BLACKSBURG WINE LAB

400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

GENERAL CONSTRUCTION NOTES

A. G.C. SHALL INSPECT ALL DRAWINGS IMMEDIATELY UPON RECEIPT & REPORT ANY DISCREPANCIES, CONFLICTS, ERRORS, OR OMISSIONS DISCOVERED. THIS INCLUDES COORDINATION WITH MEP/OTHER TRADES.
B. G.C. IS RESPONSIBLE FOR ENSURING ALL WORK IS DONE IN ACCORDANCE WITH ACCEPTED CONSTRUCTION STANDARDS & IN COMPLIANCE WITH ALL BUILDING CODES, ORDINANCES & REGULATIONS OF ALL CONSTITUTED PUBLIC AUTHORITIES HAVING JURISDICTION.
C. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THESE PLANS & SPECIFICATIONS UNLESS A WRITTEN VARIANCE IS APPROVED BY THE OWNER.
D. G.C. & ALL SUBCONTRACTORS SHALL VISIT & INSPECT THE PREMISES PRIOR TO SUBMITTING A PROPOSAL. SUBMISSION OF A PROPOSAL CONSTITUTES AN AGREEMENT THAT THE G.C. INCLUDED ALL ITEMS NECESSARY TO ACCOMMODATE THE EXISTING CONDITIONS. ANY CONDITIONS IN CONFLICT WITH THESE DRAWINGS & SPECIFICATIONS SHALL BE REPORTED TO THE DESIGNER IMMEDIATELY UPON DISCOVERY. DESIGNER CANNOT BE HELD RESPONSIBLE FOR ANY HIDDEN CONDITIONS.
E. G.C. SHALL OBTAIN ALL PERMITS & THE CERTIFICATE OF OCCUPANCY, UNLESS NOTED OTHERWISE.
F. MATERIALS SHALL BE DELIVERED & STORED IN ORIGINAL, UNOPENED PROTECTIVE PACKAGING. INSPECT LABELS IMMEDIATELY UPON DELIVERY FOR ACCURACY. STORE & INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PREVENT DAMAGE TO MATERIALS & SURROUNDING SURFACES WHEN HANDLING.
G. G.C. SHALL KEEP A CLEAN & SECURE JOB SITE & TAKE ADEQUATE MEASURES TO PROTECT BUILDING & SITE OCCUPANTS & ITEMS SALVAGED FOR REUSE & IS RESPONSIBLE FOR RETURNING ANY DAMAGED ITEMS TO "LIKE NEW" CONDITION. OCCUPIED/PUBLIC AREAS SHALL BE KEPT CLEAR OF CONSTRUCTION MATERIALS. SECURITY, NOISE, & DUST BARRIERS SHALL BE MAINTAINED BY G.C. BETWEEN AREAS OF CONSTRUCTION & OCCUPIED/PUBLIC AREAS.
H. G.C. SHALL PERFORM FINAL CLEANING PRIOR TO END USE OCCUPANCY TO INCLUDE: VACUUMING & REMOVAL OF DUST, DEBRIS, OILS, STAINS, FINGERPRINTS, LABELS & WALLCOVERING ADHESIVE.
I. G.C. IS RESPONSIBLE FOR PROVIDING A COMPLETE & OPERATIONAL SPACE.
J. WITHIN 30 DAYS OF PROJECT COMPLETION, G.C. SHALL PROVIDE REPRODUCIBLE SCALED AS-BUILTS TO THE OWNER & THE ARCHITECT. THESE AS-BUILTS SHALL REFLECT FINAL FIELD CONDITIONS AT PROJECT COMPLETION.
K. WITHIN 60 DAYS OF PROJECT COMPLETION, G.C. SHALL PROVIDE THE END USER WRITTEN DOCUMENTATION OF ALL WARRANTIES & RECOMMENDED MAINTENANCE PROCEDURES FOR ALL EQUIPMENT & FINISH MATERIALS.
