

Development Services

From Concept to Construction

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More Contact Info (<http://www.portlandoregon.gov/bds/article/519984>)



APPEAL SUMMARY

Status: Decision Rendered

Appeal ID: 21902

Project Address: 10160 N Lombard St #700

Hearing Date: 9/25/19

Appellant Name: Bob Phillips

Case No.: B-002

Appellant Phone: 303-886-6184

Appeal Type: Building

Plans Examiner/Inspector: Alice Johnson, Renay Radtke-Butts

Project Type: commercial

Stories: 1 **Occupancy:** F-1 **Construction Type:** V-B

Building/Business Name:

Fire Sprinklers: Yes - throughout

Appeal Involves: Alteration of an existing structure

LUR or Permit Application No.: 19-193797-CO

Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4]

Proposed use: Factory - Indoor Agricultural

APPEAL INFORMATION SHEET

Appeal item 1

Code Section

N5003.2.1, PFC 5003.2.3

Requires

Equipment associated with the use, storage or handling of hazardous materials shall be listed or approved.

Proposed Design

Extracted material moved beyond the C1D1 environment to not be considered hazardous, due to LEL level, therefore Vac Ovens are not required to be listed for a classified environment. Vac Ovens/pumps are vented to the exterior. Refer to attached M sheet with highlighted notation. Vac Oven cut sheet and manual attached for reference.

Reason for alternative

Operational procedures developed for the extraction of plant oils require that the material reach a level below 10% LEL rendering them non-hazardous therefore Vac Ovens shall not be required to be listed for hazardous material.

Excerpt from Proprietary SOP's (SOP Attached):

10 - Procedures

10.1. Material removed from the Hydrocarbon Botanical Extraction System (HBES) is laden with flammable solvent that must be de-gassed within the extraction room prior to removal from the room.

10.2. Material will be spread on parchment lined baking sheets and set on racks to dry.

10.3. Material can be removed from the extraction room once the concentration is verified to be below 10% of the LEL using a portable hand-held combustible gas monitor. For Butane, the LEL is 1.6% by volume in air.

10.3.1. Material must not register any butane when the portable gas monitor is held directly above

the center of a tray of materials, the distance between the material and the monitor shall be no more than 2" during the LEL check.

10.3.2. Extracted product is verified to be "dry" before it can be removed from the C1D1 area for transfer to vacuum ovens.

10.3.3. Spent Material is verified to be "dry" before it can be removed from the C1D1 area.

10.4. In the event of a failed test, the material shall continue to be dried until it can pass the test.

APPEAL DECISION

Use of unlisted vacuum ovens: Granted provided the ovens are exhausted to the exterior and provided the degassing procedure occurs before the materials are removed from the extraction room and provided the full degassing procedure is included within the required technical opinion report. Appellant may contact John Butler (503 823-7339) with questions.

The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

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1/11/2019 11:01:11 AM

MECHANICAL EQUIPMENT SCHEDULE - PROCESSING

Table with columns: QTY, TYPE MARK, DESCRIPTION, MANUFACTURER, MODEL, COOLING, HEATING, CFM, STATIC PRESSURE, VOLTAGE, AMPS, MOP, WEIGHT (LBS), COMMENTS. Includes items like Air Compressor, Wall Mount Mini Split Air Handler, Process Chiller, Walk-in Freezer, etc.

PROJECT ABBREVIATION LEGEND table with columns: ABBR., DESCRIPTION. Lists abbreviations for various equipment like AC, AH, BD, CF, etc.

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Job No.: 2019-018

ISSUE DATE: 8/28/19
AUTHOR: Lucas Hill
CHECKED: Checker
DESIGNED: Designer
STATUS FOR PERMIT SUBMISSION

SHEET TITLE
MECH SCHEDULES

Revisions

Table with columns: NO., DATE, ITEM. Revision 1: 8/28/19 CORRECTION NOTICES MECHANICAL, STRUCTURAL, SOURCE CONTROL

MECHANICAL EQUIPMENT - SPLIT SYSTEM SCHEDULE

Table with columns: QTY, TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL, COOLING, HEATING, CFM, VOLTAGE, AMPS, MOP, PHASE, WEIGHT (LBS), COMMENTS. Includes items like Wall Mount Mini Split Air Handler, Rooftop AC Condensing Unit, etc.

ARCHITECTURAL PROCESSING EQUIPMENT SCHEDULE

Table with columns: TYPE MARK, DESCRIPTION, COMMENTS. Lists architectural equipment like BHO Extractor, Pneumatic Pump, etc.

