NIST

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

UNITED STATES DEPARTMENT OF COMMERCE

BOULDER COLORADO

MECHANICAL LEGEND

NOTE: ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED

PIPING

- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- LCA — COMPRESSED AIR PIPE
- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- HPS — HIGH PRESSURE STEAM SUPPLY (700 kPa AND ABOVE)
- HPR — HIGH PRESSURE STEAM RETURN
- LPS — LOW PRESSURE STEAM SUPPLY (BELOW 200 kPa)
- LPR — LOW PRESSURE STEAM RETURN
- CPD — CONDENSATE PUMP DISCHARGE
- NG — NATURAL GAS PIPE
- PW — PLANT WATER

VALVES & SPECIALTIES

- FLOW INDICATOR
- SHUT-OFF VALVE
- BALL VALVE
- BUTTERFLY VALVE
- PRESSURE REDUCING VALVE
- GLOBE VALVE
- CHECK VALVE
- FLOW CONTROL VALVE W/ CHECK
- PLUG OR BALANCING SHUT-OFF VALVE
- N.O. VALVE WITH LOCKING COVER
- PLUG OR BALANCING SHUT OFF VALVE
- SHUT OFF VALVE IN RISER
- DRAIN VALVE W/ HOSE END
- STRAINER W/ BLOW-OFF VALVE
- TEMPERATURE CONTROL VALVE, 3-WAY
- TEMPERATURE CONTROL VALVE, 2-WAY
- PRESSURE REDUCING VALVE
- SAFETY OR RELIEF VALVE
- AIR VENT
- PRESSURE – TEMP. TAP
- PRESSURE GAUGE W/ PIG TAIL & COCK
- THERMOMETER
- VACUUM BREAKER
- PIPE EXPANSION JOINT
- FLEXIBLE PIPE CONNECTOR
- FLEXIBLE EQUIPMENT CONNECTOR
- PIPE UNION
- PIPE CAP
- PIPE ANCHOR
- PIPE GUIDE
- STEAM TRAP (SEE SCHEDULE FOR TYPE)
- PUMP
- ARROW INDICATES DOWNWARD PITCH OF PIPES
- PIPE ELBOW UP 90 OR 45
- PIPE ELBOW DOWN 90 OR 45
- PIPE TEE UP
- PIPE TEE DOWN

CONTROLS

- T — THERMOSTAT/SENSOR
- TN — NIGHT THERMOSTAT
- H — HUMIDISTAT SENSOR
- STARTER
- PS — PRESSURE SWITCH
- APS — DIFFERENTIAL AIR PRESSURE SENSOR
- S — SWITCH
- FM — FLOW METER
- LT — LOW LIMIT THERMOSTAT
- DP — DIFFERENTIAL PRESSURE GAUGE
- FS — FLOW SWITCH

HVAC DUCTWORK

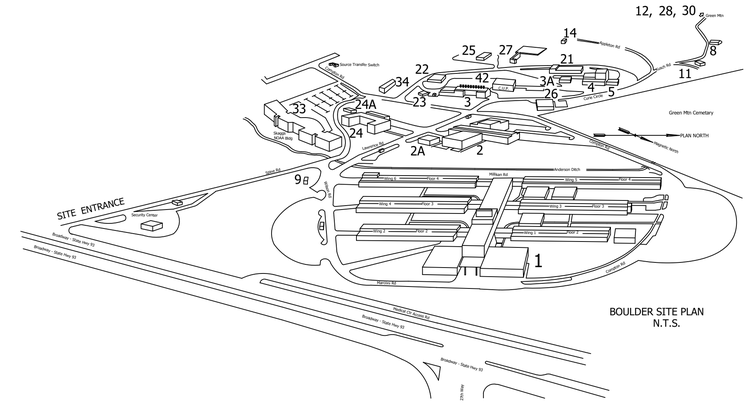
- FIRE DAMPER
- S — SMOKE DAMPER
- FS — COMBINATION FIRE/SMOKE DAMPER
- TURNING VANE SHOWN IN 90° ELBOW
- SECTION THRU SUPPLY AIR DUCT
- SECTION THRU OA, RA OR EXH DUCT
- SIZE / CFM — 4 WAY SUPPLY DIFFUSER (UNLESS OTHERWISE NOTED)
- OPPOSED BLADE DAMPER
- BD — BACKDRAFT DAMPER
- FLEXIBLE CONNECTION
- TEMPURATURE CONTROL DAMPER
- RETURN AIR GRILLE
- SIZE / CFM — SUPPLY DIFFUSER

MISCELLANEOUS

- VIEW NUMBER / SHEET NUMBER — SECTION CUT
- POINT OF CONNECTION NEW TO EXISTING
- U.C. 1" — UNDERCUT DOOR 1"

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALT	ALTITUDE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
C	COMMON PORT
Cv	COEFFICIENT, VALVE FLOW
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CFM	CUBIC FEET PER MINUTE
SCFM	CFM, STANDARD CONDITIONS
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEG OR °	DEGREE
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DB	DRY-BULB
DN	DOWN
EAT	ENTERING AIR TEMP.
EFF	EFFICIENCY
ELEV	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
(E)	EXISTING
EXIST	EXISTING
F	FAHRENHEIT
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FOOT OR FEET
FU	FIXTURE UNITS
GA	GAUGE
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HGT	HEIGHT
HORZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR(S)
HWC	HOT WATER CIRCULATING (DOMESTIC)
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
IN W.C.	INCHES WATER COLUMN
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS OR #	POUNDS
LF	LINEAR FEET
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MBH	BTU PER HOUR (THOUSAND)
MIN	MINIMUM
NC	NOISE CRITERIA
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
PPM	PARTS PER MILLION
%	PERCENT
PH OR ø	PHASE (ELECTRICAL)
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
PRESS	PRESSURE
RA	RETURN AIR
RECIRC	RECIRCULATE
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SL	SEA LEVEL
SENS	SENSIBLE
SPEC	SPECIFICATION
SQ	SQUARE
STD	STANDARD
SP	STATIC PRESSURE
SA	SUPPLY AIR
TEMP	TEMPERATURE
TD	TEMPERATURE DIFFERENCE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TONS	TONS OF REFRIGERATION
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VERT	VERTICAL
V	VOLT
VOL	VOLUME
W	WATT
WT	WEIGHT
WB	WET-BULB


12, 28, 30
14
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27
21
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42
3A
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24A
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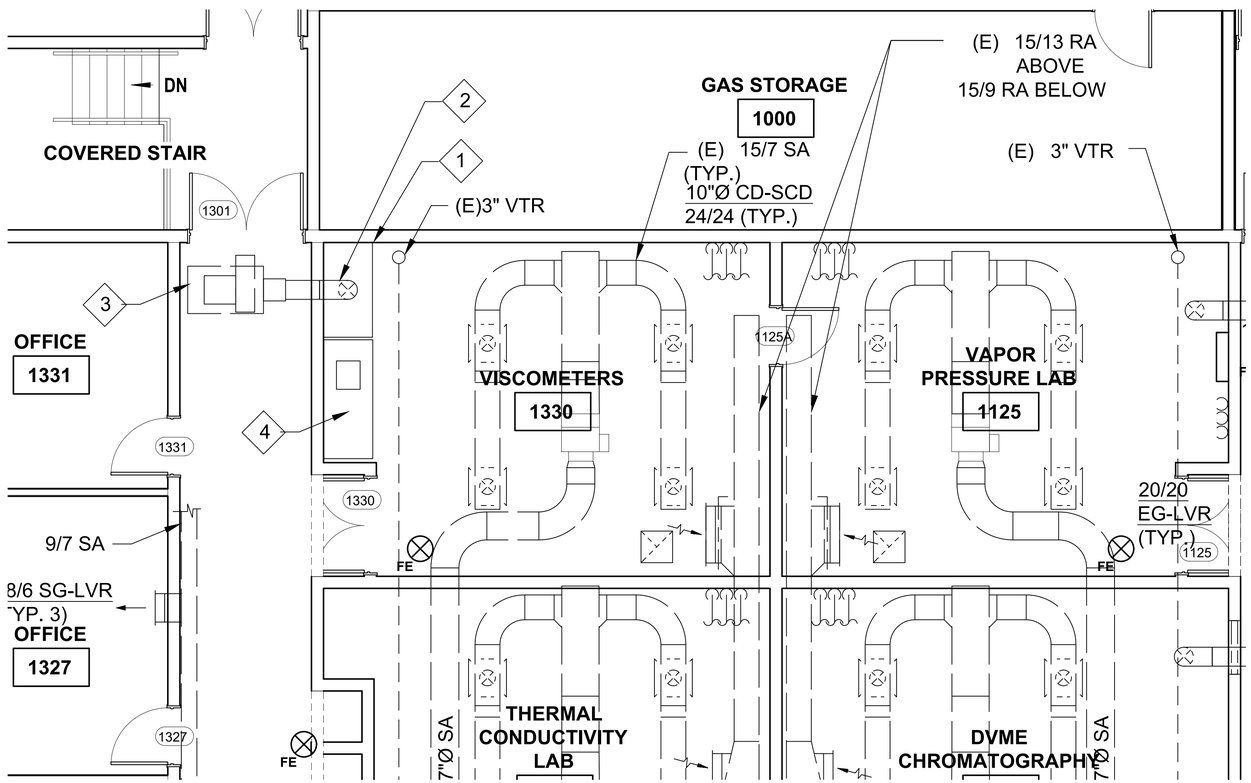
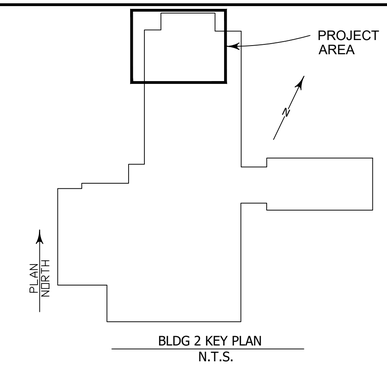
24
2A
2
9
1
SITE ENTRANCE
Visitor Center
Green Mtn Cemetery
PLAN NORTH
Broadway - State Hwy 93
Table Mesa Dr
Mesa Dr
Mesa Rd
Mesa Cir
Mesa Ln
Mesa Ct
Mesa Way
Mesa Pl
Mesa Trail
Mesa Vista Dr
Mesa Vista Ln
Mesa Vista Ct
Mesa Vista Way
Mesa Vista Pl
Mesa Vista Trail
Mesa Vista Cir
Mesa Vista Rd
Mesa Vista St
Mesa Vista Ave
Mesa Vista Blvd

MECHANICAL DEMO NOTES:

1. REMOVE FUME HOOD AND BASE CABINET COMPLETELY
2. REMOVE 10" PVC EXHAUST DUCT COMPLETELY, TEMPORARILY SEAL OPENING IN PLEXIGLAS.
3. REMOVE EXHAUST FAN ON ROOF COMPLETELY, INCLUDING ALL SUPPORTS AND PVC DUCT .
4. REMOVE COUNTER TOP, BASE AND SINK COMPLETELY.DHW, DCW AND WASTE TO REMAIN FOR NEW SINK. ROUGH BLACK SINK BASIN UNDERCOATING IS 3% NON-FRIABLE ASBESTOS. CONTRACTOR SHALL DISPOSE OF THE SINK PER STATE AND FEDERAL REGULATIONS.



FIRST FLOOR DEMO PLAN
SCALE: 1/4" = 1'



BLDG 2 KEY PLAN
N.T.S.

