

1. The truck unloading control station for the silo shall consist of a NEMA 4X, 304 stainless steel enclosure adjacent to the inlet end of the fill pipe. Panel shall be prewired and contain, but not be limited to, the following:
 - a. Silo high level indicating pilot lights
 - b. Hand-off-auto (HOA) switch for bin vent filter
 - c. High level alarm horn w/silence and test push buttons
2. Panel shall include 10 amp, 120 volt dry contact to start and stop the bin vent filter, sequentially open and close the bin vent valves filter air supply solenoid to clean the bin vent filter.
 - a. The panel shall include a dry contact to signal operation of the equipment to the PLC.

3. Numbered terminal strips prewired for connection of bin level alarm and unloading indication and a numbered terminal strip with at least 20% extra terminal blocks shall be provided. Name-plates for individual device identification shall be provided.
4. The truck fill panel shall be suitable for outdoor installation and shall accept 120 volt, 1 phase, 60 Hz incoming power. A circuit break shall be provided to de-energize the panel.

2.04 STORAGE SILO

- A. The storage silo shall be sized for a net storage capacity as specified in 1.03 with allowance for freeboard and angle of repose of the material to be stored.
- B. The storage silo shall be of all welded, one-piece, skirt supported construction, meeting requirement from AWS D1.1 or CSA W59. It shall have a cone bottom outlet hopper with a minimum slope of 60 degrees from horizontal. Silo to be fabricated of carbon steel plate with adequate thickness to withstand the full range of pressure or vacuum to which silo is to be subjected.
- C. The side wall of the storage silo shall be constructed of steel sheet or plate a minimum of 10 ga (0.1345") thick. Conical bottom plates shall be constructed of steel plate a minimum 3/16" thick. The roof shall be constructed of steel plate a minimum 3/16" thick. Sheet shall conform to the requirement of ASTM A1011 Grade 40 specification and plate shall conform to the requirements of ASTM A36 specifications.
- D. The storage silo shall be designed to accommodate all dead loads plus a full live load of dry chemical with bulk density ranges from 35 lb/ft³ to 55 lb/ft³ for design purposes.
- E. The storage silo shall be designed to resist seismic loading for Site Class D, Design Category A per IBC as well as a 110 mph ultimate wind speed with site exposure classification C acting in any direction. Where the wind loading produces higher stress, such loading shall be used in lieu of the loads resulting for earthquake forces. For the purpose of determining stress, all vertical design loads shall be considered acting along or in combination with these lateral forces. The maximum allowable stresses in any structural steel member shall not exceed those permitted by the latest AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.
- F. The storage silo shall be anchored to the concrete floor per the manufacturer's recommendations. Anchor rod diameter and spacing shall be specified by the system supplier and shall be the complete responsibility of the Contractor. Anchor bolts shall be at minimum ASTM F1554 Grade 36 with galvanized finish.
- G. At least four (4) lifting lugs shall be provided at the top of the storage silo. Lifting lugs shall be designed by the manufacturer for use with lifting devices. Similar lifting lugs that can bolt-on on the side / bottom of the storage silo shall be furnished to facilitate unloading from delivery truck.