MECHANICAL EQUIPMENT - FAN SCHEDULE

Table with columns: TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL, CFM, STATIC PRESSURE, VOLTAGE, AMPS, MOP, WEIGHT (LBS), COMMENTS. Lists various fan types like Booth Exhaust Fan, Processing Room Exhaust Fan, etc.

GENERAL:

- 1. LOCATE CUT AND FRAME ROOF OPENINGS AS SHOWN IN STRUCTURAL ENGINEERING DRAWINGS FOR ALL HVAC EQUIPMENT, HOODS AND FANS. IT VERY IMPORTANT THAT ACCURATE MEASUREMENTS ARE USED WHEN LOCATING EXHAUST FAN OPENINGS TO ENSURE THAT NO DUCT OFF SETS ARE REQUIRED. COORDINATE ROOF OPENINGS WITH THE KITCHEN EQUIPMENT.
3. PROVIDE ANY FRAMING REQUIRED FOR DIFFUSER INSTALLATION IN HARD LID CEILING.

HVAC:

- 1. INSTALLATION WILL CONFORM TO THE ENERGY CONSERVATION DESIGN MANUAL STANDARDS FOR NEW NONRESIDENTIAL BUILDINGS IF REQUIRED.
2. ALL WORK AND MATERIALS SHALL COMPLY WITH GOVERNING CODES, SAFETY ORDERS AND REGULATIONS.
3. OBTAIN AND PAY FOR ALL NECESSARY PERMITS FEES AND INSPECTIONS REQUIRED BY GOVERNING AUTHORITIES UNLESS NOTED OTHERWISE.
4. PROVIDE CONDUIT FOR LINE VOLTAGE WIRING, LINE VOLTAGE SWITCHES AND FINAL CONNECTIONS.
5. LOW VOLTAGE WIRING FOR HVAC TO BE IN CONDUIT IN WALLS, PLENUM RATED IN CEILING AREA OR CONDUIT PER CODE OUTSIDE OF WALL.
6. ANY EQUIPMENT THAT IS SUBSTITUTED SHALL FIT IN THE SPACE PROVIDED WITH ADEQUATE ROOM FOR SERVICING. INCLUDING SUBSTITUTE EQUIPMENT NAMED IN THE SPECIFICATIONS. CONTRACTOR SHALL SUBMIT A 1/4" SCALE DRAWING OF ALL EQUIPMENT SUBSTITUTED FOR APPROVAL PRIOR TO INSTALLATION. INCLUDING BUT NOT LIMITED TO STRUCTURAL AND ARCHITECTURAL IMPACT CLEARANCE REQUIREMENTS AND UTILITY REQUIREMENTS.
7. INSTALL REFRIGERANT LINES FROM EQUIPMENT TO CONDENSER TYPICALLY LOCATED ON THE ROOF. SUPPLIED BY CONTRACTOR.
8. HVAC UNITS SHALL BE MOUNTED LEVEL ON ROOF CURBS.
9. ALL EXPOSED DUCTWORK TO BE INTERNALLY LINED AND PAINTED AS SHOWN ON THE ARCHITECTURAL DRAWINGS. ALL OTHER DUCT WORK SHALL BE INSULATED PER THE SPECIFICATIONS.
10. ALL ROUND SUPPLY / RETURN DUCTS SHALL BE RIGID, WITH THE EXCEPTION OF THE LAST 5' WHICH MAY BE FLEX. (ACCESSIBLE CEILINGS ONLY)
11. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN AIR DUCT (> 2000 CFM AIR FLOW) AND SHALL DEACTIVATE ROOFTOP UNIT UPON SENSING SMOKE. REFER TO ELECTRICAL DRAWINGS.
12. ALL KITCHEN HOOD EXHAUST DUCTS SHALL BE RIGID 16 GA MINIMUM, WELDED STEEL DUCT. WELDS SHALL BE GROUND SMOOTH. DUCT SHALL PASS A LIGHT TEST. DUCT SHALL BE FIRE-WARPED PER CODE.
13. ALL BRANCH DUCTS FEEDING INDIVIDUAL DIFFUSERS SHALL HAVE BALANCE DAMPERS AT THE TAKEOFF POINT. DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPER AT AIRFLOW DEVICE AT AREAS WHERE THE CEILING IS INACCESSIBLE. ALL UTILITY PIPING FOR RTU'S SHALL RUN UP THROUGH THE ROOF INSIDE EACH UNITS ROOF CURB.
14. ALL OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10' FROM EXHAUST FANS AND/OR VENTS.
15. FINAL HVAC SYSTEM TESTING AND BALANCING SHALL BE PERFORMED BY AN INDEPENDENT AGENT. A RE-TEST IS MANDATORY FOR A FALSE START (I.E. NO POWER UPON AGENTS ARRIVAL. EQUIPMENT NOT WIRED, ETC.) AND SHALL BE A COST INCURRED BY THE G.C. IN THE EVENT A SYSTEM / STORE RECEIVES A GRADE OF 5 OR BELOW AS A RESULT OF THE HVAC SYSTEM PERFORMANCE OR OPERATIONAL DEFICIENCIES, OWNER WILL REQUEST A RE-TEST AND THE COST FOR SAME SHALL ALSO BE INCURRED BY THE GENERAL CONTRACTOR.
16. PROGRAMMABLE THERMOSTAT PROVIDED BY CONTRACTOR. (QUANTITY PER PLANS)
17. THERMOSTAT SENSOR (REMOTE) IF REQUIRED, PROVIDED BY CONTRACTOR. (QUANTITY PER PLANS)