KEYNOTES

1. KEYNOTES

REVISION	DESCRIPTION	BY	SUPV.	DATE
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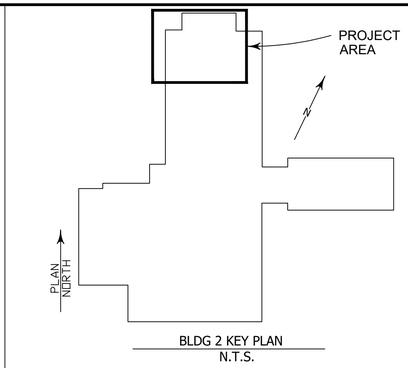
BUILDING 2
Room 1330 Walk-In Fume Hood
DEMOLITION
MECHANICAL

DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M-1 of

PROJECT NAME
B2 – Room 1330 Walk-In Fume Hood

MECHANICAL NEW WORK NOTES:

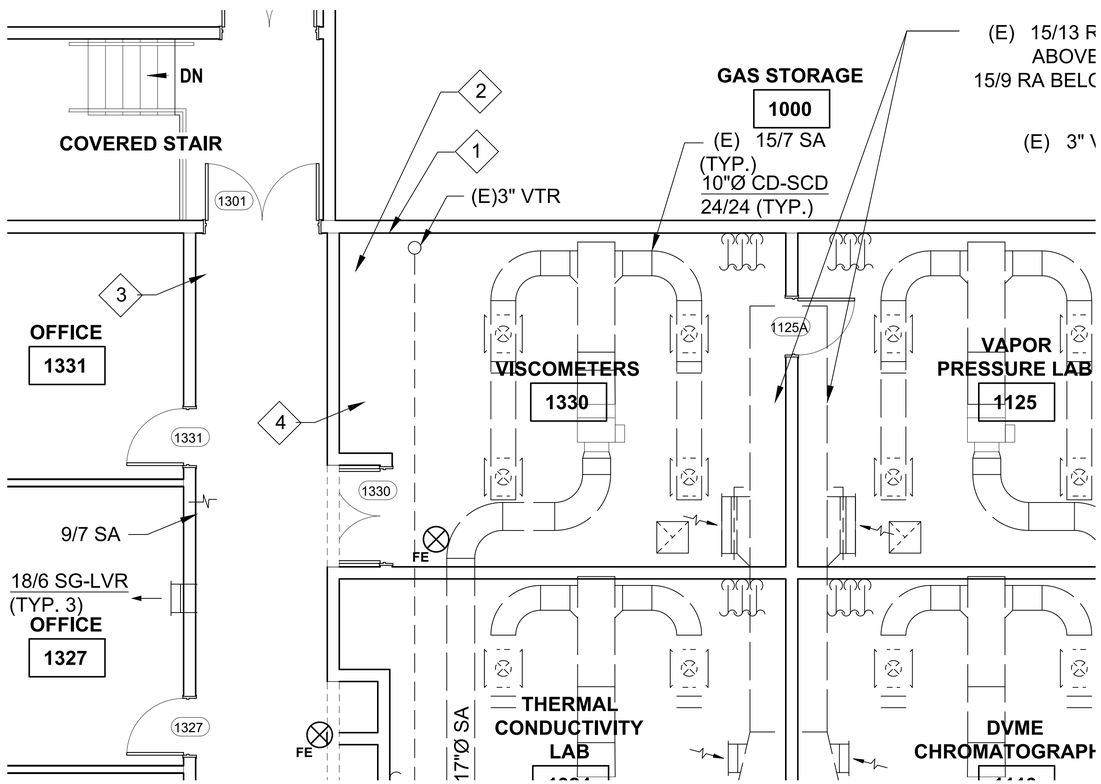
1. PROVIDE WALK-IN FUME HOOD 02-LFH-1330-1
2. PROVIDE 12" PVC DUCTWORK, RE-USE & ENLARGE OPENING IN PLEXIGLAS. REPLACE PLEXIGAS IF EXISTING OPENING CAN NOT BE RE-USED.
3. EXHAUST FAN 02-EF-LFH-1330-1 ON ROOF, REFER TO DWG M-4 & M-6.
4. PROVIDE COUNTER TOP , SINK AND BASE PER SCHEDULE. CONNECT TO EXISTING DHW, DCW AND WASTE.



BLDG 2 KEY PLAN
N.T.S.

KEYNOTES

1. KEYNOTES



FIRST FLOOR PLAN
SCALE: 1/4" = 1'

REVISION	DESCRIPTION	BY	SUPV.	DATE
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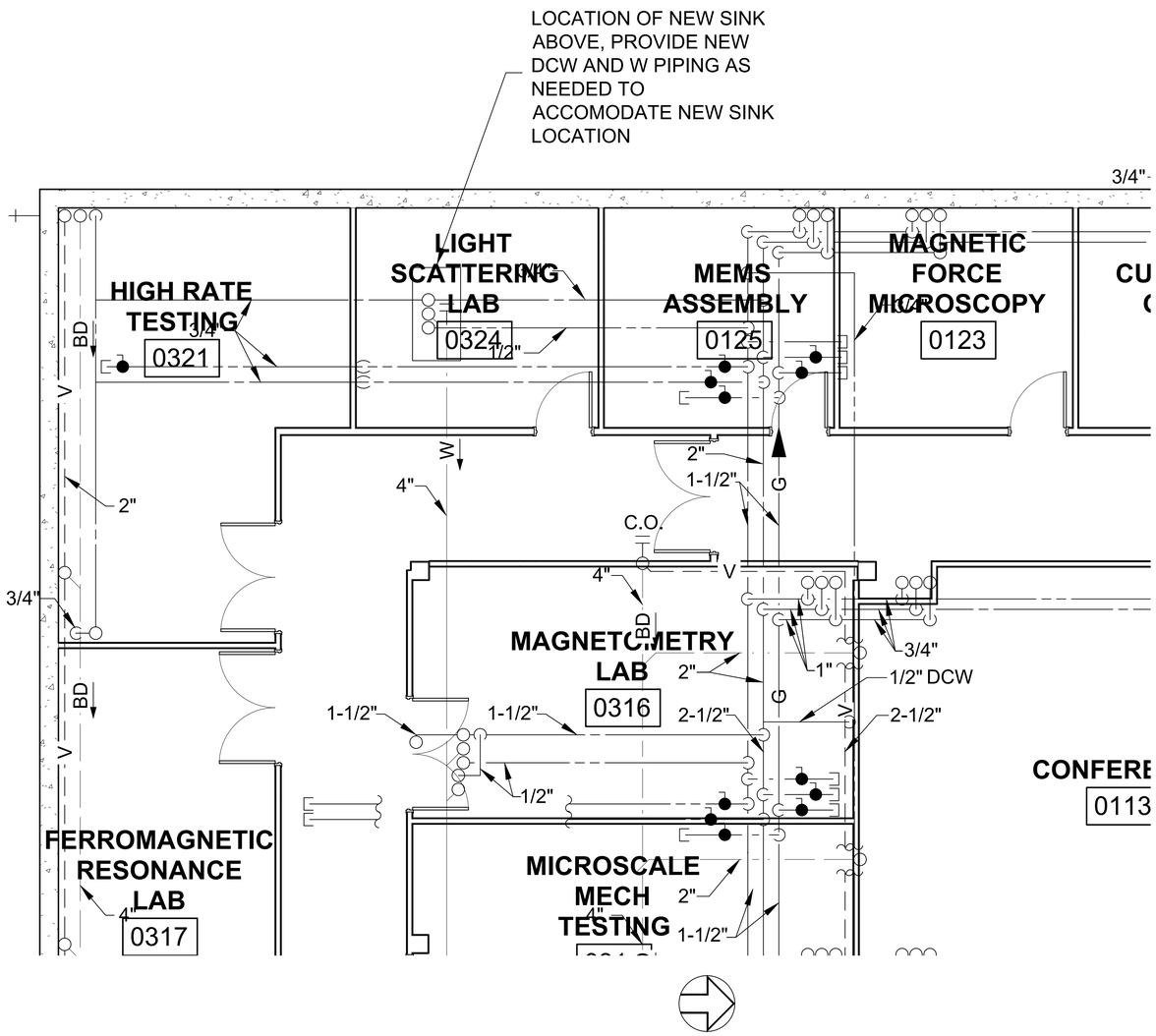
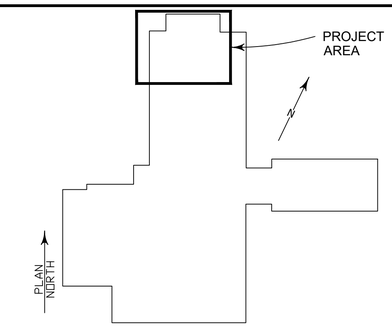
BUILDING 2
Room 1330 Walk-In Fume Hood
NEW WORK
MECHANICAL

DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M-2

PROJECT NAME
B2 – Room 1330 Walk-In Fume Hood





BLDG 2 KEY PLAN
N.T.S.

KEYNOTES

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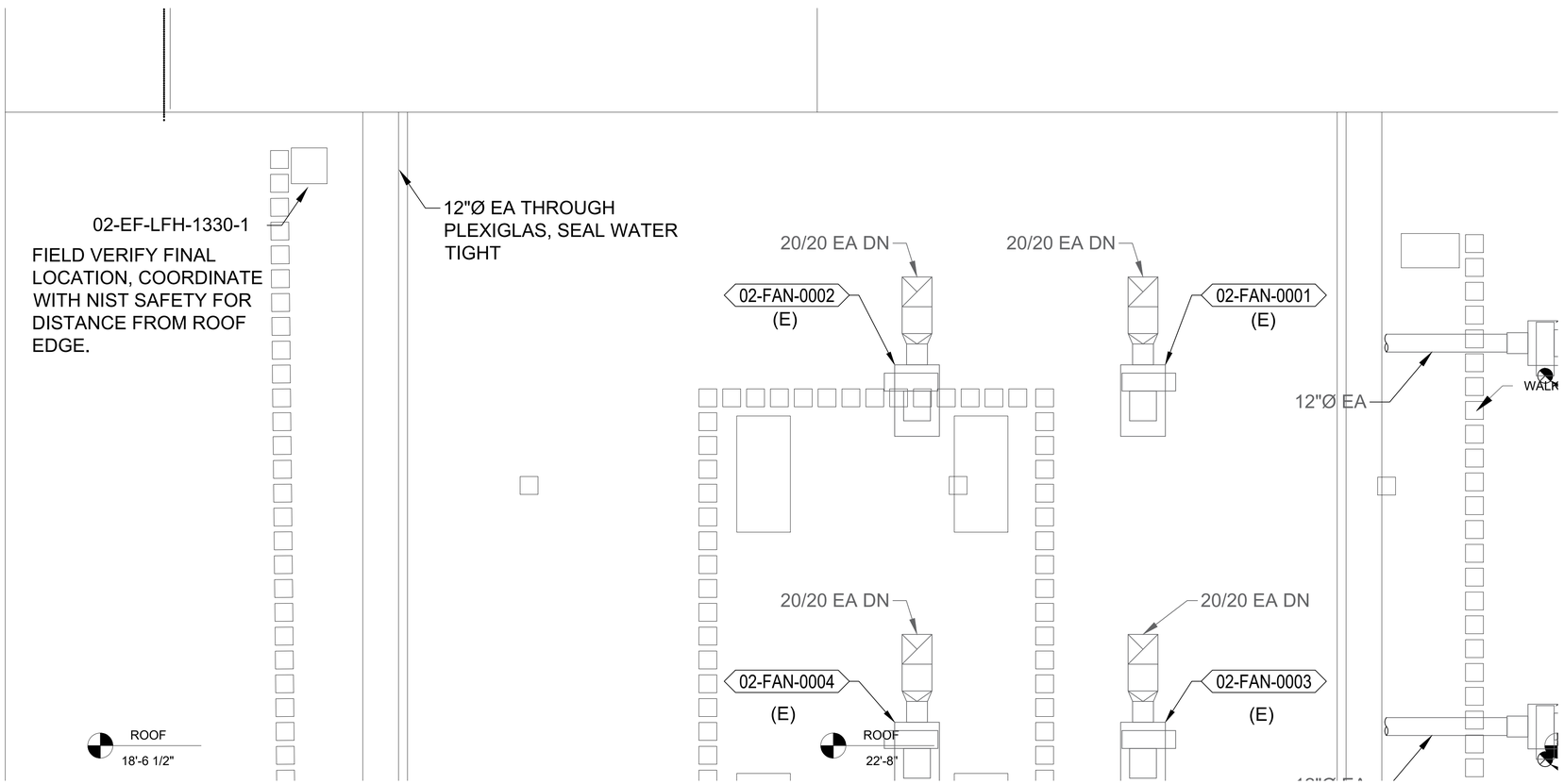
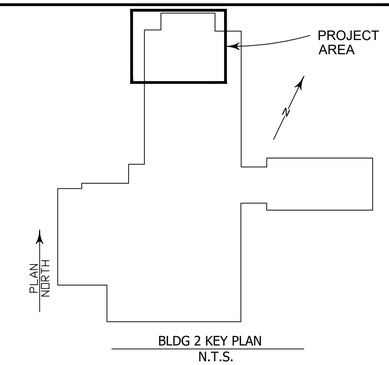
BUILDING 2
Room 1330 Walk-In Fume Hood
BASEMENT
MECHANICAL

DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M-3 of

PROJECT NAME
B2 – Room 1330 Walk-In Fume Hood



ROOF PLAN
SCALE: 1/4" = 1'



BLDG 2 KEY PLAN
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BUILDING 2
Room 1330 Walk–In Fume Hood
ROOF PLAN
MECHANICAL

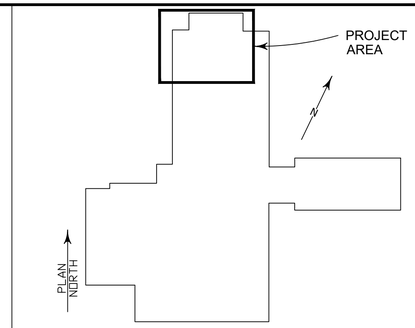
DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M–4 of

PROJECT NAME
B2 – Room 1330 Walk–In Fume Hood

FAN SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	SERVICE	CFM AT 5430'	S.P. IN. W.C.	APPROX. RPM	NOZZLE OUTLET VELOCITY (FPM)	VOLTAGE/ PHASE	MIN. HP	MCA	MOP	VIBRATION ISOLATOR TYPE	DRIVE TYPE	WEIGHT (LBS)	SPEC NOTES
02-EF-LFH-1330-1	GREENHECK	FJ	HOOD 02-LFH-1330-1 EXHAUST	950	0.50	1,689	1,223	115/60/1	0.25	3.56	6	SPRING, RESTRAINED, 1 INCH	DIRECT	126	1-19

1.MOTOR VFD RATED WITHOUT SHAFT GROUNDING PROTECTION
2.CONTROL - DIAL FOR BALANCING
3.MOTOR - VARI-GREEN EC MOTOR, NEMA-3R MOTOR ENCLOSURE, FOR INDOOR/OUTDOOR USE, GALVANIZED
4.MOTOR WITH MINIMUM 40 DEGREE C AMBIENT TEMPERATURE
5.MOTOR WITH CLASS B OR GREATER INSULATION
6.FINISH - COATED
7.COATING - HI-PRO POLYESTER, CONCRETE GRAY-RAL 7023, FAN AND ATTACHED ACCESSORIES
8.SWITCH - NEMA-3R, TOGGLE, FOR INDOOR OR OUTDOOR USE, MOUNTED AND WIRED
9.UL LISTED FOR UL/CUL-705 - "POWER VENTILATORS"
10. DISCHARGE POSITION - UB
11. ARRANGEMENT – 4
12.ROTATION - CW
13.DRAIN CONNECTION - HOLE ONLY
14.ACCESS DOOR - BOLTED
15.INLET FLANGE, SLIP FIT
16.OUTLET CONNECTION - SLIP FIT
17.DIRECT MOUNT ISOLATORS, ISOLATOR-SPRING, RESTRAINED, 1 INCH, INDOOR / OUTDOOR USE
18.FASTENERS - STANDARD
19.UNIT WARRANTY: 1 YR



BLDG 2 KEY PLAN
N.T.S.

CASEWORK SCHEDULE

DESIGNATION	MANUFACTURER	CASEWORK	FIXTURES	COLOR
CW-1	BEDCOLAB	(1) - 4' WIDE INSET STEEL SINK BASE CABINET. (1) - 3' WIDE MODESTY PANEL WITH TABLE RAILS AND END PANEL.	(1) - DECK MOUNTED H/CW MIXING FAUCET WITH VACUUM BREAKER AND BLADE HANDLES. (1) - DECK MOUNTED EYE WASH WITH DRENCH HOSE. GAURDIAN MODEL G5022BP OR EQUAL (1) - THERMOSTATIC MIXING VALVE, GAURDIAN MODEL G6040 OR EQUAL	TO BE SELLECTED BY COR

INSTANT DOMESTIC WATER HEATER SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	WATT INPUT	ELECTRICAL		WATER TEMP. RISE (°F)	NOTES
				VOLTS	PHASE		
02-WH-1330-01	CHRONOMITE	SR-20L/208	4,160.0	208	1	28	

FLOOR MOUNTED FUME HOOD SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	SASH TYPE	INTERIOR DEPTH	EXHAUST WITH 27.25" FULL OPEN SASH	EXHAUST WITH 18" OPEN SASH	EXHAUST CONNECTION SIZE	FLOOR	LINER	LINER	COLOR	SPEC NOTES
02-LFH-1330-1	BEDCOLAB	6' VANGUARD FLOOR-MOUNTED HOOD (#C71-72C-400)	VERTICAL	40.75"	946 CFM @ 80 FPM	625 CFM @ 80 FPM	12"	EPOXY RESIN FLOOR	HDPE	HDPE	TO BE SELLECTED BY COR	SEE BELOW

HOOD LEFT SIDE FACE:
1.(3) 120 V, 20 AMP ELECTRICAL OUTLETS
2.LIGHT SWITCH
3.(3) PASS THROUGH GROMMENTS

HOOD RIGHT SIDE FACE:
1.(1) NITROGEN NEEDLE GAS VALVE
2.(1) HELIUM NEEDLE GAS VALVE
3.DIGITAL HOOD MONITOR

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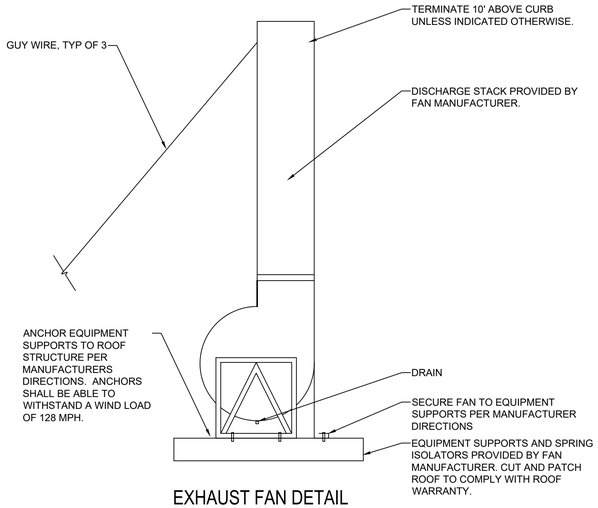
BUILDING 2
Room 1330 Walk-In Fume Hood
SCHEDULES
MECHANICAL

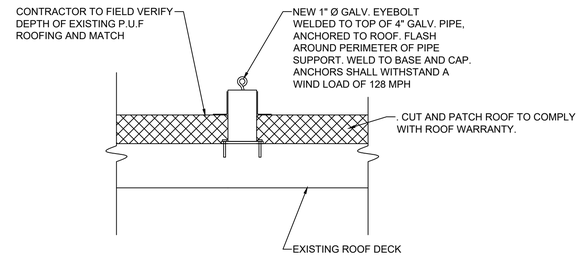
DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M-5 of

PROJECT NAME
B2 – Room 1330 Walk-In Fume Hood



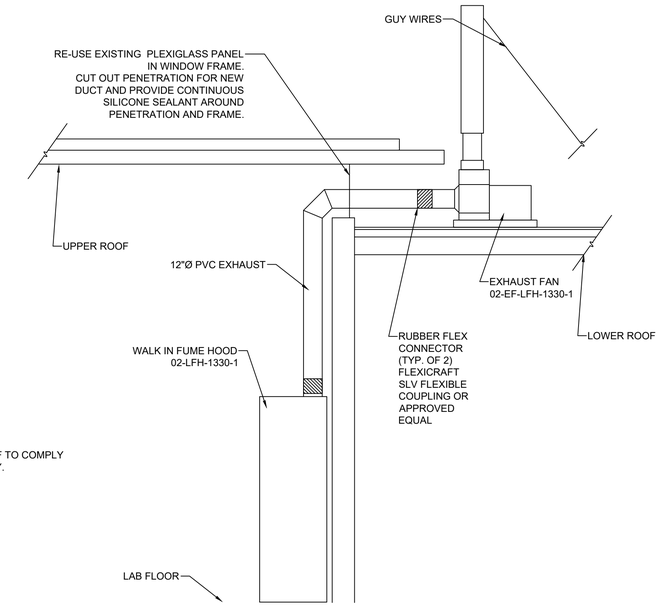
EXHAUST FAN DETAIL

SCALE: NONE



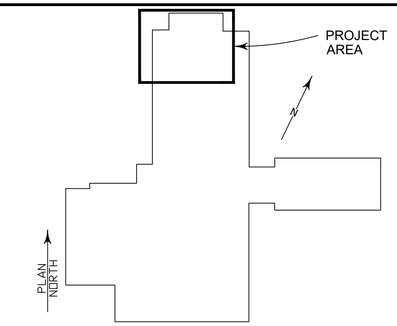
GUY WIRE ANCHOR DETAIL

SCALE: NONE



FUME HOOD DETAIL

SCALE: NONE



BLDG 2 KEY PLAN
N.T.S.

KEYNOTES

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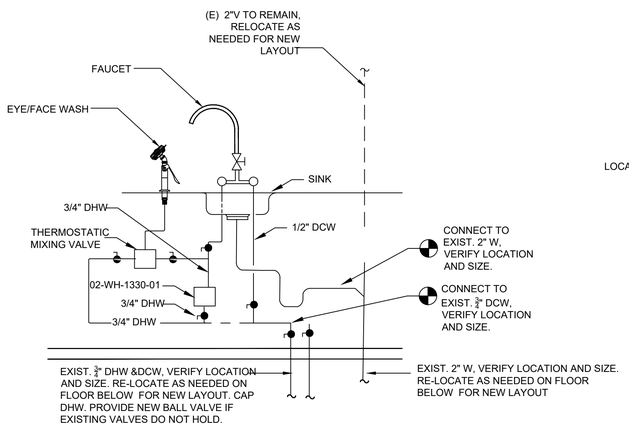
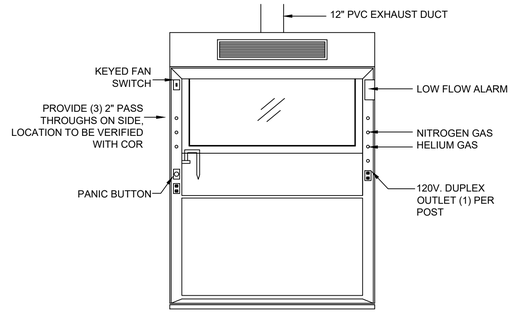


LAB SINK DETAIL

SCALE: NONE



FUME HOOD DETAIL

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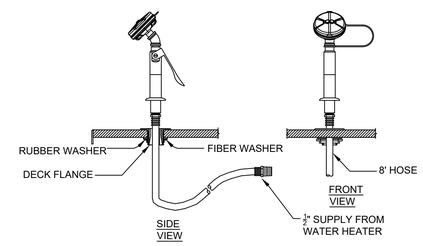

- IN ORDER TO COMPLY WITH STATE CODES, THE USE OF A VACUUM BREAKER IS REQUIRED WITH ALL HAND HELD EYE/FACE WASH
- COMPLY WITH ANSI Z358.1-2009
- ASSEMBLE EYE/FACE WASH ASSEMBLY TO HOSE; ORIENT TAB ON ASSEMBLY AWAY FROM USER.