- H. The silo roof shall be self-supporting, sloped at 10° for drainage purposes and process access for maintenance. The roof shall be designed to support dead loads of all roof appurtenances, maintenance personnel, flanged openings for bin vent filter, target box, vacuum/pressure relief manway, level controls and OSHA approved handrail plus an additional live load of 20 psf. Roof shall be water tight.
- I. Silo side shall have, as a minimum, the following connections:
1. Mounting brackets for fill pipe and conduit.
 2. Ladder and rest platform / landing supports
 3. Welded pipe support brackets as required
- J. The silo shall be provided with external access ladder that shall go from the ground to the top of the silo. The ladder shall be constructed of galvanized carbon steel or aluminum. Intermediate rest platform / landings for the ladder shall include guardrails and toeboards. Ladder and rest platforms shall be designed to meet the requirements of US Federal OSHA Standard 29 CFR 1910.27.
- K. The silo shall include a skirt enclosure that is attached to the silo. The enclosure shall be constructed using carbon steel plate and framing members that match the construction of the silo. The enclosure shall be as an integral part of the silo. The silo shall be provided with 6'-0" wide by 6'-8" tall double doors, with louvers and bug screens, at the locations shown on the Drawings. Doors shall be of steel construction with lockable knob.
1. Four (4) 70 watt high-pressure sodium (HPS) wall mounted light fixtures shall be furnished and installed in the silo skirt and wired to a light switch located near the entrance door.
 2. A suitably sized exhaust fan shall be factory installed in the silo skirt to circulate air. The fan shall be wall mounted propeller type and complete with short wall housing, gravity damper and weatherhood. The fan shall be rated for 1480 CFM at 1/8-inch water column of static pressure to provide a minimum rate of 6 air changes per hour. The fan shall be wired to a wall-mounted on-off switch with integral overload protection located near the entrance door. The fan shall be directly driven by motor of a minimum of 1/4 HP. The exhaust fan shall operate on 120 volt, 1 phase, 60 Hz power. Fan Manufacturer shall be Greenheck.
 3. A 10 kW electric unit heater shall be factory installed in the silo skirt with integral thermostat, control transformer and contactor. The heater shall maintain temperature above 45°F. The heater shall operate on 460 / 575 volt, 3 phase, 60 Hz power. Unit heater manufacturer shall be Chromalox.
 4. A duplex GFI type 120 volt, 20 amp electrical outlet shall be provided within the silo skirt.
 5. Skirt wall shall be provided with flanges for air, water and slurry connections. Water supply piping assemblies as shown on the drawings and is located inside the silo

skirt. Electrical connection will be at the truck fill panel, main control panel and terminal boxes on each major equipment.

- L. The storage silo shall also include the following accessory items:
 - 1. 24-inch diameter vacuum/pressure relief valve manway combination on silo roof (minimum 8-inch relief valve)
 - 2. Roof deck perimeter guardrail, with toeboard per US Federal OSHA Standard 29 CFR 1910.23
 - 3. Anchor mounting pads and saddles to accept anchor bolts designed to withstand both uplift and shear forces
 - 4. A flanged nozzle on the silo roof suitable for use with the continuous radar level transmitter and a threaded connection on the silo roof for use with the level switch.
 - 5. Steel skirt designed to rest on concrete base. See Structural Drawings for connection details at foundation.
 - 6. The interior of the silo walls shall be painted and provided with closed cell foam insulation that is at minimum 1-1/2" thick OR R-value of 9. The insulation shall be staggered, overlapped and taped or tongue-and-grooved to reduce air infiltration.
- M. All silo accessories shall be mounted by the Contractor. All components that are bolted to the silo shall have plated or galvanized hardware and a gasket between the component and the silo. All conduit, wire, supports, and related appurtenances for silo accessories shall be furnished and installed by the Electrical Contractor to ensure compliance with local regulations.
- N. Silo shall be prepared to a minimum of SSPC-SP6 Commercial Sandblast and painted with Epoxy on interior of dry chemical storage area, interior skirt, and exterior primer (2.0 mils AVG DFT per SSPC PA-2). Exterior surface shall be finished with an additional urethane topcoat (1.5 mils AVG DFT).

2.05 BIN ACTIVATOR AND ISOLATION KNIFE GATES

- A. The storage silo shall be provided with a bin activator to promote a positive continuous flow of dry chemical while minimizing bridging, jamming, segregation, and rat-holing. Units shall have a 5ft inlet to mate with silo discharge hopper and an 8" outlet going to the feed equipment.
- B. The bin activator shall be carbon steel construction and contact parts. The body shall have a vertical section and a tapered cone profile with a 45° angle before terminating at the outlet. It also shall include a secondary conical baffle within tapered cone profile.
- C. Isolator support arm between the upper and lower sections of the bin activator shall be made solid steel blocks that incorporate rubber vibration isolators. The gap between the

upper and lower section will be closed off by a black neoprene endless sleeve, which will have three (3) plies of reinforcement and will be held in position by an upper and lower clamp, which will be of 304 stainless steel.

- D. The outlet of the bin activator shall be equipped with a hammer gate for maintenance isolation and a flexible sleeve for vibration isolation
- E. The motor for the vibrator of the bin activator shall be a minimum 1.5 HP, 1800RPM TENV, 460 / 575 volt , 3-phase, 60 Hz and equipped with oversized bearings and an eccentric weight system that can be adjusted in stepless increments directly on the dual shafts of the motor.
- F. The bin activator shall be operated based on the timer from the PLC and shall be interlocked with the volumetric feeder control circuits to operate only when a feeder is in operation.
- G. A knife / blade type silo isolation gate shall be provided between each cone outlet and volumetric feeder. This isolation gate shall be wafer-lug type, with cast iron body, 304 stainless steel gate, metal seat and with PTFE packing. The knife gate shall be manually operated by means of a chain wheel and shall be dust tight and arranged for easy access by plant operators.
- C. A transition assembly shall be provided between knife gate and feeder hopper. The transition assembly shall have a flexible connection constructed of EPDM and secured with stainless steel band clamps.