AIR TERMINAL SCHEDULE

Table with columns: TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL, SIZE, FLOW, STATIC PRESSURE (I), COMMENTS. Lists various air terminal types like Egg Crate Filtered Exhaust Grille, Exhaust Grille, Return Air Transfer, etc.

SEE NOTE 4 BELOW

DUCT ACCESSORY SCHEDULE

Table with columns: QTY, TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL, STATIC PRESSURE (I), COMMENTS. Lists duct accessories like Balance Damper, Carbon Filter, Vent Cap, etc.

STANDBY GENERATOR SCHEDULE

Table with columns: QTY, TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL, WEIGHT (LBS), COMMENTS. Lists Diesel Standby Generator.

MECHANICAL EQUIPMENT - PROCESSING LPG TANK SCHEDULE

Table with columns: TYPE MARK, MARK, DESCRIPTION, MANUFACTURER, MODEL. Lists Gas Cylinder - LPG - 120# and Gas Cylinder - N-BUTANE - 120LB.

- NOTES:
1. PROVIDE CONDENSATE PUMP (SUGGESTED MODEL: LITTLE GIANT VCMA-15 OR SIMILAR). DRAIN TO NEAREST MOP SINK OR OTHER APPROVED DRAIN.
2. PROVIDE ACTIVATION CONTROL SYSTEM FROM THERMOSTAT FOR COMPRESSOR ROOM FANS. VENTILATE SPACE WHEN TEMPERATURE REACHES 85°F.
3. PROVIDE WITH EMERGENCY POWER FED FROM STANDBY GENERATOR.
4. DIFFUSERS MAY BE RE-SPECIFIED BY CONTRACTOR WITH COMPARABLE MODELS, MATCH AIRFLOW AND PRESSURE.
5. PROVIDE WITH EMERGENCY POWER FED FROM STANDBY GENERATOR AND CONTROLS AS NECESSARY FOR FUNCTIONALITY. FGH-1 CONTROL DAMPER TO ACTUATE OPEN DURING AN LEL ALARM EVENT TRIGGERED BY HAL EXTRACTION BOOTH, OR IN THE EVENT OF A POWER FAILURE.
6. CONNECT INTO BUILDING NATURAL GAS SUPPLY. CONTRACTOR TO VERIFY EQUIPMENT REQUIREMENTS, SIZE GAS SUPPLY LINE AND REGULATOR, AND VERIFY GAS METER CAPACITY IS ADEQUATE FOR ADDITIONAL LOAD.

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PROJECT ABBREVIATION LEGEND	
ABBR.	DESCRIPTION
AC	AIR COMPRESSOR
AH	AIR HANDLER
BD	BALANCE DAMPER
CF	CARBON FILTER
CHL	CHILLER
CU	CONDENSING UNIT
DH	DEHUMIDIFIER
EEW	EMERGENCY EYEWASH
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EXM	EXTRACTION MACHINE
FRZ	FREEZER
GEN	STANDBY GENERATOR
GIH	GRAVITY INTAKE HOOD
HTR	PROCESS HEATER
MAU	MAKEUP AIR UNIT
RA	RETURN AIR TRANSFER
REG	REGULATOR
RTU	ROOFTOP UNIT
SD	SUPPLY DIFFUSER
SF	SUPPLY FAN
SVP	SOLVENT VAPOR PUMP
TK	PROCESS TANK
VC	VENT CAP
VO	VACUUM OVEN
VP	VACUUM PUMP

PIPING SYSTEMS LEGEND	
ABBR.	DESCRIPTION
AIR	COMPRESSED AIR
CHL RTN	CHILLER RETURN
CHL SUPPLY	CHILLER SUPPLY
HTR RTN	HEATER RETURN
HTR SUPPLY	HEATER SUPPLY
N2 GAS	NITROGEN GAS
NG	NATURAL GAS
PRV VENT	PRESSURE RELIEF VALVE VENT
VP VENT	VACUUM PUMP VENT

1 REMOVE AND SEAL ALL EXISTING SUPPLY VENTILATION TO PROCESSING ROOM FROM RTU-1. NEW RTU-1 DUCTING TO REMAIN OUTSIDE NEW 1HR FIRE ENVELOPE FOR CONTROL AREA-1.

