# CITY OF FERNDALE WASTEWATER TREATMENT PLANT UPGRADE

# ADDENDUM NO. 1 (32 pages total) Issue Date: December 9, 2019

General: Recitations of each and every section of the bid documents impacted by this addendum are not given. The described changes impact all relevant portions of the bid documents whether specifically cited below or not.

# **BID ADVERTISEMENT:**

# **BID OPENING DATE ADJUSTMENT:**

The bid opening will be at **11:00 AM on January 8, 2020** (not December 19, 2019). Pre-bid meeting remains December 9, 2019 at 1:00pm.

# PART 1 – BIDDING REQUIREMENTS

SECTION 00 45 13 - CONTRACTORS QUALIFICATIONS:

• **CHANGE** "Bidder shall have successfully completed with their own equipment and personnel a minimum of three similar projects in the last six years to be considered qualified." to "Bidder shall have successfully completed with their own equipment and personnel a minimum of three similar projects in the last **ten** years to be considered qualified."

# PART 2 – CONTRACTING REQUIREMENTS

SECTION 00 73 00 - SUPPLEMENTARY CONDITIONS

• **CHANGE** Supplementary Condition #15 – Completion Time: Adjust to 440 working days, 88 weeks (not 460 working days, 92 weeks). Adjust to a Phase 2 completion deadline = Dec. 10, 2021 (not Dec. 31, 2021).

# PART 3 - TECHNICAL SPECIFICATIONS:

- **CHANGE** All references to Spec Section 33 05 33 HDPE Piping shall be changed to 33 33 00 HDPE Piping.
- **REPLACE** entire Section 23 05 93 with attached.
- **REPLACE** entire Section 23 38 16 with attached.
- **REPLACE** entire Section 33 31 00 with attached.

SECTION 01 50 00 - TEMPORARY FACILITIES, 1.04, G.

• **ADD** "5. Contractor shall provide a separate job shack for the resident engineer team. The proposed resident engineer job shack is to be a mobile office with two rooms (office and meeting room) that is 44' x 12' (minimum overall size), interior box size to be 40' x 10' x 8' ceilings (min.), insulated and designed for all weather conditions, light fixtures, wall mounted HVAC unit(s), interior 120V power receptacles, internet connection, two exterior doors,

access steps and handrail to each exterior door, and other features needed for an office work area and a conference meeting room area. Conference meeting room area is to be sized for up to 10 attendees. Mobile office to be a Willscot 44' x 12' Mobile Office, or approved equal. Mobile office to be complete, installed on-site including tiedown services. Mobile office to be provided to the resident engineer throughout the entire duration of project (phase 1 and phase 2). Contractor to remove the mobile office immediately after final completion/acceptance of project."

SECTION 09 91 00 - MISC. PLANT PAINTING, 2.01, I, 1, b, Applications:

CHANGE to "All exposed metal piping (including exposed ductile iron piping), joints, fittings, valves, supports, bollards, yard hydrant accessories, runway beams, runway supports, fasteners, and misc. ferrous metal items for this project shall be painted. Copper, galvanized, aluminum, and stainless steel metal surfaces shall not be painted unless specifically specified. Exposed piping shall be defined as all piping that is not backfilled, including permanently or intermittently submerged piping within structures. Exposed piping in vaults is considered to be exposed and shall be painted. All bollards are to be completely protected with shop coatings (primer and finish).

# SECTION 33 32 00 - WATER DISTRIBUTION PIPING, 2.07

• **ADD** "B. Gaskets shall be full faced 1/8-inch thick neoprene having a durometer of 60 plus or minus 5."

# DRAWINGS:

- **REPLACE** Drawing C2.14 with attached.
- **REPLACE** Drawing H1.01 with attached.
- **REPLACE** Drawing H6.01 with attached.
- **REPLACE** Drawing M1.07 with attached.
- **REPLACE** Drawing M1.08 with attached.
- **REPLACE** Drawing M6.03 with attached.
- **REPLACE** Drawing M9.01 with attached.
- **REPLACE** Drawing M9.02 with attached.

#### DRAWING C0.06 AND C0.07

The west lagoon has three existing baffles in place for flow direction control. The three baffles separate cells 1, 2, 3, and 4. Contractor shall remove and dispose of all three baffles, supports, wires, etc. after Phase 1 work is completed (after flow is diverted to the new WWTP Facility).

#### DRAWING C0.07

Adjust keyed note #2 to state the following: Existing 30" sanitary sewer piping shall remain in place and be used to route flow from West Lagoon T-Valve, through Manhole #1, Manhole #2, Structure "A", and Structure "B". Ensure that all other pipe connections along this alignment (12", 24", etc.) are plugged and flow is only directed through the 30" piping. Please note: there is an unmarked 24" pipe that connects to the west side of

Structure "A" that will need to be plugged and decommissioned when middle lagoon is taken offline. In addition, Contractor shall protect and support the existing 30" pipe when excavating and constructing the proposed south aeration basin. Once Phase 1 work is complete and flow is re-directed to new WWTP, the existing 30" sanitary sewer piping will be abandoned in place

DRAWINGS C2.02-C2.07

• **CHANGE:** All reducers shall be eccentric reducers. Pipe invert slopes shall be continuous as shown on the piping profiles.

DRAWING C2.03, C2.04, C2.13

• **CHANGE:** All Secondary Effluent piping shall be 36-inch Ductile Iron per Specification 33 31 00, 2.01, C, 2.

DRAWING C2.06 AND C2.16

 CHANGE: Scum drain lines and all associated valves and fittings shall be 4-inch diameter (not 6-inch) for all buried sections. Transition from 3-inch SST scum drain line leaving clarifier, to 4-inch PVC a maximum of 2-inches above the finished grade surface. All buried scum drain lines shall be PVC drain piping per Specification 33 31 00, 2.01, C, 3. All exposed scum drain line material shall be stainless steel per Specification 33 31 00, 2.01, E, 1.

DRAWINGS C2.11

- **CHANGE:** RAS piping shown as 18" diameter shall be 16" as shown on plan sheet C2.05.
- DETAIL 1, **ADD:** A 12" plug valve is located and shall be shown on the profile at station 0+95.10 per plan sheet C2.05.

DRAWING C4.03, H1.01, H2.01

- ADD to Sheet Notes on C4.03, "2. Housekeeping pads shall be placed south of the Lab/Admin Building and west of the UV/Maintenance building for HVAC equipment. Dimensions for the two reinforced concrete pads south of the Lab/Admin Building are 5'-6" x 8'-2" and 2'-0" x 4'-0" and west of the UV/Maintenance building is 2'-0" x 4'-0". Thickness of all pads shall be 6" thick. Reinforcing shall be per Detail 3, Sheet C9.03. See sheet H1.01 and H2.01 for additional HVAC equipment information."
- **CHANGE** on H1.01: Housekeeping pads shall be 6" thick, not 4" thick.
- **CHANGE** on H2.01: Housekeeping pad shall be 6" thick, not 4" thick.

DRAWING C6.04, DETAIL 3

• **CHANGE** pipe material from PVC to Ductile Iron for influent, header, and outlet piping.

DRAWING C6.06, DETAIL 2

• **CHANGE** elevation for the bottom of the CDF layer to 11.50.

DRAWING C6.07, DETAIL 2

• **ADD** note: 6" Controlled Density Fill (CDF) layer shall cover the entire bottom surface of both north and south aeration basins. CDF shall be per WSDOT 2-09.3(1)E. CDF shall be placed professionally with a level surface of 12.00' and bottom surface of 11.50'.

DRAWINGS C7.04

• **CHANGE:** Drain pipe under clarifiers shall be Ductile Iron per Specification 33 31 00 not PVC.

DRAWING M1.05, M1.09, M1.10

- **CHANGE**: All Final Effluent 6-inch piping from UV channel to 3W Pump Station shall be C900 PVC per Specification 33 31 00, 2.01, C, 3, not Schedule 80 PVC.
- **CHANGE**: All Air Gap Water 6-inch piping from air gap system to 2W Pump Station shall be C900 PVC per Specification 33 31 00, 2.01, C, 3, not Schedule 80 PVC.

DRAWING M3.01-M3.04

**ADD** note: 4" Air Vent piping shall be C900 PVC per Specification 33 31 00, 2.01, C, 3.

DRAWING M3.02, M3.04, SECTION C-C

• **CHANGE** "PENETRATION PER DETAIL 6, M6.06, TYP." to "PENETRATION PER DETAIL 6, **M6.04**, TYP."

DRAWING M4.01-M4.04

- **ADD** note: "All above grade piping, including water supply and scum drain line, shall be insulated and heat traced for the entire length of piping including valves, spray ring, spray headers, and nozzles. Insulation shall end no more than 2" from finished grade penetration."
- **ADD** note: "3W water supply and scum drain concrete sidewalk penetrations shall be installed per detail 1, M6.04."

DRAWING M7.01

- CHANGE Keyed Note #14 to "WALL BRACE PIPE SUPPORT, PER DETAIL 4, M6.01."
- CHANGE Keyed Note #15 to "HORIZONTAL PIPE SUPPORT, PER DETAIL 3, M6.01"

DRAWINGS M8.01-M8.03

• **CHANGE** Concentric reducers shown on details shall be replaced with eccentric reducers. Pipe invert slopes shall be continuous as shown on the piping profiles.

DRAWING M8.03, DETAIL 3

• **REMOVE** Plug valve shown on both elevation and plan views.

# SECTION 23 05 93 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

# PART 1 - GENERAL

# 1.01 WORK INCLUDED

- A. Air Systems Balancing
- B. Balancing Reports

# 1.02 REQUIRED SUBMITTAL DATA

- A. Proposed Systems Balancing Contractor Name and Certification
- B. Balancing Plan

# 1.03 CODES AND STANDARDS

- A. All codes and standards refer the current edition.
  - 1. ASTM C1060 Standard Practice for Thermographic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings
  - 2. NEBB Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems (PSTABES).
  - 3. Washington State Energy Code Commercial Provisions, latest adopted version.

# **1.04 SYSTEMS BALANCING CONTRACTOR**

- A. Systems balancing contractor shall be qualified to perform the testing and balancing work as indicated on the drawings and specified herein. Qualifications include:
  - 1. A minimum five (5) years' experience record in systems balancing of projects of similar scope and complexity, and
  - 2. Contractor shall be independent of the installing contractors or equipment suppliers for this project.
- B. Qualified systems balancing contractors: Neudorfer Engineers, United Test & Balance, TAC Systems, Hardin and Sons, or approved equal.
- C. To be considered for consideration as an approved equal, company shall submit a list of recent past similar projects including a description of the size and scope of the project, name of the principal technician and references including current phone numbers; and maintain association with AABC or NEBB as follows:
  - 1. Membership in the AABC, or
  - 2. Certification by the NEBB.
- D. Within 60 days after contract award, submit the name of the proposed systems balancing contractor along with the name of the principal technician along with past similar projects including a description of the size and scope of the project.

#### 1.05 COORDINATION WITH COMMISSIONING

A. Upon completion of the work, provide the necessary skilled labor, helpers, materials, and equipment to support the commissioning work. During the commissioning, coordinate with the commissioning company and make all adjustments required to demonstrate systems are

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working properly.

#### **1.06 PROCEDURES**

A. Perform testing, adjusting, and balancing (TAB) in accordance with the procedural standards of the organization certifying the TAB firm.

#### 1.07 RELATED WORK

- A. All portions of specification Division 1 apply to this work.
- B. All portions of specification Section 23 05 00 apply to this work.
- C. Additional sections of the mechanical specifications may be required to provide a fully functional system. Refer to the specifications index.

# PART 2 - PRODUCT

# 2.01 BALANCING REPORT

- A. When requested, provide a preliminary balancing report to the mechanical or GENERAL CONTRACTOR to indicate to the building inspector that balancing is in progress.
- B. When balancing is nearly complete, provide a "95% complete" balancing report for the review by the ENGINEER. When acceptable to the ENGINEER, provide an electronic version of the report in .pdf format.
- C. Provide three (3) sets of final balancing reports incorporating comments made on the preliminary report, two (2) for the OWNER and one (1) for the ENGINEER. Alternately, when acceptable to the ENGINEER, provide an electronic version of the report in .pdf format.
- D. Include in report: Project Name, OWNER, ENGINEER, Systems Balancing Subcontractor, other data necessary to describe activity, and the status of the systems plus the following data:
  - 1. Fume Hoods
    - a. Face Velocity sash open at 18"
    - b. Sound level at the hood sash closed (dBA)
    - c. Sounds level at the hood sash open (dBA)

#### 2. Fans

- a. Installation Data
  - (i) Manufacturer and model
  - (ii) Size
  - (iii) Arrangement, discharge, and class
  - (iv) Motor HP, voltage, phase, Hz and full load amps
  - (v) Identification data
  - (vi) Type of Service
- b. Design Data
  - (i) Total CFM

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- (ii) Unit inlet, unit outlet and fan total static pressures
- (iii) Motor HP, rpm, and amp
- (iv) Fan rpm
- (v) Fan BHP
- c. Fan Recorded Data
  - (i) Total CFM
  - (ii) Static pressure (suction, discharge, and total)
  - (iii) Fan rpm
  - (iv) Fan motor rpm
  - (v) Fan motor rated voltage and amperage
  - (vi) Fan motor operating voltage and amperage
  - (vii) Motor calculated BHP
  - (viii) Drive sizes (sheaves, belts, and shaft)
  - (ix) Serial number
- 3. Packaged Unit
  - a. Use fan report data
  - b. Use heating/cooling coil data
  - c. Supply and return flow
  - d. OSA A and OSA A+P minimum positions
- 4. Individual Air Terminals
  - a. Supply return or exhaust terminal identification (location and number designation)
  - b. Manufacturer's catalog identification and type
  - c. Applicable factors for application, velocity, area, etc., and designated area
  - d. Design and recorded quantities CFM
  - e. Box inlet static pressure (only required for boxes not achieving design primary airflow)
- 5. Pitot Traverse in Duct Systems (Where Individual Air Terminals Are Not Accessible or Measurable):
  - a. Duct CFM Mains and Branches, (Maximum and Minimum)
    - (i) Duct size(s)
    - (ii) Number of pressure readings
    - (iii) Sum of velocity measurements
    - (iv) Average velocity
    - (v) Duct recorded CFM
    - (vi) Duct design CFM

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- 6. DX Cooling Coils
  - a. Design Data and Recorded Data for All Stages
    - (i) MBH
    - (ii) Entering and leaving air temperature
    - (iii) CFM
    - (iv) Identification data
    - (v) Air pressure drop (for all units with factory-installed pressure ports)
    - (vi) System served
    - (vii) Coil location

#### 7. Building Shell

- a. Design data and recorded data:
  - (i) Overall air handling supply and return values
  - (ii) Blower door test results.

#### 2.02 FUME HOOD BALANCING AND REPORT

- A. Pre-testing meeting: The contractor shall coordinate its FPT activities of fume hoods, including test procedures and FPT documentation, with the Owner confirming testing activities. Attendees shall include the Contractor, the responsible TAB engineer, and Owner's EH&S personnel responsible for confirming testing.
  - 1. This pre-test meeting shall include a full ASHRAE Standard 110 of at least one fume hood by the TAB subcontractor with a representative of the owner's EHS department present for verification of testing procedures.
- B. Contractor face velocity testing shall not start until the following is complete:
  - 1. Pre-test meeting
  - 2. Verifications that all specified fume hood components and accessories are provided.
  - 3. Start-up and functional performance testing of all fume hood accessories and utilities is complete and in accordance with manufacture's specifications and the HVAC has been balanced.
- C. For each fume hood, the contractor shall perform and document the following FPT requirements:
  - 1. Performance testing
    - a. ASHRAE 110 Standard tested at 80 FPM with the sash at 18".
  - 2. Sound Level
    - a. Sound level must be at or below 55 dBA measured with the sash at height at 18" and the sound level meter located 3 feet from the sash and 3 feet above the floor.
    - b. Sound level shall be tested using a Type 2 sound level meter manufacture to meet the American National Standard Institute (ANSI) SI1.4 "Standard for Sound Level Meters" capable of measuring decibels in dBA.

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- c. Perform test when nearby equipment is not running and ambient noise levels are at minimal levels.
- 3. Monitor functionality
  - a. The fume hood monitor is verified to be functioning and properly calibrated
  - b. Verify that the face velocity is displayed
  - c. Raise the sash to reduce the face velocity. Confirm that both the visible and audible alarm signals function when the velocity drops below 64 fpm.
  - d. Test the monitor's mute function and the reset button.
  - e. This test fails if the monitor does not alarm, is more than 10 fpm out of calibration or if it fails and functional test or is damaged.
  - f. Test fume hood monitor to verify both visible and audible high-flow alarms on fume hood monitor.
- D. Fume hoods FPT Documentation
  - 1. Record all test data and present in TAB report

# PART 3 - EXECUTION

# 3.01 **PROCEDURES**

A. Obtain confirmation from mechanical contractor that systems to be balanced are complete and functioning per design intent prior to commencing balancing.

#### 3.02 INSTRUMENTS

A. Use accurate and recently calibrated instruments. Provide instrument calibration history if requested by the ENGINEER.

#### 3.03 BALANCING PLAN

- A. Submit balancing agenda prior to start of work. Include the following in the agenda:
- B. A complete listing of all flow (air and water) and air terminal measurements to be performed.