DECK MOUNT EYE/FACE WASH DETAIL

SCALE: NONE

REVISION	DESCRIPTION	BY	SUPV.	DATE
4				
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BUILDING 2
Room 1330 Walk-In Fume Hood
DETAILS
MECHANICAL

DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
COOK	WIERSMA			M-6 of

PROJECT NAME
B2 – Room 1330 Walk-In Fume Hood

LINE TYPE, CIRCUITING AND HATCHING LEGEND

SYMBOLS USING THESE LINE WEIGHTS INDICATE PHASING RELATIVE OTHER DEVICES ON SHEET. THIS DOES NOT INDICATE ALL CONSTRUCTION PHASING, CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION PHASING IN THE PROJECT.

- DEMOLISH
- EXISTING
- NEW
- FUTURE
- HOME RUN
- CIRCUIT CONTINUATION OR PARTIAL CIRCUIT
- UNDER FLOOR/UNDERGROUND CONDUIT
- LOW VOLTAGE CONDUCTORS
- CONNECTION POINT/EQUIP. TERMINATION
- NIC - NOT IN CONTRACT OR NIS - NOT IN SCOPE

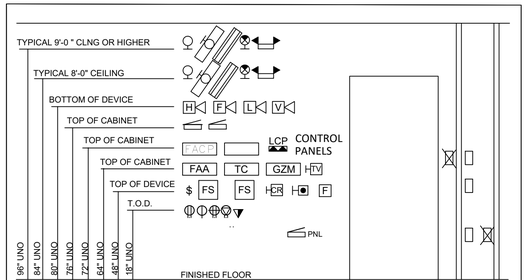
ANNOTATIONS

- NEW CONNECTION TO EXISTING CIRCUIT
- FLAG NOTE
- E-XX — USER EQUIPMENT TAG
- # / X1.0 — UPPER - DETAIL NUMBER, LOWER - SHEET NUMBER
- # — REVISION DELTA

ABBREVIATIONS

AF	AMPERE FUSE SIZE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AS	AMPERE SWITCH SIZE
AT	AMPERE TRIP SETTING
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
C	CONDUIT
CAT	CATEGORY
CATV	CABLE TELEVISION SYSTEM
CCTV	CLOSED CIRCUIT TELEVISION
CD	CANDELA
CKT	CIRCUIT
CODE	APPLICABLE CODE ADOPTED BY JURISDICTION
CT	CURRENT TRANSFORMER
CTR	CENTER
CTRL	CONTROL/CONTROLLED
CVD	CUMULATIVE VOLTAGE DROP
D/DEMO	DEMOLITION
DPDT	DOUBLE-POLE,DOUBLE-THROW
DPST	DOUBLE-POLE, SINGLE-THROW
E/ETR/EX	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ELV	ELECTRONIC LOW-VOLTAGE
ERMS	ENERGY REDUCING MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FCA	FAULT CURRENT AMPS AVAILABLE
FCU	FAN COIL UNIT
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FLR	FLOOR
GC	GENERAL CONTRACTOR
GEC	GROUNDING ELECTRODE CONDUCTOR
GES	GROUNDING ELECTRODE SYSTEM
GFR	GROUND FAULT RELAY
G	GROUND
IG	ISOLATED GROUND
ISC	SHORT CIRCUIT CURRENT
JB/J-BOX	JUNCTION BOX
LF	LINEAR FEET
LRA	LOCKED ROTOR AMPS
LTG/LTS	LIGHTING/LIGHTS
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MLV	MAGNETIC LOW-VOLTAGE
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
N/A	NOT APPLICABLE
NF	NON-FUSED
NL	NIGHT LIGHT (24HR ON)
NIC	NOT IN CONTRACT
NIS	NOT IN SCOPE
NIST	NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY
NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY(CSA,ETL,NSF,UL)
NTS	NOT TO SCALE
OFPM	NIST OFFICE OF FACILITIES &PROPERTY MAINTENANCE
OS	OCCUPANCY SENSOR
OSHE	OFFICE OF SAFETY, HEALTH & ENVIRONMENT
P	POLE
PART	PARTIAL CIRCUIT
PH/Ø	PHASE
PNL	PANEL
PNLBD	PANELBOARD
PROVIDE	FURNISH AND INSTALL
PT	POTENTIAL TRANSFORMER
QTY	QUANTITY
R/REL	RELOCATE
RCPT	RECEPTACLE
RLA	RUNNING LOAD AMPS
RTU	ROOFTOP UNIT
SCCR	SHORT-CIRCUIT CURRENT RATING
SD	SMOKE DUCT DETECTOR
SF	SQUARE FEET
SPDT	SINGLE-POLE,DOUBLE-THROW
SPST	SINGLE-POLE,SINGLE-THROW
SSBJ	SUPPLY-SIDE BONDING JUMPER
ST	SHUNT TRIP
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TBD	TO BE DETERMINED
TGB	TELECOMMUNICATIONS GROUND BUS BAR
TL	TWISTLOCK
TMGB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
TX/XFMR	TRANSFORMER
TYP	TYPICAL
UF	UNDERFLOOR
UG	UNDERGROUND
US	UNDERSLAB
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWERSUPPLY
VD	VOLTAGE DROP
VFD	VARIABLE FREQUENCY DRIVE
VS	VACANCY SENSOR
W	WIRE
W/	WITH
WP/WR	WEATHER PROOF/WEATHER RESISTANT
WT	WATERTIGHT
XP	EXPLOSION-PROOF

NOTE: LIST IS NOT EXHAUSTIVE, NOT ALL ABBREVIATIONS SHOWN WILL BE USED



TYPICAL DEVICE MOUNTING HEIGHTS

SCALE: NONE
NOTES:
1. HEIGHTS SHOWN ARE TYPICAL TO CENTERLINE OF BOX UNLESS NOTED OTHERWISE.
2. WHENEVER DEVICES ARE INDICATED TO BE ABOVE DOORS, DEVICE SHALL BE CENTERED BETWEEN THE DOOR TRIM AND THE CEILING LINE.
3. MOUNTING HEIGHTS SHOWN ON ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER THOSE SHOWN ABOVE.
4. ALL DEVICES INDICATED TO BE INSTALLED AT DIFFERENT MOUNTING HEIGHTS AND LOCATED WITHIN ONE STUD SPACE FROM EACH OTHER SHALL ALIGN VERTICALLY, ON THE SME SIDE OF THE STUD. WHERE WALL MOUNTED TELEPHONE OCCUR OVER LIGHT SWITCHES, VOLUME CONTROLS, ETC. OFFSET ONE STUD SPACE.

LUMINAIRES AND LIGHTING CONTROLS

LIGHT FIXTURES

- SURFACE MOUNTED LENSED FIXTURES
- RECESSED LENSED FIXTURES
- SUSPENDED LENSED FIXTURES
- RECESSED DOWNLIGHTS
- RECESSED DIRECTIONAL DOWNLIGHTS
- LINEAR STRIP FIXTURE
- WALL MOUNTED SCONCE
- WALL MOUNTED LINEAR SCONCE
- CEILING MOUNTED DECORATIVE PENDENT FIXTURE
- BOLLARD
- POLE MOUNTED SITE LIGHTING (UP TO 4 HEADS)
- EMERGENCY LIGHTING UNIT
- CEILING MOUNTED EXIT SIGN (NOT ALL CONFIG. SHOWN)
- WALL MOUNTED EXIT SIGN (NOT ALL CONFIG. SHOWN)

SHADING INDICATES EMERGENCY LIGHT
XX = FIXTURE TYPE, REFERENCE LUMINAIRE SCHEDULE
x = SWITCH LEG DESIGNATION
REFER TO LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION

LIGHTING CONTROLS

$+

SWITCH TYPES:

- + - SWITCH TYPE DESIGNATION (APPLIES TO ALL DEVICES)
- NONE - SINGLE POLE
- 2 - DOUBLE POLE
- 3 - 3-WAY
- 4 - 4-WAY
- D - LINE VOLTAGE DIMMER
- K - KEY-OPERATED
- OS# - OCCUPANCY/VACANCY SENSOR
- L# - LOW VOLTAGE NON-NETWORKABLE
- B# - LOW VOLTAGE NETWORKABLE
- T - TIME SWITCH
- P - PILOT LIGHT
- # - INDICATES DEVICE INSTANCE REFER TO PLANS FOR MORE INFORMATION

- R01 — ROOM CONTROLLER (NETWORKABLE, REFER TO SCHEDULES)
- POWER PACK (NON-NETWORKABLE, REFER TO SCHEDULES)
- PC — PHOTOCELL
- CEILING MOUNTED OCCUPANCY SENSOR (REFER TO SCHEDULES)
- CORNER MOUNTED OCCUPANCY SENSOR (REFER TO SCHEDULES)
- LCP — LIGHTING CONTROL PANEL
- C# — CONTACTOR
- CL# — CURRENT LIMITING DEVICE
- BTS — BRANCH CIRCUIT TRANSFER SWITCH
- ALC — AUTOMATIC LOAD CONTROL RELAY

TELECOMMUNICATIONS

- TV — IN-WALL TV BOX
- WALL MOUNTED TELECOMMUNICATIONS OUTLET
- TELECOMMUNICATIONS FLOORBOX OUTLET
- TELECOMMUNICATIONS POKE-THRU DEVICE
- CEILING MOUNTED TELECOMMUNICATIONS OUTLET
- WAP — WIRELESS ACCESS POINT
- TMGB, TGB — TELECOM MAIN GROUND BAR, TELECOM GROUND BAR
- TB — TELECOMMUNICATIONS BACKING BOARD

FIRE ALARM DEVICES

- L L — LIFE SAFETY SPEAKER, LIFE SAFETY SPEAKER/STROBE
- H F V — HORN, HORN STROBE, STROBE
- F — PULL STATION
- F — MAGNETIC FIRE DOOR HOLDERS
- F_P — SMOKE DETECTOR: TYPE DESIGNATIONS ABBREVIATIONS
  - P - PHOTOELECTRIC
  - I - IONIZATION
  - T - COMBINATION
  - TF - COMPENSATION
  - PT - PHOTOELECTRIC AND THERMAL
  - TF165 - COMBINATION 165 DEGREES
  - TF165 - COMPENSATION 165 DEGREES
  - T190 - COMBINATION 190 DEGREES
  - TF190 - COMPENSATION 190 DEGREES
- FACP FAAP — FIRE ALARM CONTROL PANEL, FIRE ALARM ANNUNCIATOR PANEL

POWER

RECEPTACLES

SIMPLEX
DUPLEX
QUADRUPLEX
GENERATOR BACKED
CEILING MOUNTED
FLOOR MOUNTED

ABBREVIATIONS (MAY BE COMBINED)

- + - RECEPTACLE TYPE DESIGNATION OR NEMA CONFIGURATION (APPLIES TO ALL DEVICES)
- AC - ABOVE COUNTER
- C, C# - CONTROLLED
- CL - CLOCK HANGAR
- H - HORIZONTALLY MOUNTED
- HD - HEAVY DUTY
- IG - ISOLATED GROUND
- GF - GFCI PROTECTED OUTLET
- RC - RECESSED
- SW - SWITCHED
- TR - TAMPER RESISTANT
- USB - USB
- WP - WEATHER RESISTANT, WEATHER PROOF

NOTE: ALL RECEPTACLES TO BE NEMA 5-20R UNO

- POWER ONLY FLOORBOX CONFIGURATIONS
- POWER AND TELECOM FLOORBOX CONFIGURATIONS
- POKE THRU DEVICE - REFER TO PLANS FOR CONFIGURATION
- RECESSED CLOCK RECEPTACLE
- POWER POLE

SPECIAL NEMA TYPE RECEPTACLE

- + - NEMA PLUG TYPE AS SHOWN

WIRING DEVICES

- J — JUNCTION BOXES: WALL AND CEILING MOUNTED
- WM — SURFACE MOUNT RACEWAY - WIREMOLD 3000 SERIES
- CONDUIT UP, CONDUIT DOWN, CONDUIT STUB OUT
- T — THERMOSTAT

ELECTRICAL EQUIPMENT

- PNL — SURFACE OR FLUSH MOUNT ELECTRICAL PANEL
- PNL — RECESSED ELECTRICAL PANEL
- D. PNL — DISTRIBUTION PANELBOARD
- SWBD — SWITCHBOARD
- MCC — MOTOR CONTROL CENTER
- XXX — ELECTRICAL EQUIPMENT
- T TX- — TRANSFORMER