2 DUCTING PENETRATION THROUGH MASONRY WALL MUST REMAIN ABOVE EXIT CORRIDOR IN ORDER TO MAINTAIN THE FIRE RATED ENVELOPE. ALTERNATIVELY INSTALL FIRE DAMPERS AS REQUIRED.

KEYNOTE LEGEND	
NO.	NARRATIVE
DU1	DUCT JOINTS, SEAMS, & CONNECTIONS (MFC 603.9). METALLIC & NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKET, MASTICS, ADHESIVES, MASTIC PLUS-EMBEDDED FABRIC SYSTEMS, LIQUID SEALANT OR TAPES.
DU2	DUCT SHALL BE SUPPORTED (603.10) AT INTERVALS NOT TO EXCEED 12 FEET AND SHALL BE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE. FLEXIBLE AND OTHER FACTORY MADE DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
H5	ANY EQUIPMENT THAT IS SUBSTITUTED SHALL FIT IN THE SPACE PROVIDED WITH ADEQUATE ROOM FOR SERVICING, INCLUDING SUBSTITUTE EQUIPMENT NAMED IN THE SPECIFICATIONS. CONTRACTOR SHALL SUBMIT A 1/4" SCALE DRAWING OF ALL EQUIPMENT SUBSTITUTED FOR APPROVAL PRIOR TO INSTALLATION, INCLUDING BUT NOT LIMITED TO STRUCTURAL AND ARCHITECTURAL IMPACT CLEARANCE REQUIREMENTS AND UTILITY REQUIREMENTS.

KEYNOTE LEGEND	
NO.	NARRATIVE
H12	ALL BRANCH DUCTS FEEDING INDIVIDUAL DIFFUSERS SHALL HAVE BALANCE DAMPERS AT THE TAKEOFF POINT. DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPER AT AIRFLOW DEVICE AT AREAS WHERE THE CEILING IS INACCESSIBLE.
H27	UPC INDIRECT WASTES CHAPTER 8: 814.1 CONDENSATE DISPOSAL. CONDENSATE FROM AIR WASHERS, AIR-COILS, CONDENSING APPLIANCES, AND THE OVERFLOW FROM EVAPORATIVE COOLERS AND SIMILAR WATER-SUPPLIED EQUIPMENT OR SIMILAR AIR-CONDITIONING EQUIPMENT SHALL BE COLLECTED AND DISCHARGED TO AN APPROVED PLUMBING FIXTURE OR DISPOSAL AREA. WHERE DISCHARGED INTO THE DRAINAGE SYSTEM, EQUIPMENT SHALL DRAIN BY MEANS OF AN INDIRECT WASTE PIPE. THE WASTE PIPE SHALL HAVE A SLOPE OF NOT LESS THAN 1/8 INCH PER FOOT OR 1 PERCENT SLOPE AND SHALL BE OF APPROVED CORROSION-RESISTANT MATERIAL NOT SMALLER THAN THE OUTLET SIZE OF IN ACCORDANCE WITH SECTION 814.3 OR SECTION 814.4 FOR AIR COOLING COILS OR CONDENSING APPLIANCES, RESPECTIVELY. CONDENSATE OR WASTEWATER SHALL NOT DRAIN OVER A PUBLIC WAY.
M8	UNDERCUT RESTROOM AND OFFICE DOORS A MINIMUM OF 3/4" FOR TRANSFER AIR.
M17	NFPA 91 CHAPTER 6 AIR-MOVING DEVICES 6.2 FLAMMABLE OR COMBUSTIBLE MATERIALS. WHERE FLAMMABLE OR COMBUSTIBLE MATERIALS ARE CONVEYED AT CONCENTRATIONS GREATER THAN 1 PERCENT OF THE LFL, THE ROTATING ELEMENT OF THE AIR-MOVING DEVICE SHALL BE NONFERROUS OR THE AIR-MOVING DEVICES SHALL BE CONSTRUCTED SUCH THAT A SHIFT OR THE ROTATING ELEMENT OR SHAFT DOES NOT PERMIT TWO FERROUS PARTS TO RUB OR STRIKE.
M18	NFPA 91 CHAPTER 8 IGNITION SOURCES 8.1 ELECTRICAL EQUIPMENT. ALL ELECTRICAL EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 70.
OREN-1	SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING PER OECSC SECTION 503.2.7