L. TO THE BEST OF OUR KNOWLEDGE & INFORMATION, THESE DRAWINGS HAVE BEEN PREPARED IN CONFORMITY WITH ANSI STANDARD A117.1 2009 & ADA TITLE III FOR MAKING BUILDINGS & FACILITIES ACCESSIBLE TO & USABLE BY PERSONS WITH DISABILITIES. ALTERATIONS, EXCEPTIONS & DELETIONS TO THESE RULES BY THE RESIDING JURISDICTION HAVE BEEN ACCOMMODATED TO THE BEST OF OUR KNOWLEDGE.
M. HOLES & OPENINGS THROUGH WALLS & FLOORS FOR DUCTS, PIPING & VENTILATION SHALL BE CHECKED BY THE CONTRACTOR WHO SHALL VERIFY SIZES & LOCATIONS OF SUCH HOLES OR OPENINGS WITH PLUMBING, HEATING, VENTILATING & ELECTRICAL DRAWINGS & CONTRACTORS.
N. PENETRATIONS THROUGH FLOOR/CEILING & ROOF/CEILING ASSEMBLIES SHALL BE FIRE RATED NOT LESS THAN THE ASSEMBLY BEING PENETRATED. THE CONTRACTOR SHALL PROVIDE MANUFACTURER TESTED SYSTEMS & DETAILS OR AN ENGINEERED JUDGEMENT FOR EACH TYPE OF PENETRATION REQ'D TO PERFORM THE WORK.
O. OMISSIONS: IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR CALLED OUT ON THE DRAWINGS OR NOTES, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED OUT.
P. INSTALLATION OF ALL PRODUCTS SHALL BE AS REQUIRED BY THE MANUFACTURER'S LATEST WRITTEN INSTRUCTIONS AT THE TIME OF PERMITTING.
Q. CONTROLS & OPERATING MECHANISMS FOR ALL FIXTURES & FURNISHINGS SHALL BE OPERABLE BY A FORCE OF NO GREATER THAN 5 LBF WITH ONE HAND & NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST TO ACTIVATE CONTROLS.
R. THE SELECTED CONTRACTOR SHALL SUPPLY ALL MISC. BLOCKING, BRACING, METAL, TRIM, FASTENERS, HARDWARE, ETC AS REQUIRED TO COMPLETE THE WORK HERE-IN.
S. ALL REQUIRED ACCESSIBLE ELEMENTS SHALL BE IDENTIFIED BY ADA/ACCESSIBILITY SIGNAGE HAVING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, TO BE INSTALLED IN ACCORDANCE WITH IBC SECTIONS 1011, 1109 & 1110 ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR OR NEAREST ADJACENT WALL. G.C. SHALL PROVIDE & INSTALL SAID SIGNAGE, INCLUDING BUT NOT LIMITED TO: DIRECTIONAL SIGNS, EXIT SIGNS & ACCESSIBLE TOILET FACILITIES.
T. G.C. SHALL REVIEW SPECIFICATIONS & DRAWINGS & VERIFY LEAD TIMES AT TIME OF BID/PRICING SUBMISSION. FAILURE TO ORDER PRODUCTS IN A TIMELY FASHION SHALL REQUIRE ADHERANCE TO THE SUBSTITUTION REQUIREMENTS DESCRIBED IN THE PROJECT MANUAL.
U. ITEMS INDICATED AS "SALVAGED" SHALL BE RELOCATED FROM THE EXISTING BUILDING & INSTALLED BY THE CONTRACTOR.
V. SYSTEMS PROVIDED BY THE OWNER SHALL INCLUDE: DATA, I.T., A/V, DOOR ACCESS CONTROLS, & EMERGENCY RESPONSE ALERTING.
W. G.C. TO PROVIDE REQUIRED FUEL/REFRIGERANT/ELEC./WATER SUPPLY, ROUGH-INS. EXHAUST, INTAKES, DRAINS, ETC. UNDER THE BASE BID FOR ALL EQUIPMENT ITEMS INDICATED IN THE PLANS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO EQUIPMENT & FIXTURES PROCURED & INSTALLED BY THE CONTRACTOR, PROVIDED BY OWNER (WHETHER INSTALLED BY CONTRACTOR OR OWNER).