DISCONNECT ABBREVIATIONS:

FUSED DISCONNECT
F XX/X/XX/X
NON-FUSED DISCONNECT
XX/X/XX/X
ENCLOSED CIRCUIT BREAKER
C XX/X/XX/X
DISCONNECT
$+

- + DISCONNECT TAG DESIGNATIONS (APPLIES TO ALL DISCONNECTING TYPE DEVICES)
- TO - THERMAL OVERLOAD
- FH - FRACTIONAL HORSEPOWER
- FA - FACTORY APPLIED
- M - MANUAL MOTOR STARTER
- OL - SIZE INDICATED ON ONE-LINE
- 3R - NEMA 3R RATING
- 4X - NEMA 4X RATING
- 12X - NEMA 12X RATING
- XP - EXPLOSION PROOF
- WP - WEATHER PROOF

FUSED AND NON-FUSED DISCONNECT
XX/X/XX/X =
AMPS/POLES/(FUSE SIZE/TYPE)/ENCLOSURE RATING

ENCLOSED CIRCUIT BREAKER
XX/X/X/X = FRAME/POLES/TRIP/ENCLOSURE RATING

- MGB — MAIN GROUNDING BAR, GROUNDING BAR
- VFD — VARIABLE FREQUENCY DRIVE
- SSRV — STARTER, SOLID STATE REDUCED VOLTAGE STARTER
- FS FS — EMERGENCY POWER OFF PUSH BUTTON, PUSH BUTTON
- FS FS — HAND ON-OFF AUTO, PUSH BUTTON STOP-START
- FS — INDICATING LIGHT
- M M M — ELECTRICAL METERS

SECURITY & LOW VOLTAGE DEVICES

- CR — CARD READER
- GB — GLASS BREAK SENSOR
- PN — PUBLIC NOTIFICATION SPEAKER
- CAMERA
- LOW VOLTAGE PUSH BUTTON
- S — SPEAKER

EXHAUST FAN #1
FED FROM H1A
480V 3¢ HP

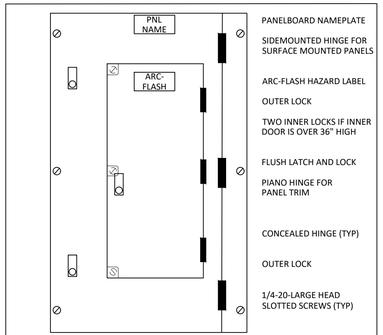
UTILIZATION EQUIPMENT NAMEPLATE DETAIL

SCALE: FULL
NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.
3. HP SHALL INDICATE HORSEPOWER

EQUIPMENT NAME
FED FROM X-XXXX-XX
120/208V 3¢ 4W 225A
22,000 AIC
PH A - BLACK; PH B - RED; PH C - BLUE
NEUTRAL - WHITE; GROUND - GREEN

SUB-DISTRIBUTION CENTER AND BRANCH PANELBOARD NAMEPLATE DETAIL

SCALE: FULL
NOTES:
1. SEE SPECIFICATIONS FOR NAMING CONVENTIONS AND ADDITIONAL
2. NAMEPLATE COLOR AND INFORMATION REQUIREMENTS.
3. REWORD NAMEPLATE FOR FIELD CONDITIONS.
4. AMP RATING SHALL INDICATE BUS RATING.



DOOR-IN-DOOR PANEL FRONT

SCALE: NONE
NOTES:
1. ALL BOLTS SHALL HAVE LARGE (3/8") ROUND HEAD. NO WASHERS ALLOWED.
2. TYPICAL FOR ALL 120/208V AND 277/480V BRANCH PANELBOARDS.
3. DETAIL IS FOR REFERENCE ONLY AND DOES NOT REFLECT ALL AVAILABLE
4. MANUFACTURER'S PANELBOARD CONSTRUCTION OR ORIENTATION(S).

REVISION	DESCRIPTION	BY	SUPV.	DATE
1				
2				
3				
4				

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
ENGINEERING, MAINTENANCE and SUPPORT SERVICES
325 BROADWAY BOULDER, COLORADO 80305-3328

BUILDING 2
Room 1330 Walk-In Fume Hood

ELECTRICAL

DESIGN	DRAFTING	APPROVAL	DATE	SHEET NUMBER
SJM	SJM		01/30/2026	E-0

PROJECT NAME
B2 - Room 1330 Walk-In Fume Hood

GENERAL TELECOM NOTES

1. ALL TELECOM AND NETWORK CABLING AND EQUIPMENT SHALL CONFORM WITH AND BE INSTALLED ACCORDING TO OISM/CURRENT NIST NETWORK INFRASTRUCTURE STANDARDS AND ARE SUBJECT TO BUY AMERICAN COMPLIANCE ACT.

2. MINIMUM TELECOM CONDUIT SIZE IS 1" ALL CONDUITS TO BE ROUTED TO ACCESSIBLE SPACE AND PROVIDED WITH PLASTIC BUSHING AND PULL STRING.

3. TELECOM JACK REQUIREMENTS:
   - TELECOM OUTLETS SHALL HAVE ONE VOICE CABLE/JACK AND THREE DATA CABLES/JACKS PER USER STATION.
   - BLUE KEYSTONE JACKS SHALL BE USED FOR DATA JACKS.
   - WHITE KEYSTONE JACKS SHALL BE USED FOR TELEPHONE JACKS.
   - ALL CABLES SHALL BE COMSCOPE CERTIFIED PRIOR TO PROJECT CLOSEOUT.
   - NO NIST SYSTEMS SHALL BE CONNECTED TO NEW CABLE INSTALLATIONS WITHOUT COMMSCOPE CERTIFICATION AND 25 YEAR WARRANTY.

3. CABLE REQUIREMENTS:
   - DATA CABLES SHALL BE BLUE.
   - PHONE CABLES SHALL BE WHITE.

4. CABLE AND JACK LABELLING:
   - ALL PATCH PANEL AND WALL JACKS SHALL BE LABELED PER NIST SITE STANDARD. COORDINATE WITH NIST ON LABELING NOMENCLATURE.
   - PATCH PANELS AND WALL JACKS SHALL BE LABELED SEQUENTIALLY BASED ON ROOM NUMBER/STATION NUMBER/JACK LETTER.
   - JACKS STATION NUMBERS SHALL BE LABELED AND INCREMENTED IN A COUNTERCLOCKWISE FASHION FROM ROOM ENTRY STARTING FROM THE LEFT.
   - LABELS SHALL BE SNAP-IN, CLEAR-LABEL COVERS AND MACHINE-PRINTED PAPER INSERTS.

5. CONTRACTOR REQUIREMENTS AND RESPONSIBILITIES:
   i. COMMSCOPE CERTIFICATION
   - THE CONTRACTOR PROVIDING THE CERTIFICATION SHALL BE A COMMSCOPE CERTIFIED COMPANY WHO IS AUTHORIZED BY THE REGIONAL COMMSCOPE AUTHORITY AND SHALL BE AUTHORIZED IN BOULDER OR GAITHERSBURG REGIONAL AREAS.

   ii. KEY PERSONNEL TECHNICAL QUALIFICATIONS

   a. PROJECT MANAGER(S):
   - SHALL HAVE AT LEAST 3 YEARS' EXPERIENCE ESTIMATING AND INSTALLING COMMSCOPE SYSTIMAX FIBER AND COPPER CABLING PRODUCTS ON JOBS WHERE COMMSCOPE CERTIFICATION IS REQUIRED.
   - SHALL HAVE PROJECT MANAGEMENT PROFESSIONAL (PMP) CERTIFICATION.
   - SHALL HAVE REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD) CERTIFICATION.
   - SHALL BE CERTIFIED IN COMMSCOPE DESIGN AND ENGINEERING COURSE (SP3321)

   b. FIBER TECHNICIANS:
   - SHALL HAVE AT LEAST 3 YEARS' EXPERIENCE INSTALLING COMMSCOPE SYSTIMAX FIBER CABLING PRODUCTS ON JOBS WHERE COMMSCOPE CERTIFICATION IS REQUIRED.
   - SHALL BE CERTIFIED IN COMMSCOPE FIBER OPTICS SP4400 AND SP4410 COURSES.
   - SHALL BE BICSI CERTIFIED.

   c. CAT6/CAT6A TECHNICIANS:
   - SHALL HAVE AT LEAST 2 YEARS' EXPERIENCE INSTALLING COMMSCOPE SYSTIMAX CAT6 CABLING PRODUCTS ON JOBS WHERE COMMSCOPE CERTIFICATION IS REQUIRED.
   - SHALL BE CERTIFIED IN COMMSCOPE INSTALLATION AND MAINTENANCE ND3361 OR FC3361 COURSES.
   - SHALL BE BICSI CERTIFIED.
   - RESUMES OF CONTRACTOR KEY PERSONNEL SHALL BE PROVIDED IN PROPOSAL.

6. COPPER INSTALLATION
   - TERMINATION AND TESTING OF CAT6/6A SHALL BE DONE BY COMMSCOPE CERTIFIED CAT6/6A INSTALLERS.
   - ALL CAT6/6A CABLE SHALL BE PLENUM RATED UNSHIELDED COMMSCOPE SYSTIMAX CABLE UNLESS ANOTHER CABLE STANDARD IS REQUESTED BY USERS.
   - ALL DATA CABLES ARE TO BE **BLUE** CATEGORY 6/6A.
   - PATCH PANELS AND CABLES SHALL BE CLEARLY LABELED WITH A MACHINE PRINTED LABEL ACCORDING TO THE LABELING SPECIFICATION GIVEN ON THE CUTSHEET PROVIDED BY THE COR.
   - ELECTRONIC COPY OF END-TO-END POWER METER TRACES AS REQUIRED BY COMMSCOPE FOR SUBMISSION FOR WARRANTY. PROVIDE COR AND NETWORK OPERATIONS TEAM WITH PDF FORMAT.
   - WHERE ANY COPPER CABLE DOES NOT MEET COMMSCOPE SPECIFICATIONS FOR WARRANTY THE CABLE SHALL BE RE-TERMINATED AND RE-TESTED AT NO ADDITIONAL COST TO NIST.
   - USE CABLE SUPPORT BARS TO ELIMINATE SLACK AT CABLE RACK. CABLE SHOULD NOT HANG BELOW THE RACK UNIT IN WHICH IT IS INSTALLED. CABLE SLACK CANNOT IMPEDE EQUIPMENT PLACEMENT.
   - FIVE FEET OF CABLE SLACK FOR STATION CABLE SHALL BE PLACED NEAR END USER STATION.
   - CUSTOMER REQUIREMENTS WILL GENERATE ACTUAL CABLE DENSITY REQUIREMENTS.
   - DURING RENOVATIONS OLD COPPER CABLING SHALL BE REMOVED FROM STATION TO MDF/IDF.

7. PROJECT SEQUENCING
   - ALL COMMUNICATION LINES SHALL BE TESTED AND CERTIFIED PRIOR TO ACCEPTANCE BY THE NETWORK OPERATIONS TEAM
   - NO NETWORK EQUIPMENT OR ENDPOINTS SHALL BE CONNECTED UNTIL THE COMMSCOPE 25-WARRANTY CERTIFICATION RECEIVED.
   - PROJECT MILESTONES SHOULD BE ESTABLISHED TO CONSULT WITH NETWORK TEAM TO INSPECT WORK

GENERAL POWER NOTES

1. ALL CIRCUITY SHALL BE #12 AWG IN 1/2" CONDUIT, MINIMUM, UNLESS OTHERWISE NOTED.

2. PROVIDE A SEPARATE CODE SIZED GREEN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS AND RACEWAYS CONTAINING LINE VOLTAGE CIRCUITS. FOR ALL 20A CIRCUITS, EQUIPMENT GROUNDING CONDUCTOR SHALL MATCH PHASE CONDUCTOR SIZE. FOR CIRCUITS UPSIZED DUE TO VOLTAGE DROP, INCREASE EQUIPMENT GROUNDING CONDUCTOR SIZE PER NEC 2017 250.122.B.