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PROJECT NAME
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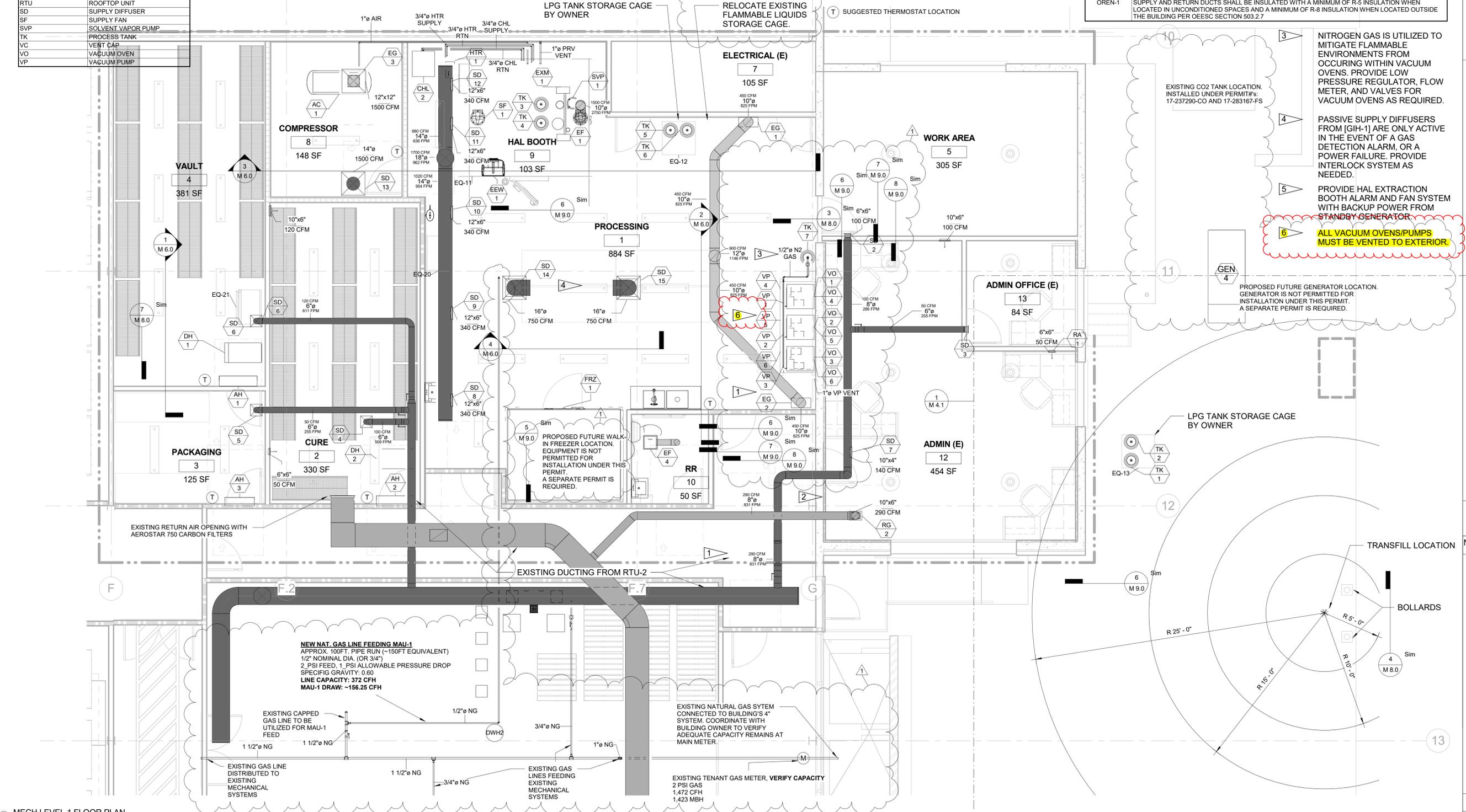
ADDRESS
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Job No.: 2019-018
 ISSUE DATE: 8/28/19
 AUTHOR: Lucas Hill
 CHECKED: Checker
 DESIGNED: Designer
 STATUS FOR PERMIT SUBMISSION