BUILDING CODE SUMMARY

ALL CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE VIRGINIA EXISTING BUILDING CODE,2018 EDITION AND BY REFERENCE THE VIRGINIA CONSTRUCTION CODE, 2018 EDITION.

BUILDING DATA:

OCCUPANCY CLASSIFICATION: A-2, ASSEMBLY
CONSTRUCTION TYPE: UNCHANGED, TYPE IB
FIRE SUPPRESSION SYSTEM : AUTOMATIC AND MONITORED SPRINKLER SYSTEM
ALLOWABLE BUILDING AREA AND HEIGHT (IBC 507.3):

ALLOWABLE AREA:	UNLIMITED
ACTUAL AREA:	262,673 SF
ALLOWABLE HEIGHT:	12 STORIES, 160' ABOVE GRADE PLANE
ACTUAL HEIGHT:	7 STORIES, 95' ABOVE GRADE PLANE

OCCUPANCY:

OCCUPANT LOAD:

ASSEMBLY(DINING): 2951sf @ 1/15sf =	214 OCCUPANTS
KITCHEN: 1160sf @ 1/200sf =	5 OCCUPANTS
STORAGE: 186sf @ 1/300sf =	1 OCCUPANTS
BUSINESS: 405sf @ 1/150sf =	3 OCCUPANTS
TOTAL:	226 OCCUPANTS

FIRE RESISTANCE RATINGS:

STRUCTURAL FRAME:	2 HOUR
BEARING EXTERIOR WALLS:	2 HOUR
BEARING INTERIOR WALLS:	2 HOUR
NON BEARING EXTERIOR WALLS:	0 HOUR
NON BEARING INTERIOR WALLS:	0 HOUR
FLOOR CONSTRUCTION:	2 HOUR
ROOF CONSTRUCTION:	1 HOUR
CORRIDOR WALLS:	0 HOUR

*ALL LOAD BEARING WALLS, THE FLOOR, AND THE ROOF ARE EXISTING TO REMAIN.

FIRE SEPARATION RATINGS:

BETWEEN ASSEMBLY AND ASSEMBLY:	NONE REQUIRED
BETWEEN ASSEMBLY AND BUSINESS:	1 HOUR

MATERIAL FINISH RATINGS: (REQUIRED)

CORRIDORS: CLASS II FLOORS AND CLASS B WALLS AND CEILINGS
ROOMS AND AREAS: CLASS II FLOORS AND CLASS C WALLS AND CEILINGS