3. PROVIDE A MINIMUM OF FOUR (4) SPARE 1" CONDUITS FROM RECESSED PANELBOARDS, UP TO ACCESSIBLE CEILING SPACE.

4. PROVIDE A NEUTRAL CONDUCTOR TO THREE-PHASE EQUIPMENT WHEREVER REQUIRED BY THE EQUIPMENT MANUFACTURER.

5. ALL SINGLE PHASE 120V, 208V OR 240V RECEPTACLES 50A OR LESS, AND THREE PHASE 208V AND 240V RECEPTACLES 100A OR LESS, SHALL BE GFCI PROTECTED IN LOCATIONS REQUIRED BY CODE; THIS INCLUDES BATHROOMS, KITCHENS/FOOD PREP AREAS, DRINK PREP AREAS, EXTERIOR LOCATIONS AND RECEPTACLES WITHIN 6 FEET OF A SINK. GFCI RECEPTACLES SHALL BE READILY ACCESSIBLE AND SHALL NOT BE LOCATED BEHIND STATIONARY EQUIPMENT. GFCI PROTECTION MAY BE VIA A GFCI CIRCUIT BREAKER OR GFCI RECEPTACLE, UNLESS NOTED OTHERWISE. WHERE NECESSARY, GFCI PROTECTION MAY BE ACHIEVED VIA A BLANK FACE GFCI DEVICE LOCATED IN A READILY ACCESSIBLE LOCATION NEAR RECEPTACLE BEING PROTECTED. FOR DOWNSTREAM WIRING DEVICES LOCATED ON THE SAME BRANCH CIRCUIT, THE GFCI PROTECTION MAY BE PROVIDED FOR BY A SINGLE UPSTREAM DEVICE IF ALL PROTECTED DEVICES ARE LABELED PER CODE.

6. GROUND AND NEUTRAL CONDUCTORS SHALL NOT BE SHARED UNLESS SPECIFICALLY NOTED ON PLANS.

7. ALL GFCI PROTECTED CIRCUITS SHALL HAVE INDIVIDUAL AND DEDICATED NEUTRALS

8. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWING SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN SUBMITTALS AND ELECTRICAL DRAWINGS.

9. RACEWAYS INSTALLED ON ROOFTOPS OR EXPOSED TO DIRECT SUNLIGHT CORRECTIONS NEED TO BE PROVIDED FOR CONDUCTOR AMPACITY AND OR SIZING BASED ON AMBIENT TEMPERATURE CORRECTION FACTORS. TEMPERATURE CORRECTION FACTORS SHOWN IN NEC TABLE 310.15(B)(3)(C) SHALL BE ADDED TO THE OUTDOOR TEMPERATURE TO DETERMINE THE APPLICABLE AMBIENT TEMPERATURE FOR APPLICATION OF THE CORRECTION FACTORS IN TABLE 310.15(B)(2)(A) OR TABLE 310.15(B)(2)(B).

10. AN INDIVIDUAL DISCONNECTING MEANS SHALL BE PROVIDED LOCATED IN SIGHT FROM EACH MOTOR OR DRIVEN MACHINERY IN ACCORDANCE WITH NEC ARTICLE 430.

10. MAINTAIN DEDICATED EQUIPMENT AND WORKING SPACE IN FRONT AND ABOVE ALL ELECTRICAL EQUIPMENT REQUIRING SERVICING WHILE ENERGIZED PER NEC 110.26. THIS INCLUDES CONTROL PANELS AND ELECTRICAL DISCONNECTS FOR HVAC EQUIPMENT ON LOCATED ON ROOFTOPS AND ABOVE/BELOW CEILING. PENETRATIONS SUCH AS ROOF JACKS FOR ELECTRICAL POWER, LOW VOLTAGE CONTROL POWER, REFRIGERANT LINES, VENT PIPES, ETC., AND INCLUDING GAS LINES, DUCTWORK, ROOF DRAINS, SCREENING WALLS AND OTHER EQUIPMENT OF ANY TYPE, ARE NOT TO INTRUDE INTO DEDICATED ELECTRICAL EQUIPMENT SPACE.

GENERAL NOTES

1. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS. REVIEW OFPM/NIST PROJECT CRITERIA, GENERAL NOTES, OTHER TRADE DRAWINGS AND OFPM/NIST SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS. PROVIDE ALL SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS. NOTIFY ARCHITECT AND ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMITTING BID.

2. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS, AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY NOTED IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. IT IS NOT WITHIN THE SCOPE OF THE ELECTRICAL DRAWINGS TO SHOW ALL NECESSARY RACEWAY ROUTING, BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. THE DRAWINGS REPRESENT THE BEST INFORMATION AVAILABLE TO THE ENGINEER. ALL DIMENSIONS AND SIZES SHALL BE FIELD VERIFIED. DO NOT SCALE FROM THE DRAWINGS. SMALL DEVIATIONS SHALL BE RECONCILED DURING THE PERFORMANCE OF THE WORK. NOTIFY THE ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

3. ALL WORK SHALL CONFORM TO OFPM/NIST STANDARDS, ALL NATIONAL CODES AS WELL AS APPLICABLE INDUSTRY STANDARDS. ALL EQUIPMENT SHALL BEAR LABELS FOR THE USE INTENDED BY AN ACCEPTED NATIONALLY RECOGNIZED TESTING LABORATORY(NRTL), SUCH AS UL OR ETL. THE FINAL ELECTRICAL INSTALLATION OF THE FACILITY SHALL BE FREE FROM ELECTRICAL DEFECTS TO THE SATISFACTION OF OFPM/NIST PERSONNEL.

4. COORDINATE FINAL LOCATION AND INSTALLATION REQUIREMENTS OF ALL WORK: LIGHT FIXTURES, ELECTRICAL EQUIPMENT AND ELECTRICAL DEVICES, ETC. WITH ARCHITECTURAL DRAWINGS, EXISTING CONDITIONS AND OTHER TRADES AND CONTRACTORS PRIOR TO ROUGH-IN. PROVIDE ALL NECESSARY DEVICES, CORDS, PLUGS, DISCONNECTS AND FINAL CONNECTIONS TO ELECTRICAL EQUIPMENT FOR PROPER OPERATION IN ACCORDANCE WITH CODE, OWNER AND MANUFACTURER REQUIREMENTS

5. REFER TO OFPM/NIST STANDARDS DOCUMENTS: CONDUIT AND LABEL COLOR CHART FOR COLOR CODING CONDUITS AND LABELING OF SYSTEMS BY SYSTEM TYPE. ELECTRICAL STANDARDS FOR SYSTEM PERFORMANCE CRITERIA. EQUIPMENT LIST AND IDS FOR EQUIPMENT LABEL IDENTIFICATION.

6. DRAWINGS AND SPECIFICATIONS GOVERN, WHERE THEY EXCEED CODE REQUIREMENTS. SYSTEM INSTALLATION SHALL COMPLY WITH LEGALLY CONSTITUTED CODES AND THE REQUIREMENTS OF NIST/OFPM.

7. FIELD VERIFY EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC AND PLUMBING EQUIPMENT WITH OTHER TRADE CONTRACTORS PRIOR TO ORDERING RELATED ELECTRICAL EQUIPMENT.

8. ROOM NAMES/NUMBERS SHOWN IN PANELBOARD SCHEDULES ARE PER ARCHITECTURAL FLOOR PLANS. CONTRACTOR SHALL PROVIDE FINALIZED PANELBOARD SCHEDULES AT COMPLETION OF PROJECT WITH NIST PROVIDED ROOM NAMES/NUMBERS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE *UPDATED* TYPED PANEL DIRECTORIES TO REFLECT WORK PERFORMED UNDER THIS CONTRACT.

9. PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS REFLECTING ANY VARIANCES OF INSTALLED PIPING, EQUIPMENT DEVICES, ETC LOCATIONS THAT ARE CONTRARY TO THE CONSTRUCTION DOCUMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

10. WHERE DEVICES ARE MOUNTED RECESSED IN CMU WALLS, ROUTE CONDUIT CONCEALED WITHIN INTERIOR OPENINGS WITHIN CMU WALL. COORDINATE WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN.

11. ALL DEVICES SHOWN DIRECTLY ADJACENT TO EACH OTHER SHALL BE INSTALLED DIRECTLY ADJACENT TO EACH OTHER, U.N.O. ADJACENT DEVICES OF SIMILAR TYPE SHALL BE PROVIDED WITH SINGLE FACEPLATE WHERE FEASIBLE.

12. ALL APPLICABLE SWITCHES, RECEPTACLES, OUTLETS, AND CONTROLS SHALL BE PLACED AT HEIGHTS THAT ARE IN ACCORDANCE WITH ADA ACCESSIBILITY GUIDELINES.

13. ALL JUNCTION BOXES SHALL BE RIGIDLY ATTACHED TO STRUCTURE OR MILLWORK.

14. ALL WP OUTLET BOX HOODS SHALL BE "EXTRA-DUTY" AND "WHILE-IN-USE COVER" TYPE. OUTLET BOX HOODS SHALL BE LOW PROFILE WHEREVER PRACTICABLE, UNLESS NOTED OTHERWISE. THE USE OF LARGE BUBBLE COVERS SHALL BE AVOIDED ON THE EXTERIOR OF THE BUILDING OR BEHIND EQUIPMENT IN ORDER TO PREVENT DAMAGE TO THE COVER AND TO ALLOW THE EQUIPMENT TO BE LOCATED CLOSE TO THE WALL.

15. REFER TO ARCHITECTURAL PLANS AND DETAILS FOR EXACT LOCATIONS, ALIGNMENT, AND MOUNTING OF ALL CEILING, WALL, AND FLOOR MOUNTED DEVICES.

16. CONDUIT AND BOX ROUGH-IN FOR ADJACENT FIRE ALARM, TEMPERATURE CONTROLS, RECEPTACLES, LIGHTING CONTROL DEVICES, ETC, ON THE SAME WALL, SHALL BE PROVIDED IN A MANNER TO WHICH DEVICES ALIGN VERTICALLY ON SAME WALL. COORDINATE WITH OTHER TRADES.

17. REFER TO TELECOM DRAWINGS FOR BOXES, FLOOR BOXES, RACEWAYS, PATHWAYS, AND CABLE TRAY TO BE BID AS PART OF THE MEP/FP PACKAGE. REFER TO SPECIFICATION 260510 FOR ADDITIONAL INFORMATION.

18. COORDINATE CONDUIT PENETRATIONS THROUGH SLABS WITH STRUCTURAL DOCUMENTS. CONDUITS ARE NOT TO BE ROUTED WITHIN A COMPOSITE SLAB. X-RAY CONCRETE PRIOR TO CORE DRILLING AND/OR SAW CUTTING

19. WHERE SPARE CONDUIT(S) ARE INDICATED FOR FUTURE USE, PROVIDE PULL STRINGS IN CONDUIT(S) AND PROTECTIVE BUSHINGS AT OPENINGS. CAP CONDUITS WHERE LOCATED BELOW GRADE OR EXPOSED TO THE ELEMENTS.

20. REFER TO MECHANICAL EQUIPMENT SCHEDULES FOR ELECTRICAL SCOPE OF WORK, IN ADDITION TO WORK SHOWN ON ELECTRICAL DRAWINGS.

21. PROVIDE RECESSED CONDUIT AND OUTLET BOXES FOR ALL HVAC CONTROL LOCATIONS. PROVIDE CONDUIT FOR ALL CONTROLS WIRING LOCATED IN SPACES WITH EXPOSED CEILINGS. REFER TO MECHANICAL DOCUMENTS AND SCHEDULES FOR ALL DEVICE LOCATIONS. COORDINATE WORK WITH MECHANICAL CONTRACTOR.

22. PROVIDE ALL MISCELLANEOUS STEEL REQUIRED FOR THE PROPER INSTALLATION OF ELECTRICAL EQUIPMENT AND SYSTEMS.

23. FOR NEW WORK IN EXISTING BUILDINGS POWER AND TELECOM OUTLETS TO BE PROVIDED IN SURFACE MOUNT RACEWAYS, WIREMOLD 3000 SERIES.