SHEET TITLE
MECH FLOOR PLAN

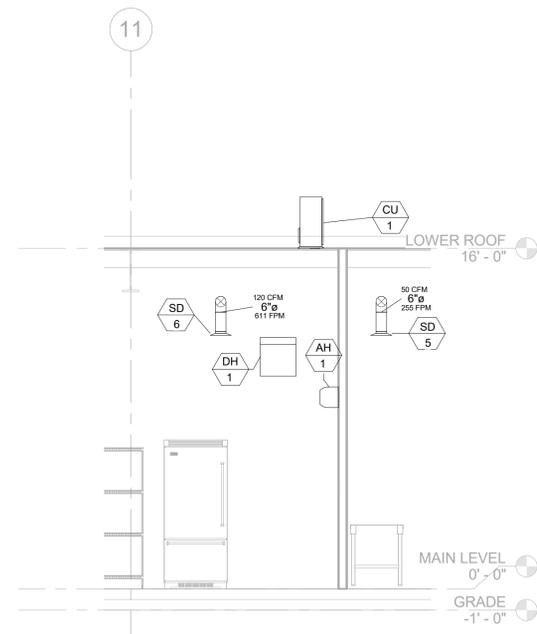
Revisions		
NO.	DATE	ITEM
1	8/28/19	CORRECTION NOTICES MECHANICAL, STRUCTURAL, SOURCE CONTROL

M 4.0

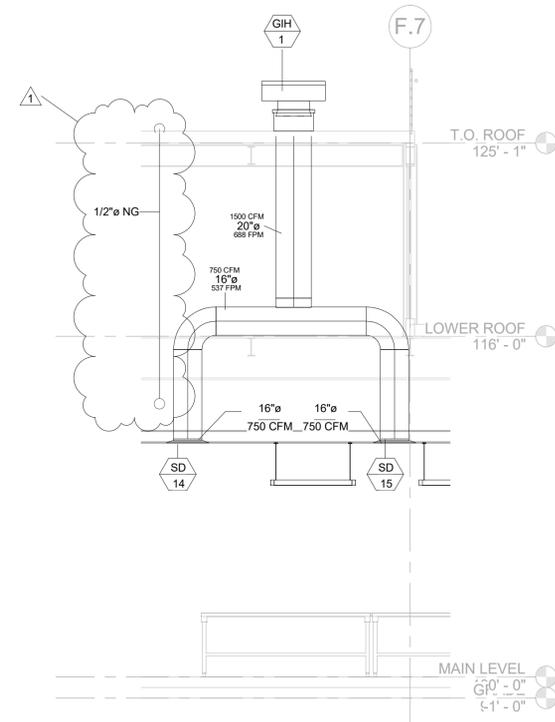


1 MECH LEVEL 1 FLOOR PLAN
 1/4" = 1'-0"

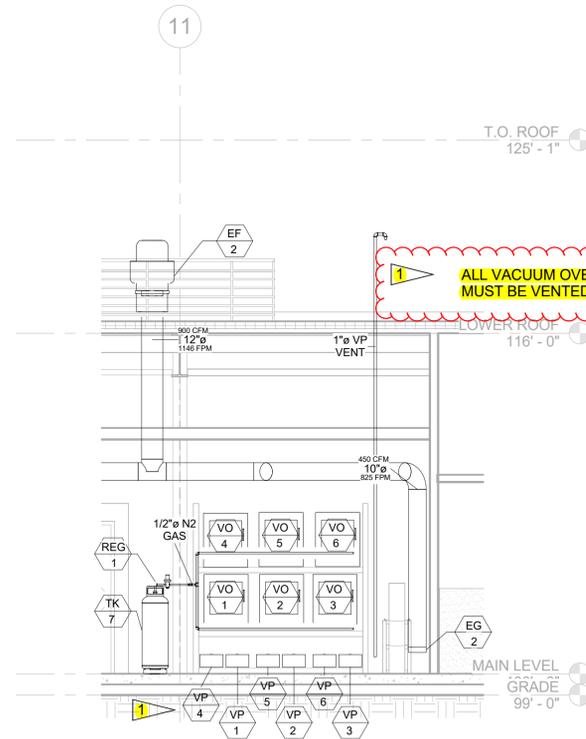
C:\BDEPE\PROJECTS\2019-018 BDEPE OPS II - EXT_PROCESSING T1 - JEFF S. _DESIGN\BUILD - ST. JOHNS\REV\T1\2019-018 BDEPE OPS II - EXT_PROCESSING T1 - JEFF S.-2017.M