# 3.04 GENERAL PROCEDURES

- A. Perform TAB in accordance with the procedural standards of the organization certifying the TAB firm and generally accepted engineering standards.
- B. Air and water flow rates shall be measured and adjusted to deliver final flow rates within 10% of design rates, except variable flow distribution systems need not be balanced upstream of the controlling device (for example, VAV box or control valve). Provide a written balance report to the owner as specified herein.

#### 3.05 ADDITIONAL AIR SYSTEM PROCEDURES

- A. Air systems shall be balanced in a manner to minimize throttling losses. Regardless of whether fan is constant or variable speed, belt-driven fan speed shall be adjusted to meet design flow conditions. Exceptions follow:
  - 1. Fans with motors of 1 hp or less and not noted for a second set of sheaves on the fan schedule.

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- 2. When throttling results in no greater than 5% of the nameplate horsepower draw above that required if the sheaves were replaced.
- B. Following fan installation and initial balancing, provide direction for sheave replacement necessary to balance the systems. Following sheave change, make final measurements to confirm design flow conditions.
- C. Prior to balancing systems with filters racks, install temporary filter media in all filter housings of constant-volume systems. Blank-off enough filter sections with cardboard or other material to create an additional 0.4-inch water gauge across all of the filters (to simulate loaded filter condition).
- D. Volume control devices to regulate air quantities of air terminals only to the extent that adjustments do not create objectionable air motion or sound levels. Volume control by means of air terminal adjustment or duct internal devices other than dampers is not permitted.
- E. Adjust and balance the air system as necessary to accommodate field conditions and occupant comfort. Provide necessary fan adjustments, pulley changes and damper adjustments.

# 3.06 BUILDING PRESSURIZATION TESTING

- A. Blower door testing will be performed per Washington State Energy Code Commercial Provisions "Building Air Leakage Testing" Building floor square footage will be provided by the Architect of Record. When required by the building official, the test shall be conducted in the presence of building department staff.
- B. Infrared thermography testing will be performed to identify air barrier leakage. Imaging will be performed per ASTM C1060 and by a certified ASNT Level II Thermographer.
- C. Imaging will be performed from the exterior side of the building envelope perimeter. A delta ( $\Delta$ T) of 10°F between the exterior and the interior of the envelope must be created. Exterior winds must be light (less than 10 mph). Testing will be performed in the morning hours to reduce the effects of thermal loading on the exterior face of the building.
- D. Provide certificate of blower door tests as required by Washington State Energy Code Commercial Provisions for display.

# \*\*\*END OF SECTION\*\*\*

# SECTION 23 38 16 – FUME HOOD EXHAUST SYSTEMS

# PART 1 - GENERAL

# 1.01 WORK INCLUDED

A. Laboratory Fume Hoods

# 1.02 REQUIRED SUBMITTAL DATA FOR THIS SPECIFICATION SECTION

- A. Shop Drawings: Indicate equipment locations, large scale plans, elevations, cross sections, rough-in and anchor placement dimensions and tolerances and all required clearances.
- B. Product Data: Submit manufacturer's data for each component and item of laboratory equipment specified. Include component dimensions, configurations, construction details, joint details, and attachments, utility and service requirements and locations. Include liner and exterior finish tests by independent third party.
- C. Fume hood

# 1.03 CODES AND STANDARDS

- A. All codes and standards refer to the current edition unless otherwise noted.
  - 1. ASHRAE 110 Method of Testing Performance of Laboratory Fume Hoods
  - 2. ASTM D2197 Standard Method of Test for Adhesion of Organic Coating
  - 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
  - 4. MIL-W-83420E General Military Specification for Wire Rope, Flexible, for Aircraft Control
  - 5. UL 1805 Standard for Laboratory Hoods and Cabinets

# 1.04 RELATED WORK

- A. All portions of specification Division 1 apply to this work.
- B. All portions of specification Section 23 05 00 apply to this work.
- C. Additional sections of the mechanical specifications may be required to provide a fully functional system. Refer to the specifications index.

# 1.05 QUALITY ASSURANCE

- A. Single Source Responsibility: Fume hood casework, work surfaces, and other laboratory equipment and accessories shall be manufactured or furnished by a single laboratory furniture company.
- B. Fume hoods shall be designed, including comprehensive engineering analysis, by a qualified, licensed Professional Engineer.
- C. Manufacturer's Qualifications: Modern plant with proper tools, dies, fixtures and skilled

workers to produce high quality laboratory casework and equipment, and shall meet the following minimum requirements:

- 1. Five years or more experience in manufacture of laboratory casework and equipment of type specified.
- 2. Ten installations of equal or larger size and requirements. Provide contact at each.

# 1.06 DELIVERY, STORAGE AND HANDLING

- A. Schedule delivery of equipment so that spaces are sufficiently complete that equipment can be installed immediately following delivery.
- B. Protect finished surfaces from soiling or damage during handling and installation. Keep covered with polyethylene film or other protective coating.

# **1.07 PROJECT CONDITIONS**

- A. Do not deliver or install equipment until the following conditions have been met:
  - 1. Windows and doors are installed and the building is secure and weather tight.
  - 2. Ceiling, overhead ductwork and lighting are installed.
  - 3. All painting is completed and floor tile located below casework is installed.

# PART 2 - PRODUCTS

# 2.01 MANUFACTURER

- A. Acceptable manufacturer to be BMC/Metal Arc, Labconco, or approved equal. Basis of design hood is the following model below.
  - 1. LOC Scientific, Trilogy Fume Hood

# 2.02 FUME HOOD GENERAL DESIGN REQUIREMENTS

- A. Fume hoods shall be designed and constructed in accordance with UL 1805.
- B. Fume hoods shall function as ventilated, enclosed workspaces, designed to capture, confine, and exhaust fumes, vapors and particulate matter produced or generated within the enclosure.
- C. Design fume hoods for consistent and safe air flow through the hood face. Negative variations of face velocity shall not exceed 10% of the average face velocity at any designated measuring point as defined in this section.
- D. Average illumination of work area with white liner: Minimum 80 foot-candles. Work area shall be defined as the area inside the superstructure from side to side and from face of baffle to the inside face of the sash, and from the working surface to a height of 28 inches.
- E. Fume hood shall be designed to minimize static pressure loss with adequate slot area. Maximum average static pressure loss readings taken three diameters above the hood outlet from four points, 90 degrees apart, shall not exceed the following maximums with sash in fully open position:

F. Noise Criteria: Test data of octave band analysis verifying hood is capable of a 50 NC value when connected to a 50 NC HVAC source. Reading taken 3-feet in front of an open sash at the 18-inch operational height at 100 fpm face velocity.

# 2.03 LINER SURFACE FINISH PERFORMANCE REQUIREMENTS

- A. Test Procedure
  - 1. Test No. 1 Spills and Splashes:
    - a. Suspend in a vertical plane a 42-inch (horizontal) by 12-inch (vertical) panel divided into <sup>3</sup>/<sub>4</sub>-inch wide vertical columns, each column numbered 1 through 49.
    - b. Apply five (5) drops of each reagent listed with an eye dropper.
    - c. Apply liquid reagents at top of panel and allow to flow down full panel height. (CAUTION: Flush away any reagent drops.)
- B. Test No. 2 Fumes and Gases
  - 1. Divide 24-inches x 12-inches panel into 2-inch squares, each square numbered 1 through 49.
  - 2. Place 25 milliliters of reagent into 100 milliliters beakers and position panel over beaker tops in the proper sequence. Note: Beaker pouring lip permits atmospheric oxygen to enter and participate in the reaction of the reagent fumes.
  - 3. After 24 hours remove panel, flush with water, clean with naphtha and detergent, rinse, wipe dry and evaluate.
- C. Evaluation Ratings: Change in surface finish and function shall be described by the following ratings:
  - 1. No Effect: No detectable change in surface material.
  - 2. Excellent: Slight detectable change in color or gloss, but no change to the function or life of the work surface material.
  - 3. Good: Clearly discernible change in color or gloss, but no significant impairment of work surface function or life.
  - 4. Fair: Objectionable change in appearance due to surface discoloration or etch, possibly resulting in deterioration of function over an extended period.
  - 5. Failure: Pitting, cratering or erosion of work surface material; obvious and significant deterioration.

REAGENT LIST	Test No. 1	Test No. 2
Concentrations by Weight	Rating Spills	Fumes
Sodium Hydroxide Flake		No Effect
Sodium Hydroxide, 40%	Excellent	No Effect
Sodium Hydroxide, 20%	Excellent	No Effect
Sodium Hydroxide, 10%	Excellent	No Effect
Ammonium Hydroxide, 28% No	No Effect	
Effect		
Eldorado – Plus (Solution)	No Effect	No Effect
Chloroform	Excellent	No Effect

D. Test Results: Fume Hood Liner

REAGENT LIST	Test No. 1	Test No. 2
LpH SE (Solution)	No Effect	No Effect
Trichloroethylene	Excellent	No Effect
Monochlorobenzene	Excellent	No Effect
Tincture of Iodine	Excellent	Excellent
Methyl Alcohol	No Effect	No Effect
Ethyl Alcohol	No Effect	No Effect
Butyl Alcohol	No Effect	No Effect
Phenol, 85%	Excellent	No Effect
Cresol	Excellent	No Effect
Sodium Sulfide, Saturated	Good	No Effect
Furfural	Fair	No Effect
Dioxane	No Effect	No Effect
Zinc Chloride, Saturated	No Effect	No Effect
Benzene	Excellent	No Effect
Toluene	Excellent	No Effect
Xylene	Excellent	No Effect
Gasoline	Excellent	No Effect
Naphthalene	Excellent	No Effect
Methyl Ethyl Ketone	Excellent	No Effect
Acetone	Excellent	No Effect
Ethyl Acetate	Excellent	No Effect
Amyl Acetate	Excellent	No Effect
Ethyl Ether	Excellent	No Effect
Silver Nitrate, 10%	Good	No Effect
Di Methyl Formamide	No Effect	Excellent
Formaldehyde, 37%	No Effect	No Effect
Formic Acid, 88%	No Effect	No Effect
Acetic Acid, Glacial	No Effect	No Effect
Dichloro Acetic Acid, 93%	Excellent	Excellent
Chromic Acid, Saturated	Good	No Effect
Phosphoric Acid, 85%	No Effect	No Effect
Sulfuric Acid, 33%	No Effect	No Effect
Sulfuric Acid, 77%	Excellent	No Effect
Sulfuric Acid, 93%	Good	No Effect
Hydrogen Peroxide, 30%	No Effect	No Effect
Acid Dichromate	Excellent	No Effect
Nitric Acid, 20%	Excellent	No Effect
Nitric Acid, 30%	Excellent	No Effect
40 & 47 Equal Parts	Excellent	Good
Nitric Acid, 70%	Excellent	Good
Hydrochloric Acid, 37%	No Effect	Excellent
Hydrofluoric Acid, 48%	No Effect	Failure

# 2.04 FUME HOOD MATERIALS

- A. Steel: High quality, cold rolled, mild steel meeting requirements of ASTM A366; gauges U.S. Standard.
- B. Stainless Steel: Type 304; gauges U.S. Standard.
- C. Ceiling Closure Panels: Minimum 18-gauge; finish to match hood exterior.

- D. Safety Glass: 7/32-thick laminated safety glass.
- E. Sash Cables: Stainless steel, uncoated, <sup>1</sup>/<sub>8</sub>-diameter military specification quality. (MIL-W-83420)
- F. Sash Guides: Corrosion-resistant poly-vinyl chloride.
- G. Pulley Assembly for Sash Cable: 2 diameter, nylon race, ball bearing type, with cable retaining device and sash leveling mechanism.
- H. Sash Pull: Full width extruded aluminum with chemical resistant powder coating.
- I. Gaskets: Ridged black PVC for interior access panels. Gasket shall retain access panels with integral clips for easy removal and replacement of panel.
- J. Fastenings:
  - 1. Exterior structural members attachments: <sup>1</sup>/<sub>4</sub>-20 machine screws and lock nuts, zinc-plated.
  - 2. Interior fastening devices concealed. All fasteners exposed to the hood interior shall be non-metallic.
  - 3. Exterior side access panel member fastening devices to be concealed. Mechanical latch, exposed screws or Velcro type fasteners not acceptable.
- K. Instruction plate: Corrosion resistant or plastic plate attached to the fume hood exterior with condensed information covering recommended locations for apparatus and accessories, baffle settings and use of sash.

# 2.05 FUME HOOD CONSTRUCTION

- A. Superstructure: Rigid, self-supporting assembly of double wall construction, maximum 5 thick.
  - 1. Wall consists of a sheet steel outer shell and a corrosion resistant inner liner, and houses and conceals steel framing members, attaching brackets and remote operating service fixture mechanisms and services. Panels must be attached to a full frame construction, minimum 16 gauge painted members.
  - 2. Access to fixture valves concealed in wall provided by exterior removable access panels and gasketed access panels on the inside liner walls.
- B. Exhaust Outlet: Round, 18-gauge stainless steel.
- C. Access Opening Perimeter: Air foil or streamlined shape with all right-angle corners radiused. Bottom horizontal foil shall be double tiered and provide nominal 1-inch bypass when sash is in the closed position. Bottom foil shall not be removable without use of special tools. Bottom foil shall provide access area enough in size to pass through electrical plugs. Bottom foil: Steel with powder-coated finish.
- D. Fume Hood Sash: (Combination) Vertical and horizontal sash access with a 35-inch high sight line. Sash shall be top hung on nylon-tired ball bearing wheels. Sash side frame must be inset into sash guides providing a full width unobstructed view of the interior. Exposed side frames not acceptable. Upper and lower sash frame components to be extruded aluminum. Lower frame radiused to minimize turbulence and have integral guides for horizontal sliding panels. Area above the 27<sup>1</sup>/<sub>2</sub>-inch vertical sash opening shall be glazed with laminated safety glass. All glass to have finished edge treatment. Horizontal panels provided with finger pulls.

- E. Counter Balance System: Single weight, pulley, cable, counter balance system which prevents sash tilting and permits one finger operation at any point along full width pull. Maximum 7 pounds pull required to raise or lower sash throughout its full length of travel. Design system to hold sash at any position without creep and to prevent sash drop in the event of cable failure.
- F. Sash Lock: Keyed sash lock to prevent the sash from opening above 18-inches without being unlocked. Sash shall be able to be locked at any position, even above 18-inches, and reset when lowered below 18-inches.
- G. Airfoil: The airfoil will be flush to the worksurface with ample room for electrical cords to fit between the airfoil and sash handle. Sill to be aerodynamically radiused on front edge and have a secondary containment trough.
- Fume Hood Liner: Resin-chem: Reinforced polyester panel; smooth finish and white color in final appearance. Flexural strength: 19,500 psi. Flame spread: 19 or less per ASTM E84. Baffle must be same material as liner. Metallic baffles, brackets, or supports on hood interior are not acceptable. Liner and baffle material must meet 1.03 performance test.
- I. Baffles: Baffles providing controlled air vectors into and through the fume hood must be fabricated of the same material as the liner. High performance baffles must be mathematically calculated to provide proper energy distribution of exhaust currents providing stable performance regardless of sash position. Baffle to be non-adjustable. Baffles with manual or automatic adjustment are not acceptable. All baffles, supports, and brackets to be non-metallic.
- J. Sash Position: Sash shall be designed to promote usage as an upper body and face shield. Face velocities and volumes shall be based on an 18-inch operating opening. Sash shall have the capability to be raised to full 27.5-inch vertical opening for loading or unloading of large apparatus. A keyed lock shall be provided limiting the sash operation to 18-inch.
- K. Service Fixtures and Fittings: Color coded hose nozzle outlets and valves mounted inside the fume hood and controlled from the exterior with color coded index buttons.
  - 1. Valves: Needlepoint type with self-centering cone tip and seat of hardened stainless steel. Tip and seat shall be removable and replaceable.
  - 2. Provide piping for all service fixtures from valve to outlet and from valve to a point 3-inch above or below the superstructure as indicated by project conditions: Copper for water.
  - 3. Fixtures exposed to hood interior: Color coded chemically resistant nylon.
  - 4. Remote control handles: Black nylon four-arm handle with nylon color- coded index buttons.
  - 5. Services: As shown or specified.
- L. Hood Light Fixture: Two lamp, instant start, UL listed, T8 fluorescent light fixture with sound rated "A" ballast installed on exterior of roof. Provide safety glass panel cemented and sealed to the hood roof.
  - 1. Interior of fixture: White, high reflecting plastic enamel.
  - 2. Size of fixture: Largest possible up to 48 for hoods with superstructures up to 6 feet. Provide two 24 fixtures for hoods with 8-foot superstructures.
  - 3. Include lamps with fixtures. Hoods without lamps not acceptable.

- 4. Illumination: Per performance values, Part 1 of this Section.
- M. Access to light from top front of hood.
- N. Electrical services: Three wire grounding type receptacles rated at 120 VAC. at 20 amperes. Flush plates: Stainless steel.
- O. Wiring: Pre-wire electrical fixtures to junction box located on top of hood.
- P. Work surfaces: 1<sup>1</sup>/<sub>4</sub>-inch thick surface, dished a nominal <sup>3</sup>/<sub>8</sub>-inch to contain spills.
- Q. Molded resin work surfaces for hoods with Resin-Chem liners.
- R. Safety Monitor/Alarm System:
  - 1. Provide Safety Monitor/Alarm System which monitors face velocity and provides audible and visual alarm if face velocity drops below safe levels. The technology used in the alarm will be based on thermally compensated thermistor based in the alarm module.
  - 2. Safety Monitor: UL listed, tamper proof, with all alarm circuits, electric components, external tubing, and manifolds furnished complete and factory installed. The monitor shall have a visual display which provides clear indication of airflow conditions.
  - 3. <u>Calibration is the responsibility of the owner</u> and is required once the hood is stationed and the hood exhaust and room supply systems are balanced. A secondary calibration has been factory set into the alarm's memory only to determine that the alarm is functional and ready for shipment. **THE PRIMARY CALIBRATION MUST BE COMPLETED IN THE FIELD.**
  - 4. Airflow Sensor: Thermally compensated glass-beaded thermistor, factory connected to a side-wall port on the interior of the fume hood.
  - 5. Alarm signal shall be an audible and visual signal.
    - a. Silence pushbutton, which disables the audible alarm, shall be accessible on the front of the safety monitor.
    - b. When alarm condition is corrected and face velocity and volume return to specified levels, the Safety Monitor will automatically reset and begin routine monitoring.
  - 6. Provide test circuit to verify proper Safety Monitor operation.
  - 7. Electrical rating: Maximum 12 VDC.