LIFE SAFETY SYSTEM

EMERGENCY LIGHTING:	YES
EXIT SIGNS:	YES
FIRE DETECTION SYSTEM:	YES

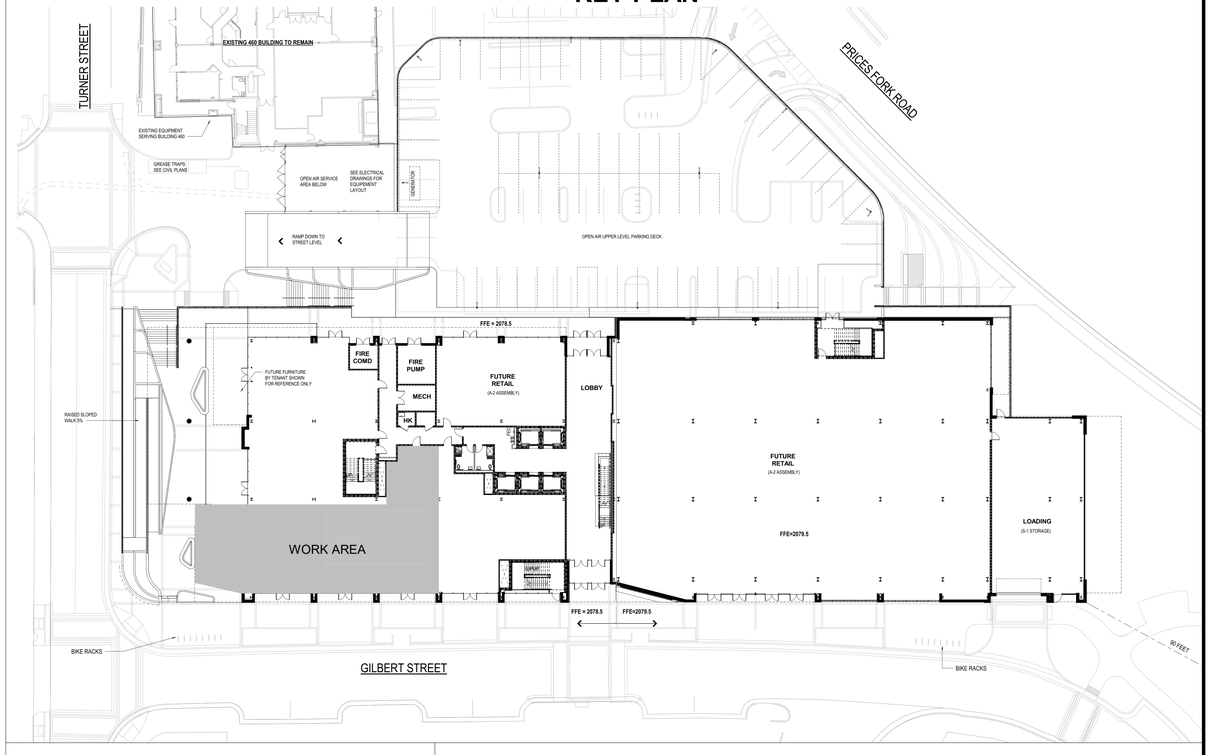
EXIT REQUIREMENTS

ASSEMBLY:	
DEAD-END LIMIT MAXIMUM:	20'
COMMON PATH OF EGRESS TRAVEL:	75'
MAXIMUM TRAVEL TO EXIT:	250'
ACTUAL (MAXIMUM) TRAVEL TO EXIT:	63'
MINIMUM NUMBER OF EXITS:	2 REQUIRED, 2 PROVIDED
EGRESS WIDTH:	222 OCCUPANTS @ .15" PER OCCUPANT= 45" MIN. EGRESS WIDTH ACTUAL BUILDING EGRESS TOTAL CAPACITY, (2) DOORS x 72" = 960 OCCUPANTS,480 OCCUPANTS PER DOOR

REQUIRED PLUMBING FIXTURES:

WATER CLOSETS:
MALE: 1/75 OCCUPANTS = 2 REQUIRED, 2 PROVIDED
FEMALE:1/75 OCCUPANTS = 2 REQUIRED, 2 PROVIDED
LAVATORIES: 1 REQUIRED, 1 PROVIDED FOR EACH INDIVIDUAL RESTROOM
DRINKING FOUNTAIN: NONE REQUIRED, EXCEPTION 410.4 OF THE 2018 VIRGINA PLUMBING CODE
SERVICE SINK: 1 REQUIRED, 1 PROVIDED

KEY PLAN



PROJECT TEAM

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DRAWING INDEX

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BLACKSBURG WINE LAB
VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

NO	DESCRIPTION	DATE	INITIALS

TITLE SHEET

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

G-101

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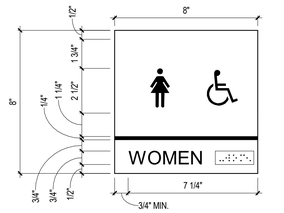
ABBREVIATIONS