2.06 VOLUMETRIC FEEDER

- A. The volumetric feeder shall be a helical screw type feeder and complete with an intermediate hopper to supply the feeder. The feeder shall be provided to feed dry chemical at rates as specified in 1.03 – Operating Conditions and Performance Requirements.
- B. The helical screw of the feed shall be carbon steel with a discharge spout suitable for a flexible connection.
- C. The intermediate hopper shall have a 8” diameter inlet and capacitance type low and high level probes. A vibrator shall be mounted on the transition section of each hopper to assist material flow. A cycle timer shall be included in the PLC to allow for intermittent operation of the vibrator.
- D. Volumetric feeder shall include the metering auger, discharge cylinder, drive shafts and seal components. The feeder shall include a full open front feed chamber so that auger can be easily extracted for maintenance. The trough of the volumetric feeder shall include a pneumatic vibrator to ensure consistent flow of dry chemical. The intermediate hopper shall be at minimum 5 ft³ and furnished with two coupling for mounting of high and low level switches.

- F. The volumetric feeder shall be driven by a minimum 3/4 HP, 1800 RPM, TEFC, 460 / 575 volt, 3-phase, 60 Hz motor. The feeder will feed dry chemical at a fixed rate into the tank to produce the targeted concentration set at the PLC.
- G. The equipment supplier shall furnish all the necessary hardware to mount the volumetric feeders and chutes directly to the mix tank.

2.07 MIX TANK

- A. The Contractor shall furnish a mix tank to mixing slurry. The tank shall be constructed of carbon steel and provided with 20" x 23" hinged inspection hatch.
- B. Mix tank shall be provided with connections for the following:
 - 1. One (1) 6" stub feed inlet
 - 2. One (1) 2" flange water supply inlet for slurry make-up
 - 3. One (1) 2" flange drain
 - 4. Two (2) 2" flange pump suction
 - 5. One (1) 2" flange overflow
 - 6. One (1) 2" flange slurry return
 - 7. One (1) 6" for wet dust scrubber.
 - 8. One (1) 6" flange for continuous ultrasonic level sensor
 - 9. One (1) 4" diameter opening mixer shaft
- C. The water supply to the mix tank shall be provided via a water distribution assembly. This assembly shall include a pneumatically-actuated On-Off PVC ball valve, manual PVC ball valves for isolation and drain, brass solenoid valve, PVC globe valve and magnetic flow meter. Water supply piping assemblies shall be located within the silo skirt.
 - 1. The pneumatically-actuated On-Off ball valve shall have a rated CV of 230 and a maximum supply pressure of 150 psig. It shall be completed with:
 - a. Rack & Pinion style pneumatic actuator with spring return for fail close action and dual travel stops.
 - b. SPDT limit switches with and position indicator.
 - c. 120VAC solenoid with NEMA 4/4x Enclosure
 - d. Acceptable Manufacturers: FNW, Veltri or equal.
 - 3. Magnetic flow meter shall have polyurethane liner, 316 stainless steel sensing electrodes, NEMA 4X corrosion resistance housing and 2" CL 150 flanged connection body. The transmitter shall be a 4-wire type device, shop calibration

with 3-point calibration to 0.5% accuracy and complete with a LCD backlit display.

- D. Drain connection shall be completed with a pinch valve mounted to the side of the mix tank that allows drainage to Owner's sump / collection system.
- E. The pump suction shall be provided with a pinch valve for isolation.
- F. Overflow piping shall be supplied with a down-comer for drainage to Owner's sump / collection system.
- G. The equipment supplier shall also furnish a wet dust scrubber and vent fan to remove dust and vapor from the mix tank. The wet dust scrubber shall be constructed of 304 stainless steel and be taken apart for service and cleaning without the use of any tools. It shall also be equipped with self-draining mist eliminator baffles, stainless steel atomizing and wash down spray nozzles. The water supply line to the wet dust scrubber shall be provided with a brass solenoid valve and manual PVC globe valve that can be combined as part of the water distribution assembly.