# 2.06 METAL FINISH

- A. Metal Finish:
  - 1. Preparation: Spray clean metal with a heated cleaner/phosphate solution, pre-treat with iron phosphate spray, water rinse, and neutral final seal. Immediately dry in heated ovens, gradually cooled, prior to application of finish.
  - 2. Application: Electrostatic application of epoxy powder coat of selected color and bake in controlled high temperature oven to assure a smooth, hard satin finish. Surfaces shall have a chemical resistant, high-grade laboratory furniture quality finish with a 1.5 mil average thickness.

# PART 3 - EXECUTION

# 3.01 INSTALLATION

- A. Installation
  - 1. Install fume hoods and equipment in accordance with manufacturer's instructions.
  - 2. Install equipment plumb, square, and straight with no distortion and securely anchored as required.
  - 3. Secure work surfaces to casework and equipment components with material and procedures recommended by the manufacturer.
- B. Accessory Installation: Install accessories and fittings in accordance with manufacturer's recommendations.

# 3.02 ADJUSTING

A. Adjust sash, fixtures, accessories and other moving or operating parts to function smoothly.

# 3.03 CLEANING

A. Clean equipment, touch up as required.

# 3.04 PROTECTION OF FINISHED WORK

- A. Provide all necessary protective measures to prevent exposure of equipment from exposure to other construction activity.
- B. Advise contractor of procedures and precautions for protection of material and installed fume hoods from damage by work of other trades.

#### \*\*\*END OF SECTION\*\*\*

# SECTION 33 31 00 – WASTEWATER PIPING

# PART 1. GENERAL

# 1.01 SCOPE OF WORK

- A. This section covers the work necessary to furnish and install wastewater lines as shown on the plans and described herein.
- B. See Section 33 30 00 PIPING SYSTEMS for additional requirements.

# PART 2. PRODUCTS

# 2.01 MATERIALS

# A. BUILDING / STRUCTURE FOOTING DRAIN PIPE

- 1. Perforated Corrugated Polyethylene Drainage Tubing Underdrain Pipe:
- 2. Pipe per WSDOT 9-05.2(7), 4-inch diameter unless otherwise shown on the plans.

# B. PRESSURE SEWER PIPE

- 1. Exposed:
  - a. Stainless Steel Sch. 80 Pipe or Ductile Iron: AWWA C115, cement lined, thickness class 53 for flanged or grooved piping systems.
- 2. Buried:
  - a. AWWA C115, Ductile Iron cement lined 8 mil poly wrapped thickness class 50 or 51; unless flanged or grooved piping systems which are required to be thickness class 53.
  - b. PVC, AWWA C900/C905, Class 235 DR 18 (minimum), or
  - c. HDPE (pressure class as specified on drawings) in accordance with WSDOT Section 9-30.1 and Spec Section 33 05 33.
  - d. Or as noted on the plans.

# C. GRAVITY SEWER PIPE & DRAINS

- 1. PVC for wastewater applications:
  - a. ASTM D3034, SDR 35 for 4" through 15" pipe. ASTM F679, SDR 35 (PS46) for 18" & larger pipe. Or as noted on the plans.
- 2. Ductile Iron for wastewater applications:
  - a. WSDOT 9-05.13 Ductile Iron Sewer Pipe. Ductile Iron cement lined 8 mil poly wrapped thickness class 50 or 51; unless flanged or grooved piping systems which are required to be thickness class 53
- 3. PVC drain piping (See Plumbing Spec 22 10 00 for Floor Drain Piping) shall be:
  - a. Schedule 40 PVC for pipe 4" and smaller. Pipe shall meet ASTM D2241 and D1784 and Commercial Standard CS 256. Or as noted on the plans.
  - b. AWWA C900/C905, Class 100 DR 41 (minimum) for 6" and larger.
- D. MECHANICAL SCREEN WASH WATER PIPING

- 1. Unless noted otherwise on plans, exposed wash water piping shall be Type 316L, seamless, threaded joints conforming to ASTM A312. The minimum wall thickness shall be Schedule 40S.
- 2. All exposed wash water piping shall be insulated and heat traced.
- E. AERATION PIPING
  - 1. Exposed:
    - a. Unless otherwise specified, stainless steel pipe 2.5 inches and smaller shall be Type 316L, seamless, threaded joints conforming to ASTM A312. The minimum wall thickness shall be Schedule 40S.
    - b. Unless otherwise specified, stainless steel piping 3 inches and larger shall be manufactured from ASTM A240 annealed and pickled sheets and plates, Type 316L, in accordance with ASTM A778 or ASTM A409 HT-0. Only extra-low carbon (ELC) materials with 0.030 percent maximum carbon shall be used. Pipe shall be manufactured to nominal pipe sizes as listed in ANSI B36.19 and shall have the following nominal wall thickness:
    - c. Nominal Pipe Size: 3 18 inches Schedule Gage: Schedule 10S
  - 2. Buried:
    - a. Ductile Iron wrapped in 8 mil polyethylene wrap; unlined, thickness class 50 unless flanged or grooved piping systems which are required to be thickness class 53 (as described above).
    - b. Smaller than 4" Air Pipe: Use Exposed Pipe Spec above.
- F. 2W/3W WATER PIPING
  - 1. Buried: All buried 2W and 3W water piping shall be PE4710, IPS HDPE DR11. See spec section 33 33 00. Or as noted on the plans.
  - 2. Exposed: All above ground exposed 2W and 3W water piping 4" or larger shall be AWWA C115, Ductile Iron cement lined thickness class 50 or 51; unless flanged or grooved piping systems which are required to be thickness class 53.
- G. WAS DISCHARGE PIPING
  - 1. All exposed WAS discharge piping shall be PE4710, IPS, HDPE DR17. See spec section 33 33 00.
  - 2. All buried WAS discharge piping shall be Ductile Iron per 2.01, C, 2.
- H. JOINTS
  - 1. BURIED PIPE
    - Mechanical or push-on joints to be in accordance with AWWA C111 for ductile iron pipe. Anchoring of mechanical joints with external set screws will not be permitted. PVC gravity pipe to be in accordance with ASTM D3212 - Specification for Joints, for Drain and Sewer Plastic Pipe using Flexible Elastomeric Seals.
    - b. Joints for foul air PVC piping shall be glued.
    - c. PVC drain piping 4" and smaller shall be solvent welded with press fit.

- 2. EXPOSED PIPE
  - a. Flanged joints shall be in accordance with AWWA C115. Grooved and shouldered joints shall be in accordance with AWWA C-606.

# I. FITTINGS

- 1. Cast or ductile iron in accordance with AWWA C110 and/or AWWA C153, short body type, 250 psi working pressure. Where taps are shown on fittings, tapping bosses shall be provided.
- 2. PVC gravity sewer pipe fittings to be in accordance with ASTM D3034 or ASTM F679.
- 3. PVC C900 fittings used for drain piping shall be fabricated and supplied in accordance with AWWA C900. Molded fittings shall be manufactured and supplied in accordance with AWWA C907.
- 4. Fittings for Schedule 40 & 80 PVC shall conform to ASTM D2466 and D2467 for socket type.
- J. FLEXIBLE COUPLINGS AND FLANGED COUPLING ADAPTERS
  - 1. Flexible couplings for use with PVC piping shall be Romac Style 501, or approved equal. When restraining is required use Romac 611 Restraining system. Bolts and nuts shall be stainless steel type 316. Center ring shall have fusion bonded epoxy coating and have a length of 2x the pipe diameter. Ductile iron sleeves with mechanical joints at each end may be substituted for flexible couplings on ductile iron pipe. Mechanical joint shall be Romagrip, Megalug 1100, or approved equal.
  - 2. Protection for Buried Couplings and Adaptors:
    - a. Double wrap with polyethylene encasement, AWWA C105 and tape the edges of the encasement with PVC tape.

# K. HOSES FOR 2" YARD HYDRANTS

1. Hoses to be 1.5" fire hose, 50' lengths, NPSH couplings and adaptors as needed, rated for 500# test pressure, USA Bluebook item # 26950. Provide two hoses for each 2" yard hydrant.

#### L. HOSES FOR 1" YARD HYDRANTS

1. Hoses to be 3/4" fire hose, 50' lengths, NPSH couplings and adaptors as needed, rated for 200# test pressure. Provide two hoses for each 1" yard hydrant.

# M. CEMENT LINING

1. All ductile iron pipe and fittings shall be cement mortar lined and seal coated in accordance with ANSI A21.4/AWWA C104.

# N. COATING

1. All ductile iron pipe to be buried shall receive a coat of bituminous material. All exposed ductile iron pipe (including all piping in valve vaults) is to be cleaned and shop coated with two coats of epoxy per Section 09900 Painting. All bituminous material on exposed piping is to be sand blasted off, prior to application of epoxy.

#### O. GROOVED

- 1. Grooved couplings shall be Victaulic style 31 for ductile iron pipe, or equal. Couplings for steel or galvanized pipe shall be Victaulic style 07 for rigid systems or Victaulic style 77 for flexible systems. Grooved dimensions shall be per manufacturer's standards.
- P. FLANGES
  - 1. ANSI A21.15/AWWA C115, threaded, 250 psi working pressure, 125-pound ANSI drilling.
- Q. BOLTS
  - 1. To be ASTM A 307, Grade A hex head bolts and nuts for Class 125 FF Flanges. Required Coatings:

a.	Flanged Fittings Inside Building	316 Stainless Steel Nuts & Bolts
b.	Flanged Fittings Outdoor Exposed	316 Stainless Steel Nuts & Bolts
c.	Flanged Fittings Buried Underground	Manufacturer's Standard
d.	Flanged Fittings in Contact W/ Sewage	316 Stainless Steel Nuts & Bolts
e.	Buried T-Head	Cor-Ten Material
f.	For Mechanical and Grooved Joints	

Manufacturer's Standard, or provide bolt & nut material as described above, as a minimum requirement.

g. Or provide as noted on plans.

# R. GASKETS

- 1. Gaskets for mechanical or push-on joints shall be rubber conforming to ANSI A21.11, AWWA C111.
- 2. All gaskets for ductile iron air piping shall be EPDM (Ethylene Propylene-Diene Monomer) material.
- 3. Gaskets for flanged joints in sewage or water service shall be 1/8 inch thick, SBR rubber conforming to applicable parts of ANSI B16.21 and AWWA C207. Gasket material shall be free from corrosive alkali or acid ingredients. Gaskets shall be one-piece, full-face, with holes to pass bolts. Gaskets for grooved joints shall be Flushseal type, halogenated butyle or nitrile depending on service.
- 4. Gaskets for PVC joints shall be elastomeric seals conforming to ASTM F477.
- S. LUBRICANT
  - 1. Lubricant for mechanical joint end piping shall be manufacturer's standard.
- T. RESTRAINED JOINT PIPE
  - 1. Joints for buried pressure pipe may be "restrained type". However, the use of restrained joints in lieu of thrust blocks will be acceptable only if the pipe configuration, soil conditions, and restrained length are suitable in the opinion of the Engineer.
- U. PIPE SUPPORTS

- 1. Stainless steel adjustable saddle supports with <sup>1</sup>/<sub>4</sub>" neoprene cushion under piping. Standon Model S92 Saddle Supports as supplied by Material Resources (503) 693-0727, or approved equal.
- V. SERVICE SADDLES
  - 1. Ford Iron Service Saddles, Style FC202 with stainless steel bands and epoxy coating and <sup>1</sup>/<sub>4</sub>" neoprene cushion, or approved equal.

# W. INSULATION, SHIELDS, AND JACKETING

# 1. PIPE INSULATION

All above grade pipe which transports wastewater shall be insulated with closed cell polyisocyanurate cellular plastic manufactured by ITW Insulation Systems. Insulation shall be Trymer 2000 XP, 1.25" thick (minimum), designed for cold pipe fitting systems, installed per manufacturers recommendation. Minimum temperature range: -100 degree F to +220 degrees F. K factor at 75 degrees Fahrenheit shall not be more that 0.19 BTU-inch/hour-square feet degrees Fahrenheit. Fire rating flame spread of 25 or less. Joints shall be sealed with manufacturer's recommended contact adhesive to form continuous barrier. Density min 2-lb/ft3.

# 2. PIPE SHIELDS

All above grade pipe shall have 6" long pipe shields, 1.25 inches thick, at all supports and clamps. Pipe shields shall be Trymer 4000 with a min. 4-lb/ft3 density. Pipe shields shall be installed per manufacturers recommendations. Joints shall be sealed with manufacturer's recommended contact adhesive to form a continuous barrier.

#### 3. PIPE INSULATION JACKETING

Insulation jacketing shall be installed over all exposed insulation and pipe shields to provide complete jacketing for all insulated piping and to provide durability. Jacketing shall be smooth finished aluminum; 0.016-inch (26 gauge) minimum thickness. Overlap circumferential joints 4 inches minimum; overlap longitudinal joints 1-inch minimum; longitudinal joints shall be oriented to minimize water entry. Bands shall be 0.5 inch wide, 0.0508 inch (16 gauge) thick aluminum or 0.0179 inch thick Type 304 stainless steel and shall be installed on 18 inch centers, uniformly spaced and at all fitting joints. Apply waterproof adhesive at joints and overlaps. All fittings shall be of the same jacketing material. Insulation jacketing shall be manufactured by ITW Insulation Systems or approved equal.

# PART 3. EXECUTION

# 3.01 INSTALLATION

- A. HANDLING PIPE
  - 1. Handle per manufacturer's recommendations. Take care not to damage lining when handling pipe.

#### B. CUTTING PIPE

1. Cut pipe with milling type cutter, rolling pipe cutter, or abrasive saw cutter. Do not flame cut. Do not damage linings. Cuts shall leave a smooth end at right angles to the pipe axis.

# C. DRESSING CUT ENDS

- 1. Dress cut ends of pipe in accordance with the type of joint to be made. Dress cut ends of mechanical joint pipe to remove sharp edges or projections which may damage the rubber gasket.
- 2. Dress cut end of push-on joint pipe by beveling, as recommended by the pipe manufacturer.
- 3. Dress cut ends of pipe for flexible couplings and flanged coupling adapters as recommended by the coupling or adapter manufacturer.

# D. FABRICATION OF FLANGED PIPE AND FITTINGS

1. Flanged pipe and fittings shall be fabricated in the shop, not in the field, and delivered to the job site with flanges in place and properly faced. Threaded flanges shall be individually fitted and machine tightened on the threaded pipe by the manufacturer. Flanges shall be faced after fabrication in accordance with AWWA C115.

# E. JOINTING PIPE

- 1. FLANGED
  - a. Prior to connecting flanged pipe, the faces of the flanges shall be thoroughly cleaned of all oil, grease, and foreign material. The rubber gaskets shall be checked for proper fit and thoroughly cleaned. Care shall be taken to assure proper seating of the flange gasket. Bolts shall be tightened so that the pressure on the gasket is uniform. Torque-limiting wrenches shall be used to ensure uniform bearing insofar as possible. If joints leak when the hydrostatic test is applied, the gaskets shall be removed and reset and bolts retightened.
- 2. MECHANICAL, GROOVED, AND PUSH-ON JOINT
  - a. Join pipe with mechanical or push-on type joints in accordance with the manufacturer's recommendations. Tools and devices, such as special jacks, chokers, and similar items required for proper installation. Grooved systems may employ Victaulic field grooving tools, including cut and/or roll groovers as needed. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted under any circumstances.

# F. SPECIAL REQUIREMENTS FOR WATER LINES NEAR SEWER LINES

1. Construction requirements for water and sewer lines near sewer line either running adjacent to or crossing shall be in accordance with all requirements as specified in Washington State Department of Ecology, Criteria for Sewage Works Design, C1-9 Special Requirements.