24. REFER TO SPECIFICATIONS AND DETAILS FOR APPROVED CABLE AND RACEWAY INSTALLATION. NON-COMPLIANT INSTALLATIONS OF CABLE AND RACEWAY WILL NOT BE ACCEPTED AND WILL BE REQUIRED TO BE BROUGHT TO COMPLIANCE AT NO COST TO THE OWNER, PRIOR TO COMPLETION OF WORK.

25. ALL NEW *AND EXISTING* ELECTRICAL EQUIPMENT ALTERED UNDER THIS PROJECT SHALL BE VACUUM CLEANED OF ANY DEBRIS. ALL OPENINGS REMAINING SHALL BE SEALED WITH THE PROPER DEVICE (IE. KNOCKOUT BLANKS, BREAKER BLANKS, ETC) LISTED AND APPROVED FOR USE.

26. NO WORK SHALL BE PERFORMED PRIOR TO REVIEW AND APPROVAL OF ALL REQUIRED SHOP DRAWINGS, PRODUCT MATERIALS, AND EQUIPMENT SUBMITTALS. ANY WORK INSTALLED PRIOR TO MEETING THESE REQUIREMENTS SHALL BE DONE SO AT THE SOLE RISK OF THIS CONTRACTOR.

27. PROVIDE PROPER FIRE PROOFING AND SEALANT FOR PENETRATIONS THROUGH FIRE RATED ASSEMBLIES. THE FIRE STOPPING METHOD, MATERIAL AND ITS APPLICATION SHALL BE NRTL LISTED, CODE COMPLIANT AND APPROVED BY OFPM/OSHE/NIST.

GENERAL FIRE ALARM NOTES

1. CONNECTIONS TO FIRE ALARM SYSTEM TO BE DESIGN BUILD BY QUALIFIED LICENSED FIRE ALARM CONTRACTOR. FIRE ALARM CONTRACTOR TO SUBMIT SIGNED AND STAMPED DRAWINGS OF FIRE ALARM SYSTEM AS A SUBMITTAL TO NIST LIFE SAFETY OFFICE PRIOR TO BEGINNING ANY WORK.

2. PROVIDE UL RATED FIRE STOPPING ASSEMBLIES AT ALL PENETRATIONS OF FIRE RATED CONSTRUCTION. SEAL ALL PENETRATIONS OF SMOKE WALLS SMOKE TIGHT.

3. FIRE ALARM CONTRACTOR SHALL PROVIDE ALL WORK (HARDWARE, SOFTWARE, PROGRAMMING, WIRE, CONDUIT, ETC.) NECESSARY TO PROVIDE A COMPLETE AND CODE COMPLIANT SYSTEM.

4. REMOVE ALL FIRE ALARM COMPONENTS, INCLUDING WIRE AND CONDUIT MADE OBSOLETE BY WORK PERFORMED UNDER THIS CONTRACT. PROVIDE NECESSARY SOFTWARE AND PROGRAMMING REVISIONS.

5. ALL FIRE DETECTION SYSTEM WIRE TO BE UL PLENUM RATED PER NIST STANDARDS. WIRE TO BE INSTALLED IN RACEWAYS PER NIST STANDARDS .

6. LABEL ALL FIRE DETECTION SYSTEM WIRE AND RACEWAY PER THE SPECIFICATIONS AND TO MATCH EXISTING FACILITY IDENTIFICATION SYSTEM.

GENERAL DEMOLITION NOTES

1. THE ELECTRICAL DRAWINGS INDICATE EXISTING ELECTRICAL ITEMS TO BE REMOVED. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED AND DO NOT INDICATED EVERY BOX, CONDUIT, OR WIRE THAT MUST BE REMOVED. CONTRACTOR SHALL INSPECT THE SITE PRIOR TO THE SUBMISSION OF A BID. CONTRACTOR SHALL INFORM THEMSELVES OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED CONCERNING THE SITE OF THE WORK, THE OBSTACLES WHICH MAY BE ENCOUNTERED, THE DEMOLITION, AND TEMPORARY REMOVAL AND REINSTALLATION REQUIRED TO PROVIDE ACCESS TO THE WORK, AND ALL OTHER RELEVANT MATTERS CONCERNING THE WORK TO BE PERFORMED.

2. CONTRACTOR SHALL REPAIR ALL DAMAGE TO EXISTING BUILDING, FIXTURES, AND FINISHED CAUSED BY CONTRACTOR DURING THE PERFORMANCE OF THE WORK. REPAIRS SHALL BE PERFORMED BY A QUALIFIED TRADESMEN AND SHALL BE COMPLETED IN A MANNER ACCEPTABLE TO THE OWNER.

3. REMOVAL OF CONDUITS SHALL INCLUDE REMOVAL OF HANGERS, SUPPORTS, AND ASSOCIATED MISCELLANEOUS MATERIALS.

4. ALL PIPING, TUBING, CONDUITS, ETC. MADE OBSOLETE, BY WORK UNDER THIS CONTRACT, EXPOSED OR IN CONFLICT WITH NEW WORK, ARE TO BE REMOVED. REPAIR ALL HOLES IN WALLS, FLOORS, AND CEILING TO MATCH EXISTING CONDITIONS AND MAINTAIN FIRE/SMOKE RATINGS.

5. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO PERFORM ALL SELECTIVE DEMOLITION NECESSARY TO PERFORM THE WORK SHOWN ON THE DRAWINGS EXCEPT WHERE SAID DEMOLITION IS SHOWN ON THE ARCHITECTURAL DRAWINGS TO BE PERFORMED BY THE GENERAL CONTRACTOR.

6. SHOULD ACTUAL CONDITIONS DEVIATE SUBSTANTIALLY FROM THOSE INDICATED ON THE DRAWING, CONTRACTOR SHALL NOTIFY ENGINEER AND REQUEST INSTRUCTIONS.

7. NIST SHALL HAVE THE RIGHT TO SALVAGE ANY AND ALL MATERIALS AND EQUIPMENT OR PORTION THEREOF. ALL REMOVED EQUIPMENT MATERIALS NOT RETAINED BY NIST SHALL BE PROMPTLY REMOVED FROM NIST FACILITIES AND LEGALLY DISPOSED OF.

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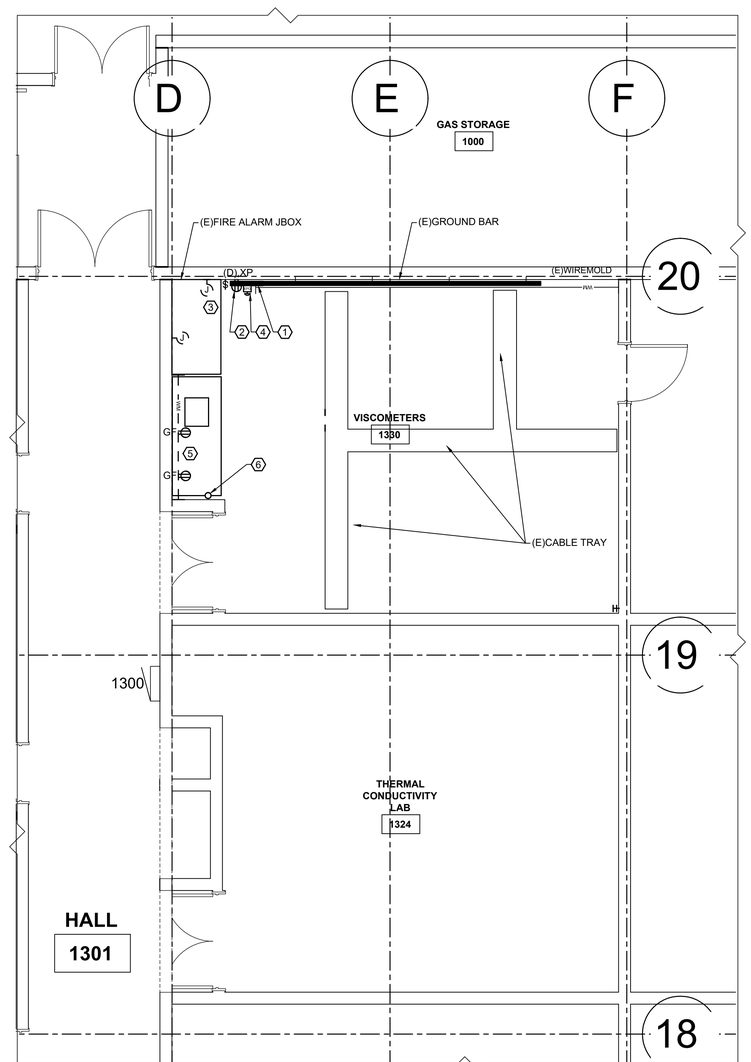
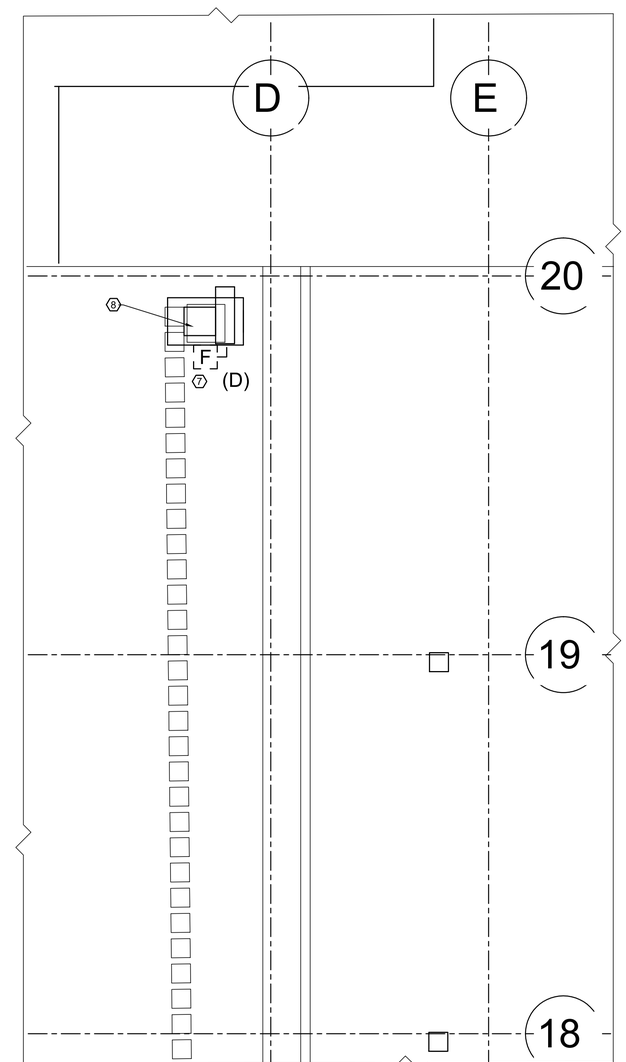


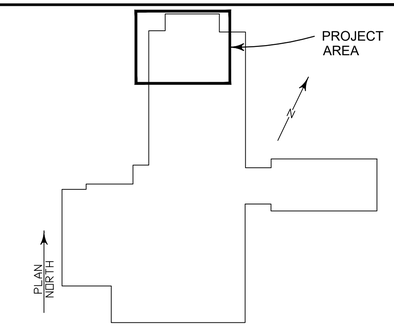
FIRST FLOOR DEMOLITION PLAN

SCALE: 1/4" = 1'



ROOFTOP DEMOLITION PLAN

SCALE: 1/4" = 1'



BLDG 2 KEY PLAN

N.T.S.

GENERAL NOTES :

1. PLAN SHOWN IS DIAGRAMMATIC IN NATURE AND IS INTENDED FOR ILLUSTRATING SCOPE OF WORK. CONTRACTOR TO FIELD COORDINATE EXISTING
2. ROOM CONTAINS MANY LEGACY EXPLOSION PROOF DEVICES FROM PREVIOUS USERS. NEW DEVICES IN THIS ROOM WILL NOT BE REQUIRED TO HAVE EXPLOSION PROOF RATINGS.