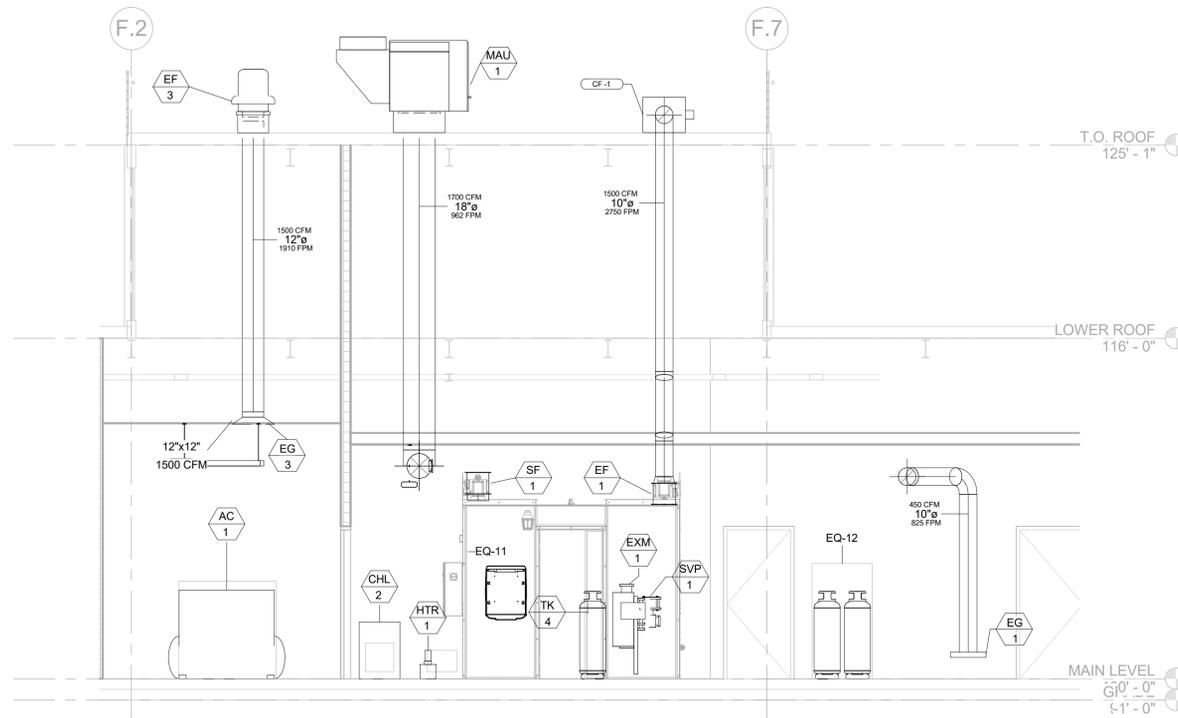
1 MECH ELEVATION VAULT EQUIPMENT
1/4" = 1'-0"



4 MECH ELEVATION GRAVITY INTAKE HOOD SUPPLY DUCTING
1/4" = 1'-0"



2 MECH ELEVATION VACUUM OVENS
1/4" = 1'-0"



3 MECH ELEVATION EXTRACTION BOOTH DUCTING
1/4" = 1'-0"

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MECH ELEVATIONS

Revisions

NO.	DATE	ITEM
1	8/28/19	CORRECTION NOTICES MECHANICAL, STRUCTURAL, SOURCE CONTROL

IHW 5C-01.11 61.02/91/6

VACUUM OVENS



- OPTIMIZED PURGING, DRYING OF SENSITIVE MATERIAL
- PROFESSIONAL GRADE
- MADE IN USA
- NRTL CERTIFIED

Cascade's vacuum ovens offer incredible temperature stability for vacuum drying or purging of pharmaceuticals, botanicals, slurries, or any temperature sensitive material.

FEATURES

Temperature probe INSIDE oven for accurate readings

Full KF-25 port available for reduced purge times

Bright LED lights & large tempered safety glass viewing window

Microprocessor Control

Digital Vacuum Gauge

Solvent resistant BUNA-N door gasket

Top-quality, easy turn valves by Swagelok®



NRTL CERTIFICATION

CAN/CSA-C22.2 No. 61010-1:2012

ULP No. 1-2015-04 FLD No. 2-2016-04

CAN/CSA-C22.2 No. 61010-2-010:2015

UL 61010-1:2012/R:2016-04

UL 61010-2-010:2015

EN 61010-1:2010

EN 61010-2-010:2014



Made in USA



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VACUUM OVENS



NRTL CERTIFICATION

CAN/CSA-C22.2 No. 61010-1:2012
+ UPD No. 1:2015-07 + UPD No. 2:2016-04

CAN/CSA-C22.2 No. 61010-2-010:2015

UL 61010-1:2012/R:2016-04

UL 61010-2-010:2015

EN 61010-1:2010

EN 61010-2-010:2014



MODEL TVO-2B



MODEL TVO-5B



MODEL CVO-10

CAPACITY

Volume:

Interior:

Exterior:

Benchtop

1.7 Cubic Ft

12"W x 20"D x 12"H

18.75"W x 26.5" D x 24.5"H

Benchtop

4.5 Cubic Ft

18.25" W x 24" D x 18.25" H

25" W x 30.5" D x 30.5" H

Freestanding

9.3 Cubic Ft

28"W x 24"H x 24"D

42.3"W x 43"D x 42.3"H
67.6"H with stand

SHELVING

Surface Area:

Weight Capacity:

5 Each. Flexible Config
1" High, 2" High and 3" High

12"W x 19.5"D

50 lbs

5 Each. Adjustable
8 Max

18"W x 24"D

50 lbs

9 Each. Fixed. Removable
9 Max

28"W x 24"D

50 lbs

TEMPERATURE

Stability:

Uniformity:

± 0.4° @105°F

+1.5° @ 105°F

± 0.4° @105°F

+1.5° @ 105°F

± 0.4° @105°F

+1.5° @ 105°F

CONNECTIONS

Vacuum:

Vent:

KF-25 Port:

3/8" barb

1/4" barb

YES (1" Dia)

3/8" barb

1/4" barb

YES (1" Dia)

KF-25, 1" Lines, 1" Valve

1/2" barb

YES (1" Dia)

FACILITIES

Power:

Options:

Standard Cord:

120V / 1ph / 9 FLA

208V - 220V / 1ph / 4.5 AMP

110 - 120V NEMA 5-15
international options

120V / 1ph / 14 FLA

208V - 220V / 1ph / 7FLA

110 - 120V NEMA 5-15
international options

220-240V / 1ph / 10 FLA

Will Run on 208V Service

NEMA 6-15R 220 - 240V
international options

WEIGHT

Shipping:

145 lbs

180 lbs

249 lbs

449 lbs

663 lbs

775 lbs



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Confidential Information

Standard Operation Procedure Off-Gassing Material
Document Number [####]

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1. Purpose

The purpose of this SOP is to provide instruction on how to properly off-gas or boil off all of the butane from material removed from the HBES before removing the material from the extraction room.

2. Scope

This document is applicable to laboratory operations.

3. Terminology

This section should include abbreviations, definitions, acronyms, key words, or other special terms contained within the procedure.

Term	Definition
HBES	Hydrocarbon Botanical Extraction System
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
LEL	Lower Explosive Limit; the minimum concentration of a specific gas or vapor molecule needed to support its combustion in air
C1D1	Class 1 Division 1 Explosion Proof Area Hazardous Area Classification

4. Safety

PPE required includes the following:

Flame Resistant long-sleeved shirts and jeans or pants.

Latex/Nitrile disposable gloves

Closed-toe shoes that are chemical resistant and have non-skid soles

Safety glasses with side shields

Goggles (where there is a potential for splashing liquids)

5. Equipment

Personal or handheld gas detector (Butane).

Baking sheet pans

Baking racks, or similar racks that allow for airflow over and under sheet pans

6. Materials

Butane
Parchment paper

7. Chain of Custody

Not applicable to this procedure.

8. Record Keeping

Results of tests shall be documented. Test information shall include the following

- Date and time of test
- Operator
- Make, Model, and Serial Number of the detector used to test
- Result of test (Pass/Fail)

9. Equipment Set-Up

Gas detector to be used shall have passed bump test that day, per the Bump Test SOP, prior to use.

10. Procedure

- 10.1. Material removed from the HBES is laden with flammable solvent that must be de-gassed within the extraction room prior to removal from the room.
- 10.2. Material will be spread on parchment lined baking sheets and set on racks to dry.
- 10.3. Material can be removed from the extraction room once the concentration is verified to be below 10% of the LEL using a portable hand-held combustible gas monitor. For Butane, the LEL is 1.6% by volume in air.
 - 10.3.1. Material must not register any butane when the portable gas monitor is held directly above the center of a tray of materials, the distance between the material and the monitor shall be no more than 2" during the LEL check.
 - 10.3.2. Extracted product is verified to be "dry" before it can be removed from the C1D1 area for transfer to vacuum ovens.
 - 10.3.3. Spent Material is verified to be "dry" before it can be removed from the C1D1 area.
- 10.4. In the event of a failed test, the material shall continue to be dried until it can pass the test.
- 10.5. Once all material has been completely off-gassed and removed from the C1D1 extraction room, the HBES can be loaded for a new cycle.

11. Waste Handling

Spent waste shall be handled according to the Lab Waste Handling Procedure.

12. Calculations

Not applicable to this procedure.

13. References

Bump Test SOP

Lab Waste Handling SOP

14. Appendices

Not applicable to this procedure.