# 3.02 TESTING

A. See 33 30 00 Piping Systems.

# \*\*\*END OF SECTION\*\*\*





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  | QUENCY   | 63 H   | z 125  | 5 Hz 2  | 250 Hz   | 500 Hz  | 1 kHz 2 kl   
  | Hz 4 kHz                                     |
| [8] MER   | Y <u>E (FPM) MANU</u><br>V8 250 D   | AIKIN DPS0   | EL NOTES<br>10A [7], [13], [   | [1]<br>[8] S<br>[9] N<br>[10]<br>[11]  
   | SEE SOUND POW<br>NUMBER OF COM<br>PROVIDE WITH D<br>AS REQUIRED B  | ER DETAIL<br>IPLETE CIR<br>DWYER SEF<br>Y TABLE C4    | L THIS SHEE<br>RCUITS, EAC<br>RIES 200 M/<br>2403.2.3(2) O   | ET.<br>CH SERVED BY<br>AGNAHELIC PI<br>OF 2015 WSEC   | Y DEDICATED COMP<br>RESSURE GAUGE C   
  | Pressor<br>Dr Equal - Ins  
   
  | STALL ON F  | ILTER SECT  | FION.  |   
   |   
   | DISC<br>RAI   
  | NLET<br>CHARGE<br>DIATED   | 78<br>78<br>85   | 8<br>8<br>8  | 82<br>82<br>85  | 78<br>78<br>81   | 81<br>81<br>78  | 77         74           77         74           76         71  
  | 4 70<br>4 70<br>1 64                         |
|   |   |  |  | [12]<br>[13]   
   | COP AT 47°F/43°<br>PROVIDE WITH S  | F WB AND  | ) 17°F DB / 1<br>JCT DETECT  | 15°F WB<br>FOR THAT IS FA   | ACTORY WIRED TO   
  | SHUT DOWN  
   
  | THE FAN U   | PON SENSIN  | NG SMOKE   |   
   |   
   |   
  |  |  |  |   |  |   |  
  |  |
|   |   |  |  |  
   | AIR CONDITIONE   | R UNIT SC   | CHEDULE  |   |   
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   |   
  |  |  | UN   |   | ER SCHEI   | DULE  |  
  |  |
| CAL   | LLOUT   |  |  |  
   |  |   |  | COOLING [1  | ]   
  |  
   
  | BASIS OF  | DESIGN  |  | 1 [   
   | CALLOUT   
   |   
  |  |  |  | FA  | AN   |   | BASIS OF DES   
  | SIGN   |
| TYPE<br>AC  | MARK  | LOCATION<br>OUTSIDE  | AREA<br>SERVED COM   | UNIT<br>FIGURATION   
   | MIN U<br>EFFICIENCY E<br>"SEER" [4]<br>13  | INIT RATED<br>FFICIENCY<br>"SEER"<br>18               | D NOMIN<br>Y CAPAC<br>(TONS)<br>2  | NAL<br>CITY TOTAL<br>(1)[2] (1<br>2   | L COOLING<br>BTUH) (BT<br>21,200 15,  
  | SIBLE<br>DLING<br>TUH) MAN   
   
  | UFACTURE<br>DAIKIN  | R MODE<br>RK24NN  | EL NOTES   | <u> </u>  
   | TYPE MARK   
   | LOCATI<br>UV BUILD<br>RESTRO  
  | ON S   | SERVICE<br>CHANICA<br>RM   | <b>CFM</b><br>L 75   | CAPACIT<br>(KW)<br>0.75   | 1 NO. ST<br>CONT   | ROL MAN   | UFACTURER<br>G ELECTRIC  
  | MODEL PIC-A-WATT F                           |
| FC<br>SCHEDULE NO   | TES:  | IT ROOM  | IT ROOM WA   | L-MOUNTED  
   | 13   | 18  | 2  | 2   | 21,200 15,  
  | ,760   
   
  | DAIKIN  | FTK24N  | MVJU [3]   |   
   |   
   |   
  |  |  |  |   |  |   |  
  |  |
| [1] AT 95 DEG F<br>[2] NOMINAL TO<br>[3] NO ECONOF<br>[4] AS REQUIRI  | F OUTDOOR AIR DRY B<br>ONNAGE INCLUDED FC<br>MIZER REQUIRED PER<br>ED BY TABLE C403.2.3(  | ULB TEMPERATUR<br>R REFERENCE OI<br>2015 WSEC SECT<br>I)A OF 2015 WSEC   | RE<br>NLY - DO NOT US<br>ON C403.3 EXCEI<br>;  | E FOR FINAL S<br>PTION 10  
   | Sizing of Equiph   | MENT  |  |   |   
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   | HEAT PUMP U  | NIT SCHED   | DULE   |   |   
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  |   |   |  | 5   
   | CALLOUT   
   |   
  | DI   | MENSION  | s l  |   |  |   | BASIS  
  | OF DESIGN                                    |
| CALLOUT   | T   | AREA<br>SERVED   | UNIT<br>CONFIGURAT   | MIN<br>EFFICIEN<br>ON "HSPF"   
   | NCY<br>[4] CFM   | DOOR FAN<br>UNIT<br>EFFI<br>"HS                       | n<br>T Rated<br>Iciency<br>SPF" [5]  | H<br>RATED<br>CAPACITY<br>(BTU/HR) [1]  | IEATING<br>HEATING<br>CAPACITY<br>] (BTUH) [3]  
  | MANUFAC  
   
  | ASIS OF DE  | MODEL   | NOTES  | ξ<br>T  
   | PE MARK I   
   | OCATION   
  | WIDTH<br>(IN)  | DEPTH<br>(IN)  | HEIGHT<br>(IN)   | EXHAUST<br>FLOW<br>(CFM)  | FACE<br>VELOCITY<br>@ 18"<br>OPEN (FPI   | (PRESSUF<br>DROP<br>(I) (IN H20   |  
  | URER MODEL                                   |
| FC  | 2 UV ROOM<br>3 SHOP   | UV ROOM<br>SHOP  | WALL-MOUNT   | ED 8.2   
   | 438  | 1   | 12.5   | 12,000  | 11,900  
  | DAIKI  
   
  | IN F  | TXS12LV.ILL   | [2]  |   
   | H 1   
   |   
  | 48   | 35   | 54 1/4   | 600   | 100  | 0.20  | LOC SCIEN  
  | TIFIC HP-604                                 |
| HP  | 2 OUTSIDE   |  | WALL-WOUNT   | 8.2  
   | 400  | 1   | 12.5   | 24,000  | 11,900<br>23,800  
  | DAIKI  
   
  | IN F<br>IN 4M   | TXS12LVJU<br>XSL24RMVJ  | [2]<br>IU [2]  |   
   |   
   | BUILDING  
  | 10   |  | ••••   |   | 100  | 0.20  |  
  |  |
| SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W  | 2 OUTSIDE<br>DTES:<br>APACITY INCLUDED FC<br>: LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN   | R REFERENCE O<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T   | VIALL-MODINT<br>NLY - DO NOT US<br>D ECONOMIZER R  | E FOR FINAL S<br>EQUIRED.  
   | N DOWN TO -4F (F   | MENT<br>PART # KP\                                    | 12.5<br>12.5<br>PW063A4)   | 24,000  | 11,900<br>23,800  
  |  
   
  | IN F<br>IN 4M   | rXS12LVJU<br>XSL24RMVJ  | [2]<br>IU [2]  |   
   | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH   
   | EAB<br>BUILDING<br>I CEILING EI<br>I AIRFLOW I<br>1,3"X6" CUP   
  |  | E PANELS<br>AND ALA<br>FAUCET  |  |   |  |   |  
  |  |
| CALCAL<br>CALCAL  | 2 OUTSIDE<br>DTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT  | R REFERENCE OI<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T  | VALL-MODINT  | E FOR FINAL S<br>E FOR FINAL S<br>EQUIRED.   
   | SIZING OF EQUIP  | MENT<br>PART # KP                                     | 12.5<br>12.5<br>PW063A4)   | 24,000  | 11,900<br>  23,800  
  | DAIKI<br>DAIKI<br>EXHAUST FAI  
   
  | IN F<br>IN 4M<br>N SCHEDUL<br>FAN   | E   | [2]<br> U [2]  |   
   | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH   
   | LAD<br>BUILDING<br>S:<br>I CEILING EI<br>I AIRFLOW I<br>13"X6" CUP  
  |  | E PANELS<br>AND ALAI<br>FAUCET   |  |   |  |   |  
  |  |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W  | 2 OUTSIDE<br>TTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT  | R REFERENCE OI<br>3 MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T  | VALL-WOONT US<br>NLY - DO NOT US<br>D ECONOMIZER R<br>O ALLOW COOLIN   | ED 0.2<br>8.2<br>E FOR FINAL S<br>EQUIRED.   
   | N DOWN TO -4F (F   | MENT<br>PART # KP\                                    | PW063A4)   | 24,000  | 11,900<br>23,800<br>STATIC PRE  
  | EXHAUST FAI  
   
  | IN F<br>IN 4M<br>N SCHEDUL<br>FAN<br>P SPEED  | E   | [2]<br>U [2]   |   
   | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH   
   | LAD<br>SUILDING<br>S:<br>CEILING EI<br>I AIRFLOW I<br>13"X6" CUP<br>MA  
  |  | E PANELS   |  |   |  |   |  
  |  |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>(4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>TYPE<br>EF   | 2 OUTSIDE<br>DTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN   | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC  | VALL-WOUNT<br>NLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY   | E FOR FINAL S<br>EQUIRED.  
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD   | MENT  | 2.5<br>12.5<br>2W063A4)<br>CFM<br>600  | 12,000<br>24,000<br>DRIVE TYF   | 11,900           23,800           PE           (IN WC)           0.70   
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           N SCHEDUL         FAN           FAN         PSPEED           (FPM)         4,789  | E<br>RPM<br>1,741   | [2]<br>IU [2]<br>RPM<br>1,725  | <u>SCi</u><br>[1] F<br>[2] F<br>[3] F<br>[3] F  
   | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>TOR<br>TOR<br>IP B<br>25 0   
   | LID<br>BUILDING<br>S:<br>I CELLING EI<br>I AIRFLOW I<br>I 3"X6" CUP<br>I 3"X6" CUP  
  | NCLOSUR<br>NONITOR J<br>SINK AND<br>X SOUND<br>LEVEL<br>SONES)<br>10.1   | E PANEL:<br>AND ALA<br>FAUCET<br>MAN<br>GRE  | BA<br>UFACTURI<br>ENHECK F,  |   | SIGN<br>MODEL<br>USF-308-  |   | NOT<br>[4].  
  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAU<br>TYPE<br>EF<br>EF<br>EF   | 2 OUTSIDE<br>DTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT<br>MARK<br>1<br>2<br>3   | R REFERENCE OI<br>G MODE ONLY. NO<br>O OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>WALL  | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEFWALI   | IG OPERATION   
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BI OWFR  | PART # KP   | 20063A4)   | DRIVE TYF<br>ECM<br>ECM   | PE STATIC PRE<br>(IN WC)<br>0.70<br>0.30<br>0.25  
  | EXHAUST FAI  
   
  | IN F<br>IN 4M.<br>N SCHEDUL<br>FAN<br>P SPEED<br>(FPM)<br>4.789<br>3.234<br>7.520   | E<br>1,741<br>8<br>RPM<br>1,741<br>941<br>1596  | [2]           IU         [2]           NU         [2]           RPM           1,725           1,725           1,725           1,725  | MO<br>MO<br>0.<br>0.  
   | TOR<br>IP<br>TOR<br>IP<br>150<br>150<br>150<br>150<br>150<br>150<br>150<br>150  
   | LILDING<br>S:<br>I CEILING EI<br>ARFLOW /<br>I 37X6° CUP<br>I 37X6° CUP<br>MA<br>HP (1<br>18<br>08<br>66  
  | NCLOSURI<br>VIONITOR /<br>SINK AND<br>X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8  | E PANELS<br>AND ALAI<br>FAUCET<br>MAIN<br>GRE<br>GRE   | BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,  |   | SIGN<br>WODE:<br>SQ-120-3<br>SE-1-1842<br>SE-1-1842  | L<br>H1<br>HG<br>9.VG   | NOT<br>[4].  
  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAU<br>CAU<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF  | 2 OUTSIDE<br>TTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT<br>MARK<br>1<br>2<br>3<br>4  | R REFERENCE OI<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL  | VALL-WOUNT<br>NLY - DO NOT US<br>DECONOMIZER R<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL  | E FOR FINAL S<br>E FOR FINAL S<br>EQUIRED.   
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER   | PART # KP   | 12.5<br>12.5<br>W063A4)<br>CFM<br>600<br>770<br>3,000<br>3,000   | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM   | PE STATIC PRE<br>(IN WC)<br>0.70<br>0.23,800  
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4,789           3,234         7,520           7,520         7,520   | E<br>1,596<br>1,596<br>1,596  | [2]           IU         [2]           NU         [2]           III         [2]  | MO<br>MO<br>0.<br>0.<br>0.  
   | TOR<br>IP<br>TOR<br>IP<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10  
   | MA           HP         (;           18         08           66         66  
  | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>16.8  | E PANELS<br>AND ALAI<br>FAUCET<br>MAIN<br>GRE<br>GRE<br>GRE<br>GRE   | BA<br>MODEL<br>MODEL<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,   |   | SIGN<br>MODEI<br>USF-308<br>SQ-120-1<br>SE-1-18-42<br>SE-1-18-42   | L<br>B1<br>/G<br>9-VG<br>9-VG   | NOT<br>[4], [6]<br>[5], [6]<br>[5], [6]  
  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C.<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF   | 2 OUTSIDE<br>TTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT<br>MARK<br>1<br>2<br>3<br>4<br>5<br>6  | R REFERENCE OI<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>ROOF<br>ROOF  | FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>CENTRIFUGA  | E FOR FINAL S<br>EQUIRED.  
   | SIZING OF EQUIPM<br>N DOWN TO -4F (f<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP  | MENT<br>PART # KP                                     | 2.00<br>2.000<br>2.000<br>2.000  | DRIVE TYP<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM  | PE STATIC PRE<br>(IN WC)<br>0.30<br>0.25<br>0.25<br>0.25<br>0.25  
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           N         SCHEDUL           FAN         P           P SPEED         (FPM)           4.789         3.234           7.520         7.520           4.719         4.719   | E<br>RPM<br>1,741<br>941<br>1,596<br>1,596<br>1,233<br>1 233  | [2]<br>IU [2]<br>■<br>RPM<br>1,725<br>1,725<br>1,725<br>1,725<br>1,725<br>1,725<br>1,725<br>1,300<br>1,300   | MO<br>MO<br>0.<br>0.<br>0.  
   | HEDULE NOTE           PROVIDE WITH           PROVIDE WITH           PROVIDE WITH           PROVIDE WITH           PROVIDE WITH           PROVIDE WITH           POVIDE WITH           P   
   | MA           MA           HP           (c)           13"X6" CUP           HP           (c)           18           08           66           66           66           39           30   
  | NCLOSUR<br>WONITOR ,<br>SINK AND<br>X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>16.8<br>11.5  | E PANEL:<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE                                | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,   | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | SIGN<br>MODEI<br>USF-308<br>SQ-120-1<br>SE-1-18-42<br>SE-1-18-42<br>G-143-V<br>G-143-V   | B1 //G 9.V/G 9.V/G 1/G 1/G 1/G 1/G 1/G 1/G 1/G 1/G 1/G 1  | NOT<br>[4], [6], [6]<br>[5], [6]<br>[2], [7]  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF   | 2 OUTSIDE<br>DTES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT<br>MARK<br>1<br>2<br>3<br>4<br>5<br>6<br>7   | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>ROOF<br>ROOF<br>CEILING   | VALL-WOUNT<br>VLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CEILING FAN  | IG OPERATION   
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>SHOP<br>STHROOM SHOP  | PART # KP   | 20063A4)  CFM 600 770 3,000 2,000 2,000 80   | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM  | PE STATIC PRE<br>(IN WC)<br>0.70<br>0.30<br>0.25<br>0.25<br>0.25<br>0.25<br>0.25<br>0.25  
  | EXHAUST FAI  
   