(#) PLAN NOTES:

1. CONTRACTOR TO SHORTEN EXISTING GROUND BAR TO MAKE ROOM FOR NEW FUME HOOD. FIELD COORDINATE THE LENGTH OF GROUND BAR TO BE REMOVED. PROVIDE ADDITIONAL STANDOFF/WALL SUPPORTS AS NEEDED.
2. CONTRACTOR TO DEMO EXPLOSION PROOF RECEPTACLE AND ASSOCIATED CONDUIT AND CONDUCTORS BACK TO THE NEAREST DEVICE.
3. CONTRACTOR TO DEMO POWER CONNECTIONS TO EXISTING FUME HOOD AND EXISTING EXPLOSION PROOF SWITCH. REWORK EXISTING CONDUIT AND JUNCTION BOXES AS NEEDED TO REUSE EXISTING HOOD CIRCUIT(S) FOR NEW FUME HOOD.
4. CONTRACTOR TO DEMO EXISTING FUME HOOD PANIC BUTTON, CONDUIT AND CONDUCTORS BACK TO NEAREST JUNCTION BOX.
5. CONTRACTOR TO REMOVE EXISTING WIREMOLD ABOVE COUNTER. WIREMOLD AND EXISTING CIRCUITS TO BE SHORTEN AND REUSED ABOVE NEW COUNTERTOP.
6. CONTRACTOR TO REMOVE CONDUCTORS FROM EXISTING SEVERED CONDUIT BACK TO SOURCE AND CUT CONDUIT BACK FLUSH WITH THE FLOOR AND FILL.
7. CONTRACTOR TO DISCONNECT ELECTRICAL CONNECTIONS FROM EXHAUST FAN. CIRCUIT TO BE REUSED TO CONNECT TO NEW EXHAUST FAN. REWORK EXISTING CONDUITS AND WIRING FOR CONNECTION TO NEW EXHAUST FAN.
8. DISCONNECT EXISTING LIGHTNING PROTECTION SYSTEM FRO EXHAUST FAN/EXHAUST STACK AND PREP FOR RECONNECTION

SCALE: 1/8"=1'-0" (IN FEET)

0 4' 8' 16'

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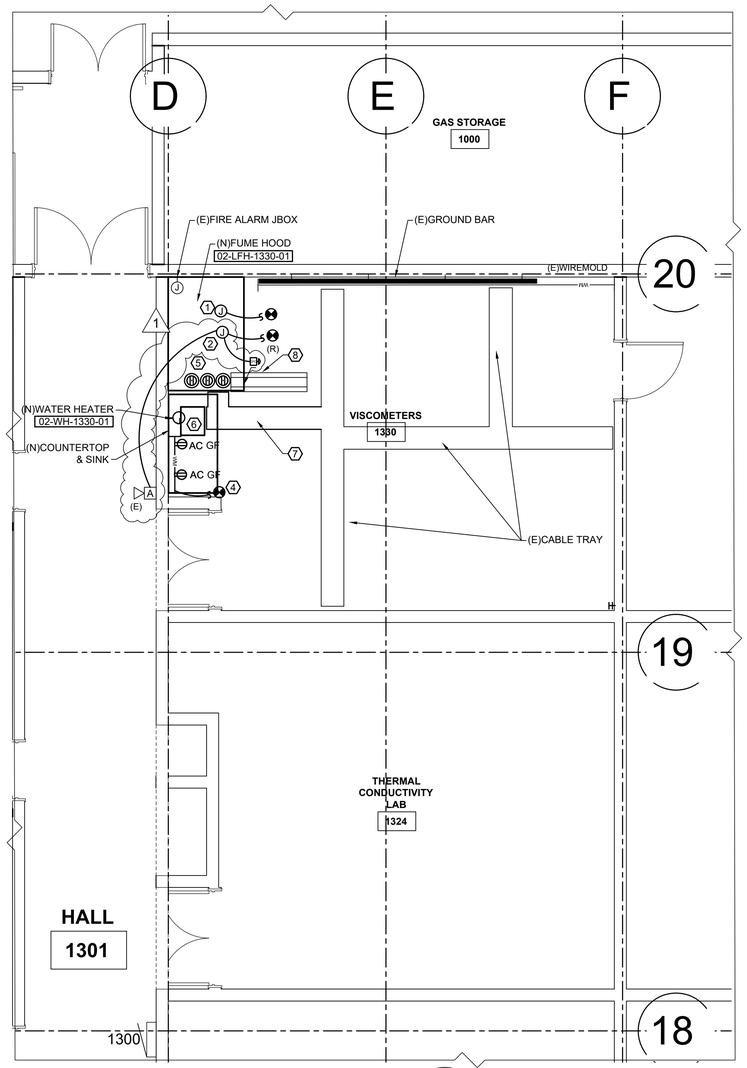
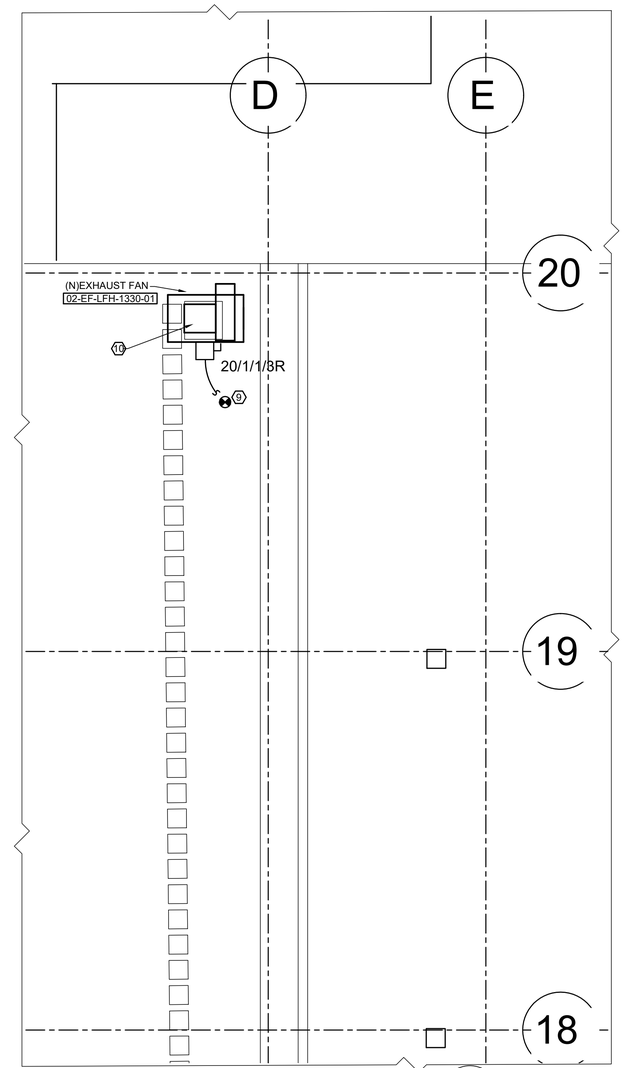


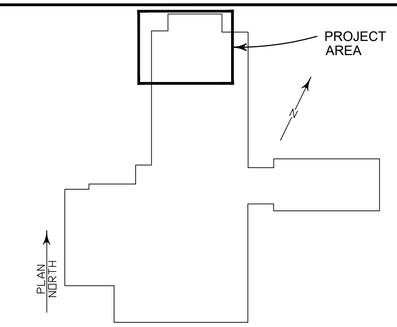
FIRST FLOOR POWER PLAN

SCALE: 1/4" = 1'



ROOFTOP POWER PLAN

SCALE: 1/4" = 1'



BLDG 2 KEY PLAN

N.T.S.

GENERAL NOTES :

1. PLAN SHOWN IS DIAGRAMMATIC IN NATURE AND IS INTENDED FOR ILLUSTRATING SCOPE OF WORK. CONTRACTOR TO FIELD COORDINATE EXISTING CONDITIONS.
2. EXISTING FUME HOOD EPO/PANIC BUTTON: PILLA ELECTRICAL PRODUCTS ST120SLTW EMERGENCY SHUTDOWN.

PLAN NOTES:

1. CONTRACTOR TO REWORK EXISTING CONDUIT AND JUNCTION BOXES AS NEEDED TO REUSE EXISTING HOOD CIRCUIT(S) FOR NEW FUME HOOD INTERIOR LIGHTING AND CONTROLS.
2. CONTRACTOR TO REUSE AMBER STROBE, RELOCATE EXISTING PANIC BUTTON OR PROVIDE NEW AND UTILIZE EXISTING CONDUITS/PATHWAYS TO CONNECT NEW FUME HOOD LOCAL ALARM SYSTEM TO BUILDING FIRE ALARM SYSTEM. PANIC BUTTON TO BE MOUNTED TO THE FRONT OF HOOD ENCLOSURE REWORK EXISTING CONDUITS AND WIRING AS NECESSARY. REFER TO FIRE ALARM SPECIFICATIONS FOR MORE DETAILS ON HOOD LOCAL ALARM INSTALLATION. FINAL CONNECTIONS BY QUALIFIED FIRE ALARM CONTRACTOR.
3. CONTRACTOR TO BOND NEW FUME HOOD, EXHAUST HOOD AND PROVIDE STATIC DISSIPATIVE CONNECTION TO FUME HOOD DUCTWORK. BONDING JUMPER TO BE CONNECTED TO EXISTING GROUNDING BAR IN THE ROOM. BONDING CONDUCTOR TO BE #6 AWG MINIMUM.
4. CONTRACTOR TO SHORTEN REMOVED WIREMOLD AND REINSTALL ABOVE COUNTER. CONTRACTOR TO PROVIDE NEW GFCI RECEPTACLES AND REWORK EXISTING WIRING AND CONDUITS TO RECONNECT EXISTING CIRCUITS TO WIREMOLD.
5. CONTRACTOR TO PROVIDE AND INSTALL THREE NEW RECEPTACLES WITH DEDICATED 120V, 20A CIRCUITS FROM PANEL 1300. COORDINATE EXACT LOCATION WITH FUME HOOD PASS-THRU. PROVIDE THREE NEW 20A 1-POLE BREAKERS IN PANEL 1300. RECEPTACLES ARE TO BE UTILIZED BY USER EQUIPMENT INSIDE THE HOOD.
6. CONNECTION TO NEW INSTANTANEOUS WATER HEATER: CONTRACTOR TO PROVIDE NEW 208V, 20A, 1-PH CONNECTION TO WATER HEATER FROM PANEL 1300. PROVIDE NEW 20A 2-POLE BREAKERS W/BREAKER LOCK IN PANEL 1300.
7. CONTRACTOR TO PROVIDE AND INSTALL NEW CABLE TRAY FROM EXISTING CABLE TRAY WITH WATER FALLS AND AN ELBOW SECTION TO FUME HOOD PASS-THRU. CABLE TRAY TO BE BONDED PER CODE.
8. EXISTING LIGHT FIXTURE LOCATION IS IN CONFLICT WITH THE UP TRAVEL OF THE NEW FUME HOOD DOOR. CONTRACTOR TO REWORK EXISTING CONDUITS AND WIRING AS NEED TO RELOCATE EXISTING LIGHT FIXTURE OUT OF THE NEW FUM HOOD UPSWING.
9. EXHAUST FAN: CONTRACTOR TO PROVIDE NEW DISCONNECT, REWORK EXISTING CONDUITS/WIRING AND REUSE EXISTING CIRCUIT TO CONNECT NEW EXHAUST FAN.
10. REWORK AND CONNECT EXISTING LIGHTNING PROTECTION SYSTEM TO NEW EXHAUST FAN/EXHAUST STACK. WORK TO BE PERFORMED BY LICENSED LIGHTNING PROTECTION CONTRACTOR. CONTRACTOR TO RE-CERTIFY AND PROVIDE AS-BUILT OF MODIFICATIONS TO LIGHTNING PROTECTION SYSTEM.

SCALE: 1/8"=1'-0" (IN FEET)

0 4' 8' 16'

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1	BID QUESTIONS			6/30/26

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