  | IN F<br>IN 4M.<br>N SCHEDUL<br>FAN P SPEED<br>(PPM)<br>4.789<br>3.234<br>7.520<br>7.520<br>4.719<br>4.719<br>-  | E<br>RPM<br>1,741<br>941<br>1,596<br>1,233<br>1,233<br>628  | [2]           IU         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,300           1,300         -  | MO'<br>MO'<br>H<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.   
   | Image: Non-State         Image: Non-State           HEDULE NOTE         PROVIDE WITH           PROVIDE WITH         PROVIDE WITH           150         0           75         0           75         0           75         0           75         0           75         0           75         0           75         0           75         0           75         0   
   | MA           MA           HP           (12           MA           HP           (13           18           08           66           66           63           39           39   
  | x SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>11.5<br>11.5<br>11.5<br>0.5   | E PANELS<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE           | BA<br>S<br>RM MODEL<br>MODEL<br>BA<br>BA<br>BA<br>BA<br>BA<br>BA<br>BA<br>BA<br>BA<br>BA   | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | MODEI           USF-308           SG-120-1           SE-1-18-42           SE-1-18-42           G-143-V           G-143-V           SP-B90  | L<br>B1<br>VG<br>9-VG<br>9-VG<br>G<br>G<br>G<br>O   | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [<br>[2], [  
  | ES<br>5]<br>. [7]<br>. [7]<br>. [8]<br>. [8] |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[4] SPARK B CC<br>[5] COATED WI<br>[6] PROVIDE W  | 2 OUTSIDE<br>2 OUTSIDE<br>2 TES:<br>APACITY INCLUDED FC<br>1 COCKED INTO HEATIN<br>3 ED BY TABLE C403.2.3<br>3 (TH FIELD SETTING AN<br>4<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>)<br>TES:<br>2<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5  | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>REFHOOD, WALL-   | VALL-MOUNT<br>NLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CEILING FAN<br>BACKDRAFT DAM<br>HOUSING, BIRD S  | ED 0.2<br>8.2<br>E FOR FINAL S<br>EQUIRED.<br>IG OPERATION   
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>SHOP<br>STUATOR AND BIR<br>CTUATOR AND BIR<br>GRAVITY BACKDF                                    | MENT<br>PART # KPV                                    | 2:00<br>12:5<br>12:5<br>2W063A4)<br>600<br>770<br>3,000<br>2,000<br>2,000<br>2,000<br>2,000<br>80<br>N<br>[7] [<br>8] F<br>PER   | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM   | 11,900           23,800           23,800           STATIC PRE<br>(IN WC)           0.70           0.30           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.10           ATIC PRESSURE SI           ATIC PRESSURE SI           ATIC PRESSURE SI  
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           N         4M.           FAN         P           FAN         P           9         520           7,520         7,520           4,719         -           -         NOT INCLUE           NOT INCLUE         CHEDULE   | E<br>RPM<br>1,741<br>941<br>1,596<br>1,233<br>1,233<br>628<br>E PRESSUR<br>E PRESSUR  | [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,730           1,300         -           RE DROP THRC         RE DROP THRC   | SCH           [1] [           [2] F           [3] F           [3] F           [3] F           0.   
   | HEDULE NOTE           PROVIDE WITH           PROVIDE WITH <td>MA           ICEILING           ICEILING EI           ICEILING EI           AIRFLOW I           Jarxén CUP           MA           HP           (1           18           08           66           66           39           39           ATTS</td> <td>X         SOUND           LEVEL         SONES)           10.1         4           16.8         11.5           11.5         0.5</td> <td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,</td> <td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td>
<td>350<br/>351GN<br/>351GN<br/>351GN<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511842<br/>3511</td> <td>L</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[2], [<br/>[2], [<br/>[2], [</td> <td>ES<br/>[5]<br/>[7]<br/>[7]<br/>[8]<br/>8]<br/></td>  | MA           ICEILING           ICEILING EI           ICEILING EI           AIRFLOW I           Jarxén CUP           MA           HP           (1           18           08           66           66           39           39           ATTS   
   | X         SOUND           LEVEL         SONES)           10.1         4           16.8         11.5           11.5         0.5   | E PANELS<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,  | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | 350<br>351GN<br>351GN<br>351GN<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511842<br>3511 | L   | NOT<br>[4], [<br>[5], [6]<br>[2], [<br>[2], [<br>[2], [   
   | ES<br>[5]<br>[7]<br>[7]<br>[8]<br>8]<br>     |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAU<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[2] SCHEDULE NO<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[4] SPARK B CC<br>[5] COATED WI<br>[6] PROVIDE W  | 2 OUTSIDE<br>2 OUTSIDE<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>LLOUT<br>MARK<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>DTES:<br>ESSURE EXTERNAL TO<br>ITH ROOF CURB CLAS<br>PER AMCA 205<br>ONSTRUCTION<br>ITH HI-PRO POLYESTEF<br>ITH 45 DEGREE WEATI  | R REFERENCE OI<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T<br>UNIND BAFFLE T<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>5 1A MOTORIZED<br>REF HOOD, WALL-  | VALL-WOUNT<br>VLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CEILING FAN<br>BACKDRAFT DAW<br>HOUSING, BIRD S   | ED 0.2<br>8.2<br>E FOR FINAL S<br>EQUIRED.<br>IG OPERATION   
   | SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>UV ROOM<br>SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF  | MENT<br>PART # KPV                                    | 200063A4)  200063A4)  CFM 600 770 3,000 2,000 2,000 2,000 80  N [8] E PER  NOMINAL   | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM   | 11,900           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.26           0.27           0.28           0.29           0.20           0.210 </td <td>EXHAUST FAI</td> <td>IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4,789           3,234         7,520           7,520         4,719           -         IN           NOT INCLUD         INCLUD           CHEDULE         N)</td> <td>E<br/>RPM<br/>1,741<br/>1,596<br/>1,233<br/>1,233<br/>628<br/>E PRESSUR<br/>E PRESSUR</td> <td>[2]           IU         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,300           -         -           RE DROP THRC         -</td> <td>MO<br/>SCH<br/>[1] [<br/>[2] F<br/>[3] [<br/>]<br/>MO<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.<br/>0.</td> <td>Image: constraint of the state of</td> <td>MA           S:           CEILING EI           AIRFLOW I           J3"X6" CUP           IARFLOW I           J3"X6" CUP           IARFLOW I           IARFLO</td> <td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>10.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,</td> <td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td>
<td>SIGN<br/>MODEI<br/>USF-308<br/>SQ-120-1<br/>SE-1-18-42<br/>SE-1-18-42<br/>G-143-V<br/>G-143-V<br/>G-143-V<br/>SP-B90<br/>BAS</td> <td>L</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[2], [2],<br/>[2], [2],<br/>[2], [2], [2], [2], [2], [2], [2], [2],</td> <td>ES</td>  | EXHAUST FAI   
   
   | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4,789           3,234         7,520           7,520         4,719           -         IN           NOT INCLUD         INCLUD           CHEDULE         N)  | E<br>RPM<br>1,741<br>1,596<br>1,233<br>1,233<br>628<br>E PRESSUR<br>E PRESSUR   | [2]           IU         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,300           -         -           RE DROP THRC         -   | MO<br>SCH<br>[1] [<br>[2] F<br>[3] [<br>]<br>MO<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.  
  | Image: constraint of the state of  | MA           S:           CEILING EI           AIRFLOW I           J3"X6" CUP           IARFLOW I           J3"X6" CUP           IARFLOW I           IARFLO   
  | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>10.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,  | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | SIGN<br>MODEI<br>USF-308<br>SQ-120-1<br>SE-1-18-42<br>SE-1-18-42<br>G-143-V<br>G-143-V<br>G-143-V<br>SP-B90<br>BAS  
  | L   | NOT<br>[4], [<br>[5], [6]<br>[2], [2],<br>[2], [2],<br>[2], [2], [2], [2], [2], [2], [2], [2],  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>(4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>FF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF   | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 3 2 2 3 2 4 2 3 4 2 3 4 5 6 2 3 4 5 6 7 2 2 3 4 5 6 6 7 2 2 3 2 4 5 6 6 7 2 2 3 2 3 4 5 6 6 7 2 3 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5   | R REFERENCE OI<br>G MODE ONLY. NO<br>2) OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>ROOF<br>ROOF<br>CEILING<br>FAN.<br>5 TA MOTORIZED<br>RE HOOD, WALL-   | VALL-WOUNT<br>NLY - DO NOT US<br>DECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI   | E FOR FINAL S<br>EQUIRED.<br>IG OPERATION  
   | SERVICE<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>CTUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM   | MENT<br>PART # KPV                                    | 20063A4) 20063A4) 20063A4) 2000 2000 2,000 2,000 80 PER PER NOMINAL  | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM   | 11,900           23,800           PE           (IN WC)           0.70           0.30           0.25           0.10           ATIC PRESSURE SH           ATIC PRESSURE SH           ATIC PRESSURE SH           DIAMETER [1]  
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4.789           3.234         7.520           7.520         4.719           -         IN           NOT INCLUE         NOT INCLUE           OT INCLUE         INCLUE           NOT INCLUE         INCLUE           NOT INCLUE         INCLUE           NOT INCLUE         INCLUE           INGULAR         WIDTH  | E<br>RPM<br>1,741<br>1,596<br>1,233<br>1,233<br>1,233<br>628<br>E PRESSUR<br>E PRESSUR<br>MAX NC  | [2]           U         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,300         -           RE DROP THRC         -           RE DROP THRC         -           MAX TSP DR         (IN.W.G.)  | SCH           [1] [           [3] [           MO           0.0   
   | HEDULE NOTE           PROVIDE WITH           PROVIDE WITH <td>MAD           S:           ICEILING EI           AIRFLOW I           J3"X6" CUP           IARFLOW I           IAR</td> <td>NCLOSUR<br/>WONITOR /<br/>SINK AND<br/>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>10.5<br/>11.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,</td> <td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td> <td>Image: Sign           Image: Sign           Image: Sign           Image: Sign           SE-1:18:42           G-143:-V           G-143:-V           SP-B90           BAS           ANUFACTURE</td> <td></td> <td>NOT<br/>[4],<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [<br/>[2], [<br/>[2], [<br/>]<br/>DDEL</td> <td>ES</td>  
  | MAD           S:           ICEILING EI           AIRFLOW I           J3"X6" CUP           IARFLOW I           IAR  | NCLOSUR<br>WONITOR /<br>SINK AND<br>X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>10.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAI<br>FAUCET<br>MAAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE   | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,   
  | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | Image: Sign           Image: Sign           Image: Sign           Image: Sign           SE-1:18:42           G-143:-V           G-143:-V           SP-B90           BAS           ANUFACTURE   |   | NOT<br>[4],<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [<br>[2], [<br>[2], [<br>]<br>DDEL  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CALL<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF  | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 2 3 2 2 2 2 2 2 2 2   | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>S 1A MOTORIZED<br>S 1A MOTORIZED<br>S 1A MOTORIZED   | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI  | ED 0.2<br>8.2<br>FOR FINAL S<br>EQUIRED.<br>IG OPERATION   
   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>THROOM SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126           | MENT<br>PART # KPV                                    | 2.3<br>12.5<br>12.5<br>20063A4)<br>2000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,000<br>2,00   | DRIVE TYP<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>EXTERNAL ST,<br>EXTERNAL ST | 11,900           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.10           ATIC PRESSURE SI           ATIC PRESSURE SI           DIAMETER [1]           8"   
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         PSPEED           (FPM)         4.789           3.234         7.520           4.719         -           -         INOT INCLUE           NOT INCLUE         CHEDULE           NO         INCLUAN           WIDTH         8"  | E   | [2]           IU         [2]           RPM         [1,725]           1,725         [1,725]           1,725         [1,726]           1,725         [1,726]           1,725         [1,726]           1,725         [1,726]           1,7300         -           RE DROP THRC         [1,300]           RE DROP THRC         [1,300]           MAX TSP DR<br>(IN.W.G.)         [1,00]           0.04         [1,00]   | SCH           [1] [           [2] F           [3] F           MO'           H           0.  
   | HEDULE NOTE           PROVIDE WITH           PROVIDE WITH <td>ILDING<br/>S:<br/>ICEILING EI<br/>AIRFLOW I<br/>JATKE CUP<br/>AIRFLOW I<br/>JATKE CUP<br/>(13)<br/>AIRFLOW I<br/>JATKE CUP<br/>(13)<br/>COUSING ANI<br/>COUSING ANI<br/>CEL<br/>EL</td> <td>X         SOUND           X         SOUND           LEVEL         SONES)           10.1         4           16.8         11.5           11.5         0.5           D         WEATHE</td> <td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,</td> <td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td> <td>Image: Sign           Image: Sign           Image:</td> <td></td> <td>NOT<br/>[4].<br/>[5]. [6]<br/>[2]. [<br/>[2]. [<br/>[2]. ]<br/>[2].<br/>[2]. ]<br/>[2].</td> <td>ES</td>  | ILDING<br>S:<br>ICEILING EI<br>AIRFLOW I<br>JATKE CUP<br>AIRFLOW I<br>JATKE CUP<br>(13)<br>AIRFLOW I<br>JATKE CUP<br>(13)<br>COUSING ANI<br>COUSING ANI<br>CEL<br>EL   
   | X         SOUND           X         SOUND           LEVEL         SONES)           10.1         4           16.8         11.5           11.5         0.5           D         WEATHE  | E PANELS<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,  
                                  | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | Image: Sign           Image:   |   | NOT<br>[4].<br>[5]. [6]<br>[2]. [<br>[2]. [<br>[2]. ]<br>[2].<br>[2]. ]<br>[2].   | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CALL<br>TYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[] SCHEDULE NO<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[4] SPARK B CO<br>[5] COATED W<br>[6] PROVIDE W<br>[6] PROVIDE W<br>[6] PROVIDE W  | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 2 2 3 2 2 2 3 2   | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>RER HOOD, WALL-<br>INAL DESCRIPTIC<br>SQUARE CEILING<br>SQUARE CEILING  | VALL-WOUNT<br>VLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CEILING FAN<br>BACKDRAFT DAW<br>HOUSING, BIRD S<br>N<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER   | ED 0.2<br>8.2<br>FOR FINAL S<br>EQUIRED.<br>IG OPERATION<br>IG OPERATION | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>UV ROOM<br>BLOWER<br>UV ROOM<br>SHOP<br>THROOM SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226   | MENT # KPV  |
2.3<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>12.5<br>1 | DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM   | 11,900           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.10           ATIC PRESSURE SI           B           NECK D           DIAMETER [1]           8"           10"           12"  
  | EXHAUST FAI  
   
  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         PSPEED           (FPM)         4,789           3,234         7,520           7,520         7,520           4,719         -           -         NOT INCLUE           NOT INCLUE         INCLUAN           WIDTH         8"           10"         12"  | E<br>RPM<br>1,741<br>1,596<br>1,233<br>1,233<br>628<br>PE PRESSUR<br>PRESSUR<br>MAX NC<br>12<br>12<br>17<br>10  | [2]           IU         [2]           RPM         [1,725]           1,725         [1,725]           1,725         [1,725]           1,7300  | SCH           [1] [           [2] F           [3] [           MO'           H           0.  
   | HEDULE NOTE           PROVIDE WITH           PROVIDE WITH <td>ICELING ELE</td> <td>NCLOSURI           MONITOR /           SINK AND           X SOUND           LEVEL           SONES)           10.1           4           16.8           11.5           0.5           D WEATHE</td> <td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,</td> <td>L LOC1000  ASIS OF DE  ER  AN  AN  AN  AN  AN  AN  AN  AN  AN  A</td> <td>Image: Sign         MODEI           USF-308         SQ-120-3           SE-118-42         G-143-V           G-143-V         SP-B90           BAS         SAUFACTUR           TITUS         TITUS           TITUS         TITUS</td> <td>IS OF DESIGN</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td> <td>ES</td> | ICELING ELE   
  | NCLOSURI           MONITOR /           SINK AND           X SOUND           LEVEL           SONES)           10.1           4           16.8           11.5           0.5           D WEATHE   | E PANELS<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,   | L LOC1000  ASIS OF DE  ER  AN  AN  AN  AN  AN  AN  AN  AN  AN  A  | Image: Sign         MODEI           USF-308         SQ-120-3           SE-118-42         G-143-V           G-143-V         SP-B90           BAS         SAUFACTUR           TITUS         TITUS           TITUS         TITUS  | IS OF DESIGN  | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [], [<br>[2], [], [], [], [], [], [], [], [], [], [   | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CALL<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[5] COATED WI<br>[6] PROVIDE W<br>[6] PROVIDE W<br>[6] PROVIDE W   | 2 OUTSIDE<br>TES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>ITH ROOF CURB CLAS<br>PER ANCA 205<br>ONSTRUCTION<br>ITH ROOF CURB CLAS<br>PER ANCA 205<br>ONSTRUCTION<br>ITH HI-PRO POLYESTEFI<br>ITH 45 DEGREE WEATH<br>MODULAR CORE I<br>MODULAR CORE I<br>MODULAR CORE I<br>MODULAR CORE I  | R REFERENCE O<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>RER HOOD, WALL-<br>INAL DESCRIPTIC<br>SQUARE CEILING<br>SQUARE CEILING<br>SQUARE CEILING<br>SQUARE CEILING   | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CEILING FAN<br>BACKDRAFT DAM<br>HOUSING, BIRD S<br>IN<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER   | ED 0.2<br>8.2<br>FOR FINAL S<br>EQUIRED.<br>IG OPERATION<br>IG OPERA   | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>UV ROOM<br>SHOP<br>THROOM SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476          | MENT<br>PART # KPV                               
    | 12.5         12.5           2W063A4)         12.5           2.5         12.5           2.000         2.000           3.000         2.000           2.000         2.000           80         80           PER         16"           14"         16"           24"         24"   | 12,000           24,000           24,000           BRIVE TYF           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           EXTERNAL ST.           EXTERNAL ST.           L SIZE (IN)           WIDTH           14"           16"           24"           24"  | 11,900           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25 <td>EXHAUST FAI</td> <td>IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         PSPEED           (FPM)         4,789           3,234         7,520           7,520         7,520           4,719         -           -         INOT INCLUE           NOT INCLUE         INCLUE           CHEDULE         IN           NGULAR         WIDTH           8"         10"           12"         14"</td> <td>E</td> <td>[2]           IU         [2]           RPM         [2]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,726]           1,300            RE DROP THRC         [1,000]           EDROP THRC         [1,000]           0.04         [0,05]           0.05         [0,06]</td> <td>SCH           [1] [           [2] F           [3] [           MO'           H           0.</td> <td>Image: constraint of the second sec</td> <td>And Sector         Analysis           ICELING EI         AIRFLOW I           Jarx6" CUP         Jarx6" CUP           IAIRFLOW I         Jarx6" CUP           IBI         (f)           IBI         (f)<td>NCLOSURI           MONITOR /           SINK AND           X SOUND           LEVEL           SONES)           10.1           4           16.8           11.5           11.5           0.5           D WEATHE</td><td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td><td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHE</td><td>L LOC1000  ASIS OF DE  ER AN AN</td><td>Image: Sign         MODEI           USF-308         SQ-120-3           SE-118-42         SE-18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS           TITUS         TITUS</td><td>L L B1 VG 9-VG 9-VG 9-VG 0 15 OF DESIGN KER M( N N N N N N N N N N N N N N N N N N</td><td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td><td>ES</td></td> | EXHAUST FAI   
   
   | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         PSPEED           (FPM)         4,789           3,234         7,520           7,520         7,520           4,719         -           -         INOT INCLUE           NOT INCLUE         INCLUE           CHEDULE         IN           NGULAR         WIDTH           8"         10"           12"         14"  | E   | [2]           IU         [2]           RPM         [2]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,726]           1,300            RE DROP THRC         [1,000]           EDROP THRC         [1,000]           0.04         [0,05]           0.05         [0,06]  | SCH           [1] [           [2] F           [3] [           MO'           H           0.   
  | Image: constraint of the second sec  
  | And Sector         Analysis           ICELING EI         AIRFLOW I           Jarx6" CUP         Jarx6" CUP           IAIRFLOW I         Jarx6" CUP           IBI         (f)           IBI         (f) <td>NCLOSURI           MONITOR /           SINK AND           X SOUND           LEVEL           SONES)           10.1           4           16.8           11.5           11.5           0.5           D WEATHE</td> <td>E PANELS<br/>AND ALAI<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHE</td> <td>L LOC1000  ASIS OF DE  ER AN AN</td> <td>Image: Sign         MODEI           USF-308         SQ-120-3           SE-118-42         SE-18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS           TITUS         TITUS</td> <td>L L B1 VG 9-VG 9-VG 9-VG 0 15 OF DESIGN KER M( N N N N N N N N N N N N N N N N N N</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td> <td>ES</td> | NCLOSURI           MONITOR /           SINK AND           X SOUND           LEVEL           SONES)           10.1           4           16.8           11.5           11.5           0.5           D WEATHE                                | E PANELS<br>AND ALAI<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHE | L LOC1000  ASIS OF DE  ER AN  | Image: Sign         MODEI           USF-308         SQ-120-3           SE-118-42         SE-18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS           TITUS         TITUS  | L L B1 VG 9-VG 9-VG 9-VG 0 15 OF DESIGN KER M( N N N N N N N N N N N N N N N N N N                      | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [], [<br>[2], [], [], [], [], [], [], [], [], [], [ | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAU<br>FYPE<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[3] COATED WI<br>[6] PROVIDE W<br>[6] PROVIDE W<br>[6] PROVIDE W<br>[6] PROVIDE W   | 2 OUTSIDE<br>TES:<br>APACITY INCLUDED FC<br>LOCKED INTO HEATIN<br>B<br>ED BY TABLE C403.2.3(<br>ITH FIELD SETTING AN<br>ITH HI-PRO POLYESTER<br>ITH 45 DEGREE WEATI<br>MODULAR CORE IN<br>MODULAR CORE IN | R REFERENCE O<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WAL   | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER   | ED 0.2<br>8.2<br>E FOR FINAL S<br>EQUIRED.<br>IG OPERATION<br>IG OPERATI | SIZING OF EQUIPM<br>N DOWN TO -4F (F<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>226 | MENT<br>PART # KPV                                    | 12.5         12.5           2W063A4)         12.5           2,000         3,000           2,000         2,000           2,000         80           PER         181           LENGTH         14"           16"         24"           24"         24"  
   | 12,000           24,000           24,000           BRIVE TYF           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           EXTERNAL ST.           EXTERNAL ST.           EXTERNAL ST.           MIDTH           16"           24"           24"           24"           24"   | 11,900           23,800           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.10           12"           14"           10"   
  | DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           EXHAUST FAI           ESSURE         TIF           [1]         -           Image: Source of the second seco  
  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         9           9.234         7.520           7.520         7.520           4.719         -           -         100           NOT INCLUD         NOT INCLUD           CHEDULE         NIN           NGULAR         WIDTH           8"         10"           10"         12"           14"         10"  | E   | [2]           IU         [2]           RPM         [2]           1,725         [1,725]           1,725         [1,725]           1,725         [1,725]           1,725         [1,726]           1,300         -           RE DROP THRC         []           MAX TSP DR<br>(IN.W.G.)         []           0.04         0.05           0.05         0.06           0.05         0.05  | SCH           [1] [           [2] F           [3] [ <td>Image: constraint of the second sec</td> <td>MA           S:           I CELING EI           AIRFLOW I           Jarx6" CUP           MA           HP           (18           08           66           66           66           39           39           ATTS           OUSING ANI           EEL           EEL           EEL           EEL</td> <td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>11.5<br/>11.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>FAUCET<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHE</td> <td>L LOC1000  ASIS OF DE  ER AN AN</td> <td>BAS<br/>BAS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS</td> <td>IS OF DESIGN<br/>IS OF DESIGN<br/>RER MI<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [2], [2], [2], [2], [2], [2], [2],</td> <td>ES</td>   
  | Image: constraint of the second sec  
  | MA           S:           I CELING EI           AIRFLOW I           Jarx6" CUP           MA           HP           (18           08           66           66           66           39           39           ATTS           OUSING ANI           EEL           EEL           EEL           EEL   | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>11.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>FAUCET<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHE | L LOC1000  ASIS OF DE  ER AN  | BAS<br>BAS<br>TITUS<br>TITUS<br>TITUS<br>TITUS   
   | IS OF DESIGN<br>IS OF DESIGN<br>RER MI<br>N<br>N<br>N<br>N<br>N<br>N<br>N                               | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [2], [2], [2], [2], [2], [2], [2],  | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C,<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>[] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[3] COATED WI<br>[6] PROVIDE W<br>[6]    | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 2 3 2 2 2 2 2 2 2 2   | R REFERENCE OI<br>G MODE ONLY. NO<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>LOCATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>MER HOOD, WALL-<br>BANDON WALL-<br>MER HOOD, WALL-<br>SQUARE CEILING<br>SQUARE CEILING<br>S   | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>CENTRIFUGAN<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER  | ED 0.2<br>8.2<br>E FOR FINAL S<br>EQUIRED.<br>IG OPERATION<br>IG OPE   | SERVICE<br>FUME HOOD<br>IOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>THROOM SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>226<br>0                            | MENT<br>PART # KPV<br>PART # KPV<br>CEM<br>CEM<br>CEM | 12.5         12.5           2W063A4)         12.5           2000         3,000           2,000         2,000           2000         2,000           80         12.5           PER         14"           16"         24"           24"         24"           24"         24"           14"         14"  | 12,000           24,000           24,000           BRIVE TYF           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           EXTERNAL ST.           EXTERNAL ST.           EXTERNAL ST.           MIDTH           16"           24"           24"           24"           24"           24"           4"  
   | 11,900           23,800           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.10           ATIC PRESSURE SI           AIR           DIAMETER [1]           8"           10"           12"           14"           10"           10"   
  |  
  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         9           9.234         7.520           7.520         7.520           4.719         -           -         1000           NOT INCLUD         NOT INCLUD           CHEDULE         NO           NGULAR         WIDTH           8"         10"           12"         14"           10"         6"           10"         10"   | E   | Image: region of the system         RPM           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,300           EDROP THRC         RE           RE DROP THRC         0.005           0.04         0.05           0.05         0.06           0.05         0.05           0.05         0.05   | SCH           [1] [           [2] [           [3] [ <td>TOR<br/>IPPOVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>IPPOVIDE WITH<br/>IPPOVID</td> <td>ICELING EIL ICELIAGE ICELIAGE ICELIAGE ICELIAGE ICELIAGE ICELIEL ICEL ICEL ICEL ICEL ICEL ICEL</td> <td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>11.5<br/>11.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK F,<br/>ENHECK G,<br/>ENHECK F,<br/>ENHECK G,<br/>ENHECK G,<br/>ENHE</td> <td>L LOC1000           ASIS OF DE           ER           AN           AN</td> <td>BAS           BAS           BAS           ANUFACTUR           TITUS           TITUS</td> <td>IS OF DESIGN<br/>IS OF DESIGN<br/>IS OF DESIGN<br/>IS NA 100000000000000000000000000000000000</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [<br/>[2], [<br/>[2], [], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td> <td>ES</td>   
  | TOR<br>IPPOVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>IPPOVIDE WITH<br>IPPOVID  | ICELING EIL ICELIAGE ICELIAGE ICELIAGE ICELIAGE ICELIAGE ICELIEL ICEL ICEL ICEL ICEL ICEL ICEL   
   | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>11.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK F,<br>ENHECK G,<br>ENHECK F,<br>ENHECK G,<br>ENHECK G,<br>ENHE | L LOC1000           ASIS OF DE           ER           AN   | BAS           BAS           BAS           ANUFACTUR           TITUS  | IS OF DESIGN<br>IS OF DESIGN<br>IS OF DESIGN<br>IS NA 100000000000000000000000000000000000              | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [], [<br>[2], [<br>[2], [<br>[2], [], [<br>[2], [], [], [], [], [], [], [], [], [], [   | ES   |
| HP<br>SCHEDULE NO<br>[1] NOMINAL C<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>CHEDULE NO<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[3] COATED WI<br>[6] PROVIDE W<br>[6] PROVIDE      | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 3 2 2 2 2 2 2 2 2 2   | R REFERENCE OI<br>G MODE ONLY. NO<br>CONTROLOGICAL STREED<br>INTERPORTATION<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>CEILING<br>FAN.<br>A MOTORIZED<br>A MOTORIZED | VALL-WOUNT<br>VLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUS | Image: Control of the second  | SERVICE<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>226<br>0<br>101<br>401                  | MENT<br>PART # KPV                                    | 24" 24" 24 24 24 24 24 24 24 24 24 24 24 24 24   | 12,000<br>24,000<br>24,000<br>DRIVE TYF<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM   | 11,900           23,800           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.25           0.10           ATIC PRESSURE SI           ATIC PRESSURE SI           ATIC PRESSURE SI           DIAMETER [1]           8"           10"           10"           10"           0"   | DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           EXHAUST FAI           ESSURE         TIF           [1]         I           I <td>IN         F           IN         4M.           IN         4M.           NSCHEDUL         FAN           FAN         9           PSPEED         (FPM)           4.789         3.234           7.520         7.7520           4.719         -           -         100           NOT INCLUD         NOT INCLUD           CHEDULE         N)           NGULAR         WIDTH           8"         10"           12"         14"           10"         6"           12"         12"</td> <td>E</td> <td>[2]           U         [2]           U         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,726           1,720         1,720           1,725         1,725           1,720         1,300           1,300         1,300           0,00         1,000           0,000         0,000           0,04         0.05           0,05         0,06           0,05         0,06           0,06         0,07</td> <td>SCH           [1] f           [2] f           [3] f<td>TOR<br/>IPPOVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>IPPOVIDE WITH<br/>IPPOVID</td><td>IDEDING     S:     ICEILING EI     AIRFLOW I     J3"X6" CUP     J4"X6" CUP     J4"X6" CUP     J5"X6"     J5"X6"</td><td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>11.5<br/>11.5<br/>0.5<br/>D WEATHE</td><td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td><td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHE</td><td>L LOC1000           ASIS OF DE           ER           AN           AN  &lt;</td><td>MODEI           USF-308         SQ-120-3           SE-1-18-42         SE-1-18-42           SE-1-18-42         SE-14-32           G-143-V         G-143-V           SP-B90         SE-14-32           BAS         ANUFACTUR           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS</td><td>L B1 VG 9-VG 9-VG G G G O IS OF DESIGN IS OF DESIGN IS N N N N N N N N N N N N N N N N N N N</td><td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td><td>ES</td></td> | IN         F           IN         4M.           IN         4M.           NSCHEDUL         FAN           FAN         9           PSPEED         (FPM)           4.789         3.234           7.520         7.7520           4.719         -           -         100           NOT INCLUD         NOT INCLUD           CHEDULE         N)           NGULAR         WIDTH           8"         10"           12"         14"           10"         6"           12"         12"   | E   | [2]           U         [2]           U         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,726           1,720         1,720           1,725         1,725           1,720         1,300           1,300         1,300           0,00         1,000           0,000         0,000           0,04         0.05           0,05         0,06           0,05         0,06           0,06         0,07 | SCH           [1] f           [2] f           [3] f <td>TOR<br/>IPPOVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>IPPOVIDE WITH<br/>IPPOVID</td> <td>IDEDING     S:     ICEILING EI     AIRFLOW I     J3"X6" CUP     J4"X6" CUP     J4"X6" CUP     J5"X6"     J5"X6"</td> <td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>11.5<br/>11.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA<br/>BA<br/>UFACTURI<br/>ENHECK F,<br/>ENHECK F,<br/>ENHE</td> <td>L LOC1000           ASIS OF DE           ER           AN           AN  &lt;</td> <td>MODEI           USF-308         SQ-120-3           SE-1-18-42         SE-1-18-42           SE-1-18-42         SE-14-32           G-143-V         G-143-V           SP-B90         SE-14-32           BAS         ANUFACTUR           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS</td> <td>L B1 VG 9-VG 9-VG G G G O IS OF DESIGN IS OF DESIGN IS N N N N N N N N N N N N N N N N N N N</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [<br/>[2], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td> <td>ES</td> | TOR<br>IPPOVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>IPPOVIDE WITH<br>IPPOVID  | IDEDING     S:     ICEILING EI     AIRFLOW I     J3"X6" CUP     J4"X6" CUP     J4"X6" CUP     J5"X6"   | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>11.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA<br>BA<br>UFACTURI<br>ENHECK F,<br>ENHECK F,<br>ENHE | L LOC1000           ASIS OF DE           ER           AN           AN  < | MODEI           USF-308         SQ-120-3           SE-1-18-42         SE-1-18-42           SE-1-18-42         SE-14-32           G-143-V         G-143-V           SP-B90         SE-14-32           BAS         ANUFACTUR           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS           TITUS         TITUS   | L B1 VG 9-VG 9-VG G G G O IS OF DESIGN IS OF DESIGN IS N N N N N N N N N N N N N N N N N N N            | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [], [<br>[2], [<br>[2], [], [], [], [], [], [], [], [], [], [   | ES   |
| HP<br>SCHEDULE NC<br>[1] NOMINAL C<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>CI   STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[3] AS RATED F<br>[4] SPARK B CC<br>[5] COATED WI<br>[6] PROVIDE W<br>[6] PROVIDE W<br>[   | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 2 3 2 2 2 2 3 2 4 3 2 4 3 4 5 6 2 3 4 5 6 7 2 2 2 2 2 3 4 5 6 6 7 2 2 2 2 3 4 5 6 6 7 2 7 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5   | R REFERENCE O<br>G MODE ONLY. NO<br>CONTRACTOR<br>OF 2015 WSEC<br>D WIND BAFFLE T<br>ATTIC<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>S 1A MOTORIZED<br>SUARE CEILING<br>GUARE CEILING<br>SQUARE CEILING  | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>D | ID         0.2           8.2         8.2           EOR FINAL SEQUIRED.         IG OPERATION           IG OPERATION         IG OPERATION           IG OPERATION         ID  | SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>226<br>0<br>101                                    | MENT<br>PART # KPV                                    | 24" 24" 24" 24" 24" 24" 24" 24" 24" 24"   
  | 12,000           24,000           24,000           DRIVE TYF           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           EXTERNAL ST.           EXTERNAL ST.           VIDTH           14"           16"           24"           24"           8"   | 11,900           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           23,800           9,000           0,025           0,10           0,10           0,10           10,10           10,10           0,10           0,10           10,10           0,10  
   | DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           EXHAUST FAI           ESSURE           TIF           I  
   
   | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4.789           3.234         7.520           7.520         7.520           4.719         -           -         I           NOT INCLUD         NOT INCLUD           CHEDULE         NO           NGULAR         WIDTH           8*         10*           12*         14*           10*         6*           10*         12*           6*         6*  | E   | [2]           U         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,300         -           RE DROP THRC         -           RE DROP THRC         -           0.04         0.05           0.05         0.06           0.05         0.06           0.07         0.05   | SCH           [1] f           [2] f           [3] f <td>TOR<br/>IPPOVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>IPPOVIDE WITH<br/>IPPOVID</td> <td>CULDING CULDING CULING CULING</td> <td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>11.5<br/>11.5<br/>0.5<br/>D WEATHE</td> <td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td> <td>BA           BA           UFACTURI           ENHECK F,           W/26 W           #26 W           #26 W           #26 W           #26 W</td> <td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td> <td>BAS<br/>ANUFACTUR<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS<br/>TITUS</td> <td>L L B1 VG 9-VG 9-VG 16 0 15 0 F C C B 1 B 1 N B 1 B 1 B 1 B 1 B 1 B 1 B 1 B</td> <td>NOT<br/>[4], [<br/>[5], [6]<br/>[5], [6]<br/>[2], [2], [<br/>[2], [2], [2], [2], [2], [2], [2], [2],</td> <td>ES</td>   | TOR<br>IPPOVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVIDE WITH<br>IPPOVIDE WITH<br>IPPOVID   
  | CULDING CULDING CULING  | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>11.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA           BA           UFACTURI           ENHECK F,           W/26 W           #26 W           #26 W           #26 W           #26 W  
   | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | BAS<br>ANUFACTUR<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS<br>TITUS   | L L B1 VG 9-VG 9-VG 16 0 15 0 F C C B 1 B 1 N B 1 B 1 B 1 B 1 B 1 B 1 B 1 B                             | NOT<br>[4], [<br>[5], [6]<br>[5], [6]<br>[2], [2], [<br>[2], [2], [2], [2], [2], [2], [2], [2],   | ES   |
| HP<br>SCHEDULE NC<br>[1] NOMINAL C<br>[2] UNIT TO BE<br>[3] AT 15F OAD<br>[4] AS REQUIRI<br>[5] PROVIDE W<br>CAL<br>FF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>EF<br>CHEDULE NC<br>[1] STATIC PRE<br>[2] PROVIDE W<br>[3] AS RATED F<br>[4] SPARK B CC<br>[5] COATED WI<br>[6] PROVIDE W<br>[6] PROVIDE W | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 3 2 2 3 2 4 3 4 5 2 3 4 5 6 2 3 4 5 6 7 2 2 2 3 4 5 6 6 7 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5   | R REFERENCE OI<br>G MODE ONLY. NO<br>CONTROLOGIONALY. N   | VALL-WOUNT<br>VLY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUS | ID         0.2           8.2         8.2           E FOR FINAL SEQUIRED.         IG OPERATION           IG OPERATION         IG OPERATION           IG OPERATION         ID  | SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>UV ROOM<br>SHOP<br>TUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>0<br>101<br>101<br>101          | MENT<br>PART # KPV                                    | 12.5         12.5           2W063A4)         12.5           2W063A4)         12.5           CFM         600           600         770           770         3.000           2,000         2,000           2,000         2,000           2,000         80           PER         18           14"         16"           24"         24"           8"         14"           24"         8"           24"         24"  | 12,000           24,000           24,000           DRIVE TYF           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           ECM           EXTERNAL ST.           EXTERNAL ST.           VIDTH           14"           16"           24"           24"           8"           14"           12"           8"           24"           24"  | 11,900           23,800           23,800           PE           (IN WC)           0.70           0.30           0.25           0.10           ATIC PRESSURE SI           ATIC PRESSURE SI           DIAMETER [1]           8"           10"           6"           10"           0"           6"           10"           0"           6"           10"           0"  | DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           EXHAUST FAI           ESSURE           TIF           [1]           I <td>IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4.789           3.234         7.520           7.520         4.719           -         IN           NOT INCLUD         INCLUD           CHEDULE         IN           NGULAR         WIDTH           8"         10"           12"         14"           10"         6"           10"         12"           6"         10"           12"         6"           10"         12"           6"         10"           12"         6"           10"         12"</td> <td>E  RPM  1,741  1,596  1,233  1,233  1,233  628  PRESSUR  PRESSUR  MAX NC  12  17  19  23  17  19  23  17  10  10  27  10  10  27  10  10  10  27  10  10  10  10  10  10  10  10  10  1</td> <td>[2]           U         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,300         -           RE DROP THRC         -           0.04         0.05           0.05         0.06           0.05         0.06           0.07         0.05           0.06         0.07</td> <td>SCH           [1] [           [2] [           [3] [           MO           0.      <t< td=""><td>HEDULE NOTE<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVID</td><td>ULUDING ULUDING S: CELLING EI ARFLOW I JATS'C' CUP IARFLOW I JATS'C' CUP IARFLOW I IA</td><td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>10.5<br/>11.5<br/>0.5<br/>D WEATHE</td><td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td><td>BA           BA           UFACTURI           ENHECK F,           ENHECK F,</td><td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td><td>Image: Sign         MODEI           USF-308.         SQ-120-3           SE-1.18-42         SE-1.18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS           TITUS         TITUS</td><td>IS OF DESIGN<br/>RER MI<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N</td><td>NOT<br/>[4],<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td><td>ES</td></t<></td>  | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4.789           3.234         7.520           7.520         4.719           -         IN           NOT INCLUD         INCLUD           CHEDULE         IN           NGULAR         WIDTH           8"         10"           12"         14"           10"         6"           10"         12"           6"         10"           12"         6"           10"         12"           6"         10"           12"         6"           10"         12"   | E  RPM  1,741  1,596  1,233  1,233  1,233  628  PRESSUR  PRESSUR  MAX NC  12  17  19  23  17  19  23  17  10  10  27  10  10  27  10  10  10  27  10  10  10  10  10  10  10  10  10  1 | [2]           U         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,300         -           RE DROP THRC         -           0.04         0.05           0.05         0.06           0.05         0.06           0.07         0.05           0.06         0.07  | SCH           [1] [           [2] [           [3] [           MO           0. <t< td=""><td>HEDULE NOTE<br/>PROVIDE WITH<br/>PROVIDE WITH<br/>PROVID</td><td>ULUDING ULUDING S: CELLING EI ARFLOW I JATS'C' CUP IARFLOW I JATS'C' CUP IARFLOW I IA</td><td>X SOUND<br/>LEVEL<br/>SONES)<br/>10.1<br/>4<br/>16.8<br/>10.5<br/>11.5<br/>0.5<br/>D WEATHE</td><td>E PANELS<br/>AND ALAN<br/>FAUCET<br/>MAN<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE<br/>GRE</td><td>BA           BA           UFACTURI           ENHECK F,           ENHECK F,</td><td>ASIS OF DE<br/>ER<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN<br/>AN</td><td>Image: Sign         MODEI           USF-308.         SQ-120-3           SE-1.18-42         SE-1.18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS           TITUS         TITUS</td><td>IS OF DESIGN<br/>RER MI<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N</td><td>NOT<br/>[4],<br/>[5], [6]<br/>[5], [6]<br/>[2], [<br/>[2], [], [], [], [], [], [], [], [], [], [</td><td>ES</td></t<>  | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVID   | ULUDING ULUDING S: CELLING EI ARFLOW I JATS'C' CUP IARFLOW I JATS'C' CUP IARFLOW I IA  | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>10.5<br>11.5<br>0.5<br>D WEATHE   | E PANELS<br>AND ALAN<br>FAUCET<br>MAN<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE    | BA           BA           UFACTURI           ENHECK F,   | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | Image: Sign         MODEI           USF-308.         SQ-120-3           SE-1.18-42         SE-1.18-42           G-143-V         G-143-V           G-143-V         SP-B90           BAS         SP-B91           TITUS         TITUS  | IS OF DESIGN<br>RER MI<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N                 | NOT<br>[4],<br>[5], [6]<br>[5], [6]<br>[2], [<br>[2], [], [], [], [], [], [], [], [], [], [   | ES   |
| Imp         SCHEDULE NC         [1] NOMINAL C         [2] UNIT TO BE         [3] AT 15F OAD         [4] AS REQUIRI         [5] PROVIDE W             CAL         TYPE         EF         CDI 1         CD-1         CD-2         CD-3         CD-4         CD-5         EG-1         EG-2         EG-3         RG-1         RG-2         RG-3         RG-4   | 2 OUTSIDE 2 2 2 2 2 2 2 2 2 2 3 2 2 2 3 2 4 2 3 4 2 3 4 5 6 2 3 4 5 6 6 7 2 2 3 4 5 6 6 7 2 2 2 3 4 5 6 6 7 2 2 2 3 4 5 6 6 7 2 2 2 3 4 5 6 6 7 2 2 2 3 4 5 6 6 7 2 2 2 3 4 5 6 7 2 2 2 3 4 5 6 7 2 2 2 3 4 6 7 2 2 2 3 4 5 6 7 2 2 2 3 4 1 1 1 2 2 3 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 2 3 4 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 2 1   | R REFERENCE O<br>G MODE ONLY. NO<br>CONTROLOGIONALS AND<br>ATTIC<br>ATTIC<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>WALL<br>ROOF<br>CEILING<br>FAN.<br>A MOTORIZED<br>FAN.<br>A MOTORIZED<br>GUARE CEILING<br>GUARE CEILING                                       | VALL-WOUNT<br>VILY - DO NOT US<br>ECONOMIZER F<br>O ALLOW COOLIN<br>FAN TYPE<br>UTILITY<br>INLINE<br>SIDEWALL<br>SIDEWALL<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>CENTRIFUGAI<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DIFFUSER<br>DI | ID         0.2           8.2         8.2           E FOR FINAL SEQUIRED.         IG OPERATION           IG OPERATION         IG OPERATION           IG OPERATION         ID           IG OPERATI   | SERVICE<br>SERVICE<br>FUME HOOD<br>LOCKER/MUD<br>BLOWER<br>BLOWER<br>BLOWER<br>UV ROOM<br>SHOP<br>CTUATOR AND BIR<br>GRAVITY BACKDF<br>APACITY LIMITS (<br>MINIMUM<br>126<br>226<br>351<br>476<br>0<br>101<br>401<br>801       | AFT DAMF      CFM)     CFM                            | 12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           12.5         12.5           13.000         3,000           3,000         2,000           2,000         2,000           2,000         2,000           80         16"           16"         14"           16"         24"           24"         24"           24"         24"           24"         24"           24"         24"           24"         24"           24"     
   24"  | 12,000<br>24,000<br>24,000<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM<br>ECM  | 11,900           23,800           STATIC PRE<br>(IN WC)           0.70           0.30           0.25           0.101           102           103           104           107           108           109           1010           102           1122           16   
   | DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           DAIKI           ESSURE           ESSURE           TIF           [1]           I           III           IIII           IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII   
   
   | IN         F           IN         4M.           IN         4M.           N SCHEDUL         FAN           FAN         P SPEED           (FPM)         4,789           3,234         7,520           4,719         -           -         -           NOT INCLUD         NOT INCLUD           CHEDULE         N)           NGULAR         WIDTH           8"         10"           12"         14"           10"         12"           10"         12"           10"         12"           10"         12"           10"         12"           10"         12"           10"         12"           6"         10"           12"         6"           10"         14" | E   | [2]           U         [2]           IU         [2]           RPM         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,725         1,725           1,300         -           RE DROP THRCE         RCOP THRCE           0.04         0.05           0.05         0.05           0.05         0.05           0.05         0.05           0.07         0.07           0.07         0.07  | SCH           [1] [           [2] [           [3] [           MO           0.   
  | HEDULE NOTE<br>PROVIDE WITH<br>PROVIDE WITH<br>PROVID   | CULDING CULING   
   | X SOUND<br>LEVEL<br>SONES)<br>10.1<br>4<br>16.8<br>16.8<br>16.8<br>11.5<br>0.5<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D WEATHE<br>D RE<br>D RE<br>D RE<br>D RE<br>D RE<br>D RE | E PANELS<br>AND ALAI<br>FAUCET<br>FAUCET<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE<br>GRE | BA           BA           UFACTURI           ENHECK F,   | ASIS OF DE<br>ER<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN<br>AN  | Image: Sign           Image: Sign           USF-308           SQ-120-1           SE-1.18-42           G-143-V           G-143-V           G-143-V           SP-B90           BAS           ANUFACTUR           TITUS   | IS OF DESIGN<br>IS OF DESIGN<br>RER MI<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N | NOT<br>[4], [6], [6]<br>[5], [6]<br>[2], [6]<br>[2], [<br>[2], [], [<br>[2], [<br>[2], [], [], [], [], [], [], [], [], [], [  | ES   |

[1] SEE DETAIL #1 ON SHEET H5.01











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															NO.	REVISIONS	BY	DATE
															$\wedge$	ADDENDUM #1	JGC	12-6-
																	REFEREN	ICE
Valve ID	TYPE	SIZE (in)	OPERATOR	ORIENTATION	ACTUATOR	ROTORK MODEL	GEARED	IP68 RATED	PHASE	VOLTAGE		LOCATION		MARKER STYLE	LABEL - TOP LINE	LABEL - BOTTOM LINE	DRAWI	NG
PLUG VALVES																		
PV-101	PLUG	8	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WAS DISCHARGE - E			BRASS DISK	8"	WAS	C2.03	
PV-102	PLUG	8	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WAS DISCHARGE			BRASS DISK	8"	WAS	C2.02	
PV-103	PLUG	8	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WAS DISCHARGE			BRASS DISK	8"	WAS	C2.02	
PV-104	PLUG	8	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WAS DISCHARGE			BRASS DISK	8"	WAS	C2.02	
PV-105	PLUG	8	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WAS DISCHARGE - W			BRASS DISK	8"	WAS	C2.02	
PV-200	PLUG	4	2" DIRECT NUT	SEAT UPSTREAM	MANUAL	-	-	-	-	-	WEST GRIT BASIN DRAIN			BRASS DISK	4"	W. GRIT DRAIN	C7.03	
PV-201	PLUG	4	2" DIRECT NUT	SEAT UPSTREAM	MANUAL	-	-	-	-	-	EAST GRIT BASIN DRAIN			BRASS DISK	4"	E. GRIT DRAIN	C7.03	
PV-250	PLUG	6	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	OPEN/CLOSE	IQT500	NO	YES	3	480	ASD VALVE VAULT - AS TO EAST	GRIT BASIN		TAG	-	PV-250	M8.02	<u> </u>
PV-251	PLUG	6	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	OPEN/CLOSE	IQT500	NO	YES	3	480	ASD VALVE VAULT - AS TO WES	T GRIT BASIN		TAG	-	PV-250	M8.02	<u> </u>
PV-252	PLUG	4	2" DIRECT NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	ASD FLOW METER ISOLATION T	O EAST GRIT BASIN		BRASS DISK	4"	ASD - EAST GRIT	C2.17	
PV-253	PLUG	4	2" DIRECT NUT	SEAT DOWNSTREAM	MANUAL	-		-	-	-	ASD FLOW METER ISOLATION T	O WEST GRIT BASIN		BRASS DISK	4"	ASD - WEST GRIT	C2.17	
PV-254	PLUG	4	2" DIRECT NUT	SEAT DOWNSTREAM	MANUAL	-		-	-	-	ASD TO EAST GRIT BASIN			BRASS DISK	4"	ASD - EAST GRIT	C2.17	
PV-255	PLUG	4	2" DIRECTINUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	ASD TO WEST GRIT BASIN			BRASS DISK	4"	ASD - WEST GRIT	(2.17	-
PV-200	PLUG				MANUAL		-	-		-	ADD CRUSS OVER			BRASS DISK	4 6"	ELOW SPLIT DRAIN	(7.07	
PV-310	PLUG			SEAT DOWINGTREAM	MANUAL					-	MISS DUMP STATION OUT ET	DI MD 1		TAG	0	DV-401	M5.01	
PV-401	PLUG	10	GEAR W/ HANDWHEEL	SEAT DOWNSTREAM	MANUAL						MISS PUMP STATION OUTLET -	PLIMP 2		TAG		PV-401	M5.01	
PV-403	PLUG	16	GEAR W/ HANDWHEEL	SEAT DOWNSTREAM	MANUAL		· ·	-	-		MISS PUMP STATION OUTLET -	PLIMP 3		TAG	-	PV-403	M5.01	
PV-404	PLUG	16	GEAR W/ HANDWHEEL	SEAT DOWNSTREAM	MANUAL						MISS PUMP STATION OUTLET -	PLIMP 4		TAG		PV-404	M5.01	
PV-405	PLUG	16	GEAR W/ HANDWHEEL	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	MISS PUMP STATION OUTLET -	PUMP 5		TAG	-	PV-405	M5.01	
PV-406	PLUG	16	GEAR W/ HANDWHEEL	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	MLSS PUMP STATION OUTLET -	PUMP 6		TAG	-	PV-406	M5.01	
PV-500	PLUG	$\sim$	BURIED SEAR W/2 NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	NORTH CLARIFIER DRAIN			BRASS DISK	6"	N. CLARIFIER DRAIN	C7.03	,
PV-501	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	SOUTH CLARIFIER DRAIN			BRASS DISK	6"	S. CLARIFIER DRAIN	C7.03	
PV-502	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	CLARIFIER FLOW SPLITTER DRAI	IN		BRASS DISK	6"	FLOW SPLIT DRAIN	C7.03	
PV-510	PLUG	2	LEVER	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	NORTH CLARIFIER INLET SPRAY	HEADER		TAG	-	PV-510	M4.04	+
PV-511	PLUG	2	LEVER	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	SOUTH CLARIFIER INLET SPRAY	HEADER		TAG	-	PV-511	M4.04	5
PV-531	PLUG	12	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	OPEN/CLOSE	IQT1000	NO	YES	3	480	RAS VALVE BOX UPSTREAM VA	LVE - FROM NORTH CLARIFIER		TAG	-	PV-531	M8.03	i
PV-532	PLUG	12	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	OPEN/CLOSE	IQT1000	NO	YES	3	480	RAS VALVE BOX UPSTREAM VA	LVE - FROM SOUTH CLARIFIER		TAG	-	PV-532	M8.03	j
PV-533	PLUG	12	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	MODULATING	IQTM1000	YES	YES	3	480	RAS VALVE BOX DOWNSTREAM	VALVE - FROM NORTH CLARIFI	ER	TAG	-	PV-533	M8.03	;
PV-534	PLUG	12	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	MODULATING	IQTM1000	YES	YES	3	480	RAS VALVE BOX DOWNSTREAM	IVALVE - FROM SOUTH CLARIFI	ER	TAG	-	PV-534	M8.03	<i>i</i>
PV-535	PLUG	12	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	OPEN/CLOSE	IQT1000	YES	YES	3	480	RAS VALVE BOX CROSS OVER V	ALVE		TAG	-	PV-535	M8.03	,
PV-538	PLUG	8	ACTUATOR WITH 2" NUT	SEAT DOWNSTREAM	MODULATING	IQT1000	YES	YES	3	480	WAS VALVE 1 FROM NORTH CL	ARIFIER		TAG	-	PV-538	M8.02	
PV-539	PLUG	$\sim$	ACTUATOR WITH 2" ULT	SEAT DOWNSTREAM	MODUDATING		$\sim$		$\sim$		WAS VALVE 2 FROM SOUTH CLA	ARIFIER		TAG	$\sim$	PV-539	M8.02	
PV-540	PLUG	4	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	STUM WASTING TO LONG TERM	A BIOSOLIDS STORAGE		BRASS DISK	4"	SOUM - WASTING	C2.06	
		- 4	BURIED GEAR W/ 2" NUT		MANUAL	-	-	-	-	-	SCUM MASTING TO WEST PLAN		$\sim\sim\sim$		4"	SQUM-DRAIN TO PS		$\rightarrow$
PV-542	PLUG	3	LEVER	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	SCUM LINE AT SOUTH CLARIFIE	R		TAG	3"	PV-542	M4.03	<u> </u>
PV-543						-			-				<u> </u>		3		NI4.03	
DV EE1		$\sim \sim \sim$		SEAT DOWNSTREAM		$\sim \sim \sim$		$\gamma = c$	$r \sim c$		WAS ELOW METER ISOLATION							$\sim$
PV-552	PLUG	12	BURIED GEAR W/ 2 NUT	SEAT DOWNSTREAM	MANUAL	-		-	-	-	RAS FLOW METER ISOLATION T			BRASS DISK	12"		C2.00	
PV-552	PLUG	12	BURIED GEAR W/ 2 NUT	SEAT DOWINSTREAM	MANUAL	-	1	-			RAS FLOW WETER ISOLATION T			BRASS DISK	12"	RAS- S. BASIN	C2.05	
PV-560	PLUG	20	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	+ -	<u> </u>	-	-	NORTH AFRATION BASIN INFL			BRASS DISK	20"	INF - N BASIN	C2.05	
PV-561	PLUG	20	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANIJAI	-	-	-	-	-	SOUTH AFRATION BASIN INFLU	ENT FLOW METER ISOLATION		BRASS DISK	20"	INF-S BASIN	C2.00	-
PV-562	PLUG	20	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	1 .	-	-	-	NORTH CLARIFIER INFLUENT FL	OW METER ISOLATION		BRASS DISK	20	MLSS- N. CLARIFIER	C2.00	
PV-563	PLUG	24	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	· .		-	-	SOUTH CLARIFIER INFLUENT FIG	OW METER ISOLATION		BRASS DISK	24"	MLSS- S. CLARIFIER	C2.05	
PV-570	PLUG	3	LEVER	SEAT DOWNSTREAM	MANUAL	-	-	-	· .	-	NORTH CLARIFIER SCUM DISCH	ARGE		TAG	-	PV-570	M4.06	,
PV-571	PLUG	3	LEVER	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	SOUTH CLARIFIER SCUM DISCH	ARGE		TAG	-	PV-571	M4.06	<u>ز</u>
PV-601	PLUG	4	ACTUATOR WITH LEVER	SEAT DOWNSTREAM	OPEN/CLOSE	IQT250	NO	YES	3	480	2W AIR GAP INLET PIPING			TAG	-	PV-601	M1.07	/
PV-801	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WEST PLANT DRAIN PUMP STA	TION VALVE VAULT		TAG	-	PV-801	C7.06	
PV-802	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WEST PLANT DRAIN PUMP STAT	TION VALVE VAULT		TAG	-	PV-802	C7.06	
PV-803	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WEST PLANT DRAIN PUMP STAT	TION TO EAST GRIT INFLUENT		BRASS DISK	6"	PD PS TO E. GRIT	C7.06	
PV-804	PLUG	6	BURIED GEAR W/ 2" NUT	SEAT DOWNSTREAM	MANUAL	-	-	-	-	-	WEST PLANT DRAIN PUMP STA	TION TO WEST GRIT INFLUENT		BRASS DISK	6"	PD PS TO W. GRIT	C7.06	
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WALL MAINES																		

BALL VALVES															
Valve ID	ТҮРЕ	SIZE (in)	OPERATOR	ORIENTATION	ACTUATOR	ROTORK MODEL	GEARED	IP68 RATED	PHASE	VOLTAGE	LOCATION	MARKER STYLE	LABEL - TOP LINE	LABEL - BOTTOM LINE	REFERENCE DRAWING
BV-260	BALL	4	LEVER	-	MANUAL	-	-	-	-	-	AIR HEADER TO EAST GRIT BASIN	TAG	-	BV-260	M2.01
BV-261	BALL	4	LEVER	-	MANUAL	-	-	-	-	-	AIR HEADER TO WEST GRIT BASIN	TAG	-	BV-261	M2.01
BV-262	BALL	1.5	LEVER	-	MANUAL	-	-	-	-	-	WEST MECH SCREEN WATER SUPPLY	TAG	-	BV-262	M2.03
BV-263				NOT USED											
BV-264				NOT USED											
BV-265	BALL	1.5	LEVER	-	MANUAL	-	-	-	-	-	EAST MECH SCREEN CENTRIFUGAL PUMP SUPPLY	TAG	-	BV-265	M2.03
BV-520	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	NORTH CLARIFIER SPRAY RING SUPPLY	TAG	-	BV-520	M4.04
BV-521	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	SOUTH CLARIFIER SPRAY RING SUPPLY	TAG	-	BV-521	M4.04
BV-600	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	3W WET WELL; P-631	NO TAG	-	-	M1.10
BV-601	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	3W WET WELL; P-632	NO TAG	-	-	M1.10
BV-602	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	3W WET WELL; P-633	NO TAG	-	-	M1.10
BV-603	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	3W WET WELL; P-634	NO TAG	-	-	M1.10
BV-604	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	2W WET WELL; P-635	NO TAG	-	-	M1.09
BV-605	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	2W WET WELL; P-636	NO TAG	-	-	M1.09
BV-606	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	2W WET WELL; P-637	NO TAG	-	-	M1.09
BV-607	BALL	2	LEVER	-	MANUAL	-	-	-	-	-	2W WET WELL; P-638	NO TAG	-	-	M1.09
BV-608	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	2W DIAGPHRAM TANK HEADER ISOLATION	TAG	-	BV-608	M1.07
BV-609	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	2W DIAGPHRAM TANK ISOLATION	TAG	-	BV-609	M1.07
BV-610	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	2W DIAGPHRAM TANK ISOLATION	TAG	-	BV-610	M1.07
BV-611	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	3W DIAGPHRAM TANK HEADER ISOLATION	TAG	-	BV-611	M1.08
BV-612	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	3W DIAGPHRAM TANK ISOLATION	TAG	-	BV-612	M1.08
BV-613	BALL	1	LEVER	-	MANUAL	-	-	-	-	-	3W DIAGPHRAM TANK ISOLATION	TAG	-	BV-613	M1.08

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Valve ID	TYPE	SIZE (in)	OPERATOR	ORIENTATION	ACTUATOR	ROTORK MODEL	GEARED	IP68 RATED	PHASE	VOLTAGE	LOCATION
BT-300	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-301	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-302	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-303	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-304	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-305	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-306	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-307	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-308	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-309	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-310	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-311	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-312	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-313	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-314	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	NORTH BASIN WEST TO EAST
BT-315	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-316	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-317	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-318	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-319	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-320	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-321	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-322	BUTTERFLY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-323	BUTTERELY	4	IFVER	_	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-324	BUTTERELY	4	LEVER	_	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-325	BUTTERELY	4	LEVER	-	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-326	BUTTERELY	4	LEVER		MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO FAST
BT-327	BUTTERELY	4	LEVER	_	MODULATING		NO	VES	3	480	SOUTH BASIN WEST TO EAST
BT-328	BUTTERELY	4	LEVER	_	MODULATING	PER BIOLAC	NO	YES	3	480	SOUTH BASIN WEST TO EAST
BT-329	BUTTERELV	4	LEVER		MODULATING	PERBIOLAC	NO	VES	3	480	SOUTH BASIN WEST TO EAST
BT-610	BUTTERELV	4			MANUAL	TENDIODAC	110	125	5	400	3W SEDIMENT FUTER ISOLATION - INLET
DT-610	BUTTERELV	4			MANUAL	-					
DT-612	BUTTERELV	4		-	MANUAL	-	-	-	-	-	
DT-012	BUTTERELV	4			MANUAL	-	-	-	-	-	
BT-013	BUTTERELY	12		-	MANUAL	-	-	-	-	-	TADDING AT 2N/ / EVISTING WA
DT-000	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	
BT-001	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF AERATION BASING - NORTH
B1-802	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF AERATION BASINS - WEST
BT-803	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF AERATION BASINS - EAST
B1-804	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF LAB BLDG - WEST
B1-805	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF LAB BLDG - EAST
BT-806	BUTTERFLY			-	MANUAL	-	-	-	-	-	TEE CLUSTER NORTH OF LAB BLDG - SOUTH
BT-901	BUTTERFLY	$\begin{pmatrix} 8 \end{pmatrix}$		-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO SOUTH AERATION BASIN
BT-902	BUTTERFLY	$\left \right\rangle ^{8}$		-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO SOUTH AERATION BASIN
BT-903	BUTTERFLY	( 8 /		-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO SOUTH AERATION BASIN
BT-904	BUTTERFLY	<del>)</del>		-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO NORTH AERATION BASIN / GRIT BASINS
BT-905	BUTTERFLY	( <sup>8</sup> /		-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO NORTH AERATION BASIN / GRIT BASINS
BT-906	BUTTERFLY			-	MANUAL	-	-	-	-	-	BLOWER BLDG - BLOWERS TO NORTH AERATION BASIN / GRIT BASINS
BT-907	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	BLOWERS TO SOUTH AERATION BASIN
BT-908	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	BLOWERS TO NORTH AERATION BASIN / GRIT BASINS
BT-909	BUTTERFLY	12		-	MANUAL	-	-	-	-	-	AIR LINE CROSS-CONNECTION

GATE VALVES											
Valve ID	TYPE	SIZE (in)	OPERATOR	ORIENTATION	ACTUATOR	ROTORK MODEL	GEARED	IP68 RATED	PHASE	VOLTAGE	LOCATION
GV-210	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W ISOLATION AT GRIT BASINS - YARD HYDRANT
GV-211	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W ISOLATION AT MECHANICAL SCREENS - POST HYDRANT
GV-212	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W ISOLATION AT MECHANICAL SCREENS - YARD HYDRANT
GV-213	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W ISOLATION AT AERATION BASIN FLOW SPLITTER YARD HYDRANT
GV-320	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W WEST AERATION BASIN CROSS - MAIN LINE
GV-321	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W WEST AERATION BASIN CROSS - NORTH
GV-322	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W WEST AERATION BASIN CROSS - SOUTH
GV-323	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W EAST AERATION BASIN CROSS - MAIN LINE
GV-324	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W EAST AERATION BASIN CROSS - NORTH
GV-325	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W EAST AERATION BASIN CROSS - SOUTH
GV-410	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W MIXED LIQUOR PUMP STATION YARD HYDRANT
GV-510	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W CLARIFIER CROSS - MAIN LINE
GV-511	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W CLARIFIER CROSS - NORTH CLARIFIER
GV-512	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W CLARIFIER CROSS - SOUTH CLARIFIER
GV-513	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W NORTH CLARIFIER YARD HYDRANT
GV-514	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W SOUTH CLARIFIER YARD HYDRANT
GV-515	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	3W ISOLATION AT CLARIFIER FLOW SPLITTER YARD HYDRANT
GV-600	GATE	8	2" DIRECT NUT		MANUAL	-	-	-	-	-	UV CHANNEL AND SECONDARY EFFLUENT DRAIN
GV-610	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W WEST LAB BUILDING YARD HYDRANT
GV-611	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W EAST LAB BUILDING YARD HYDRANT
GV-612	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W NORTH BLOWER BUILDING YARD HYDRANT
GV-613	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W WEST UV BUILDING YARD HYDRANT
GV-614	GATE	2	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W EAST UV BUILDING YARD HYDRANT
GV-620	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W FLOW METER ISOLATION
GV-621	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W FLOW METER ISOLATION
GV-630	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	FE FROM UV TO 3W PUMP STATION
GV-650	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	1W WATER AIR GAP WATER SYSTEM AT WEST UV BUILDING
GV-800	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	HYDRANT ASS'Y AT EXISTING HEADWORKS
GV-801	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	HYDRANT ASS'Y NORTH OF AERATION BASINS
GV-802	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	HYDRANT ASS'Y NORTH OF LAB BLDG
GV-803	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	HYDRANT ASS'Y AT EAST PLANT
GV-804	GATE	6	2" DIRECT NUT		MANUAL	-	-	-	-	-	HYDRANT ASS'Y SOUTH OF LAB BLDG
GV-820	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W / 3W CROSS CONNECTION IN-LINE ON 3W, WEST
GV-821	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W / 3W CROSS CONNECTION IN-LINE ON 3W, EAST
GV-822	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W / 3W CROSS CONNECTION ISOLATION VALVE
GV-830	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W / 3W CROSS CONNECTION IN-LINE ON 2W, WEST
GV-831	GATE	4	2" DIRECT NUT		MANUAL	-	-	-	-	-	2W / 3W CROSS CONNECTION IN-LINE ON 2W, EAST

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	NO.		REVISIONS	BY	DATE		
	71	7	ADDENDUM #1	JGC	12-6-19		
				REF	ERENCE		
	MARKER STYLE	LABEL - TOP LINE	LABEL - BOTTOM LINE	DR	AWING		
	TAG	-	BT-300	(	26.02		
	TAG	-	BT-301	(	26.02		
	TAG	-	BT-302	(	26.02		
	TAG	-	BT-303	(	26.02		
	TAG	-	BT-304	(	26.02		
	TAG	-	BT-305	(	26.02		
	TAG	-	BT-306	(	26.02		
	TAG	-	BT-307	(	26.02		
	TAG	-	BT-308	(	26.02		
	TAG	-	BT-309	(	26.02		
	TAG	-	87-310	(	.6.02		
	TAG	-	BT-311		26.02		
	TAG	-	BI-312	(	.6.02		
	TAG	-	BT-313		.6.02		
	TAG	-	BI-314	(	.6.02		
			DI-315	+ 2	C6.02		
			BT-317	+ .	C6.02		
			BT-318	+ .	C6.02		
			BT-310	+ ,	C6.02		
	TAG	-	BT-320		C6.02		
	TAG		BT-321		C6.02		
	TAG		BT-322		C6.02		
	TAG		BT-323		C6.02		
	TAG		BT-324		C6.02		
	TAG		BT-325		C6.02		
	TAG	-	BT-326		C6.02		
	TAG	-	BT-327		C6 02		
	TAG	-	BT-328	(	26.02		
	TAG	-	BT-329	(	26.02		
	TAG	-	BT-610	N	/1.08		
	TAG	-	BT-611	N	A1.08		
	TAG	-	BT-612	N	/1.08		
	TAG	-	BT-613	N	/1.08		
	BRASS DISK	12"	1W WATER	(	05.02		
	BRASS DISK	12"	1W WATER	(	05.02		
	BRASS DISK	12"	1W WATER	(	25.02		
	BRASS DISK	12"	1W WATER	(	05.02		
	BRASS DISK	12"	1W WATER	(	05.02		
	BRASS DISK	12"	1W WATER	(	25.02		
	BRASS DISK	12"	1W WATER	(	05.02		
	TAG	-	BT-901	N	/13.05		
	TAG	-	BT-902	N	/13.05		
	TAG	-	BT-903	N	/13.05		
	TAG	-	BT-904	M	/13.05		
	TAG	-	BT-905	M	A3.05		
	TAG	-	BT-906	M	/13.05		
	BRASS DISK	12"	AIR - SOUTH BASIN		22.08		
	BRASS DISK	12"	AIR - NORTH BASIN		2.08		
	BRASS DISK	12"	AIR - CROSS OVER	(	2.08		
				DEF			
	MARKED STVLE	LABEL TOP LINE			WING		
	TAG	DADLE - TOP LINE	3W - YARD HYDPANT		5.01		
	TAG	-	3W - POST HYDRANT	-	5.01		
	TAG		3W - YARD HYDRANT	1 7	5.01		
	TAG	-	3W - YARD HYDRANT		5.01		
-	BRASS DISK	4"	3W - MAIN LINE		5.01		
_	TAG	-	3W - YARD HYDRANT	1	5.01		
_	TAG	-	3W - YARD HYDRANT		5.01		
_	BRASS DISK	4"	3W - MAIN LINE		5.01		
	TAG	-	3W - YARD HYDRANT		5.01		
	TAG	-	3W - YARD HYDRANT	0	5.01		
	TAG	-	3W - YARD HYDRANT	0	5.01		
	BRASS DISK	4"	3W - MAIN LINE	0	5.01		
	BRASS DISK	4"	3W - N. CLARIFIER	0	5.01		
_	BRASS DISK	4"	3W - S. CLARIFIER		5.01		
	TAG	-	3W - YARD HYDRANT	0	5.01		
_	TAG	-	3W - YARD HYDRANT		5.01		
	TAG	-	3W - YARD HYDRANT	0	5.01		

![](_page_31_Figure_5.jpeg)

TAG TAG TAG 3W - YARD HYDRANT 3W - YARD HYDRANT BRASS DISK TAG M1.05 C5.01 UV / SE DRAIN 2W - YARD HYDRANT C5.01 C5.01 C5.01 C5.01 C5.01 TAG TAG TAG TAG 2W - YARD HYDRANT 2W - FM ISOLATION 2W - FM ISOLATION 2W - FM ISOLATION BRASS DISK BRASS DISK M1.05 M1.05 4" 4" BRASS DISK BRASS DISK 6" FINAL EFFLUENT M1.05 C5.02 C5.02 C5.02 4" 1W WATER BRASS DISK BRASS DISK HYDRANT ISOLATION 6" 6" C5.02 C5.02 C5.02 C5.02 C5.01 BRASS DISK BRASS DISK HYDRANT ISOLATION 6" HYDRANT ISOLATION HYDRANT ISOLATION 6" BRASS DISK BRASS DISK BRASS DISK BRASS DISK BRASS DISK 6" 3W WATER 3W WATER CROSS OVER 2W WATER 4" C5.01 C5.01 C5.01 4" 4" 4" BRASS DISK 4" 2W WATER C5.01

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