A/C	AIR CONDITIONING
ACT	ACOUSTICAL CEILING TILE
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGG	AGGREGATE
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
ALT	ALTERNATE
ANCH	ANCHOR, ANCHORAGE
APPROX	APPROXIMATE
ARCH	ARCHITECT, ARCHITECTURAL
ATTEN	ATTENUATION
AVG	AVERAGE
BOT	BOTTOM
BD	BOARD
BFG	BELOW FINISHED GRADE
BIT	BITUMINOUS
BLDG	BUILDING
BLKG	BLOCKING
BRG	BEARING
CAB	CABINET
CJ	CONTROL JOINT
CL	CLEAR, CENTERLINE
CLO	CLOSET
C/L	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CORD	COORDINATE
CORR	CORRIDOR, CORRUGATED
CPT	CARPET
CT	CERAMIC TILE
D	DEEP, DEPTH, DRAIN
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
E	EAST
EA	EACH
EF	EXHAUST FAN
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
ETR	EXISTING TO REMAIN
EQUIP	EQUIPMENT
EX, EXIST	EXISTING
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
FD	FLOOR DRAIN, FIRE DAMPER
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FL, FLR	FLOOR
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FP	FIREPROOF
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT, FEET
FUR	FURRED, FURRING
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERAL
GL	GLASS, GLAZING
GOVT	GOVERNMENT
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
H, HT	HIGH, HEIGHT
HC	HANDICAPPED, HOLLOW CORE
HORIZ	HORIZONTAL
HM	HOLLOW METAL
IN	INCH
INSUL	INSULATION, INSULATED
INHM	INSULATED HOLLOW METAL
JAN	JANITOR
JC	JANITOR CLOSET
JT	JOINT
L	LONG, LENGTH
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LH	LEFT HAND
MAINT	MAINTENANCE
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MTL	METAL
MFG	MANUFACTURER

(CONTINUED NEXT COLUMN)

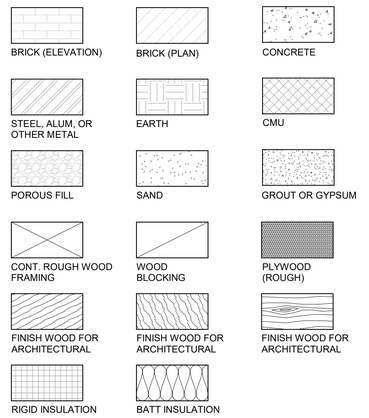
MIN	MINIMUM, MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
MO	MASONRY OPENING
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPP	OPPOSITE
OTS	OPEN TO STRUCTURE
PAR	PARALLEL
PART	PARTIAL
PC	PRECAST
PCT	PORCELAIN CERAMIC TILE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLUMB	PLUMBING
PLY	PLYWOOD
PREFAB	PREFABRCATE, PREFABRICATED
PREFIN	PREFINISHED
PREP	PREPARE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS, RISER
RAD	RADIUS
RB	RESILIENT BASE, RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REC	RECEPTACLE
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
S	SOUTH
SAN	SANITARY
SECT	SECTION
SF	SQUARE FEET
SIM	SIMILAR
SND	SANITARY NAPKIN DISPOSAL
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL, SOLID SURFACE
STC	SOURCE TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SYN	SYNTHETIC
T	TON, TREAD, TOP
T&G	TONGUE AND GROOVE
TEMP	TEMPERATURE, TEMPERED
TERR	TERRAZZO
TG	TEMPERED GLASS
THRU	THROUGH
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TRTD	TREATED
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNF	UNFINISHED
UNO, UON	UNLESS NOTED OTHERWISE , UNLESS OTHERWISE NOTED
V	VOLT
VCT	VINYL COMPOSITION TILE
VEN	VENEER
VERT	VERTICAL
W	WIDTH, WIDE, WEST
WAIN	WAINSCOT
WB	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
W/	WITH
W/O	WITHOUT
°	DEGREE
&, +	AND
@	AT
±, +/-	PLUS OR MINUS
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO

SIGN DETAILS

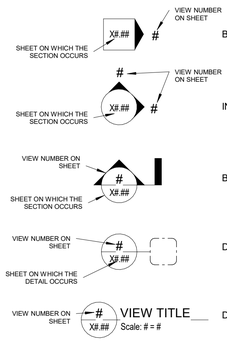


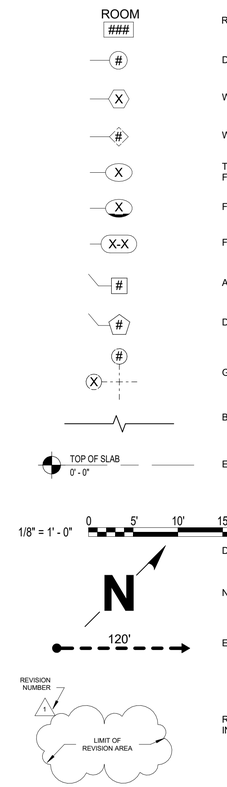
DIRECTIONAL SIGN

PATTERN LEGEND

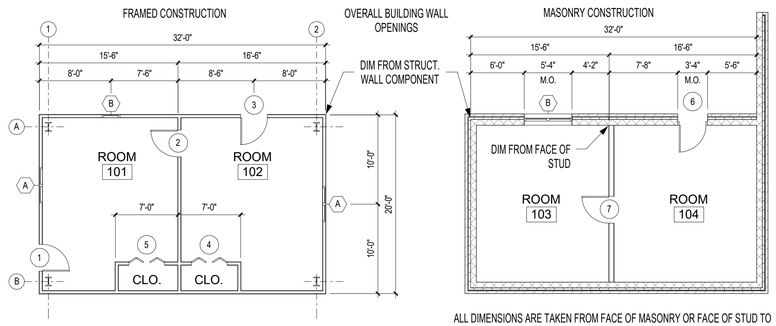


SYMBOL LEGEND



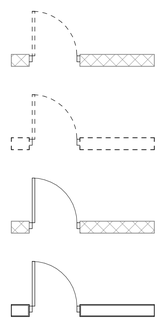


ANNOTATION STANDARDS



ALL DIMENSIONS ARE TAKEN FROM FACE OF MASONRY OR FACE OF STUD TO FACE OF STUD OR CENTERLINE OF COLUMN

NEW/EXISTING LEGEND



DEMOLITION IN EXISTING:
WALLS SHADED GREY WITH BOLD GREY OUTLINE, NO WALL LAYERS; OBJECTS TO BE DEMOLISHED SHOWN AS DASHED WITH WHITE FILL

TOTAL DEMOLITION:
WHITE FILL; DASHED LINES INDICATING EXTENT OF DEMOLITION

NEW OBJECTS IN EXISTING CONSTRUCTION:
WALLS SHADED GREY WITH BOLD GREY OUTLINE, NO WALL LAYERS; NEW OBJECTS BOLD BLACK OUTLINES WITH WHITE FILL

ALL NEW CONSTRUCTION:
WALLS WHITE FILL WITH BOLD BLACK OUTLINE, THIN LINES & PATTERNS SHOWING WALL LAYERS; NEW OBJECTS BOLD BLACK OUTLINES WITH WHITE FILL

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BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

	INITIALS	DATE	DESCRIPTION
1			

LEGENDS & ABBREVIATIONS

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: --- Checked: ---
Project: 221049

A-001

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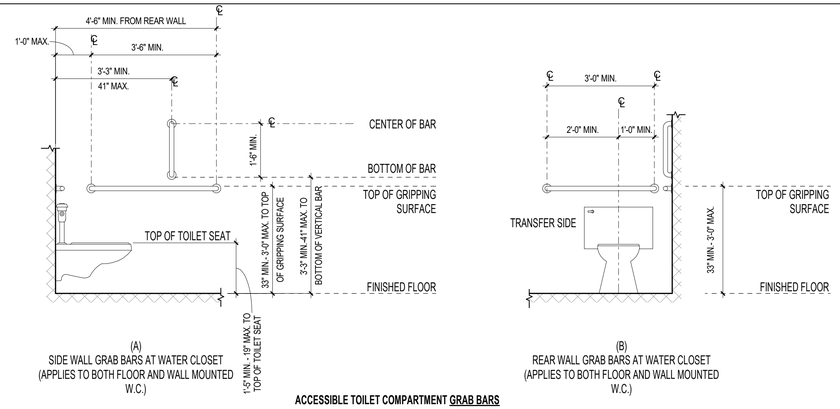
ACCESSIBLE MOUNTING HEIGHTS AND CLEARANCES

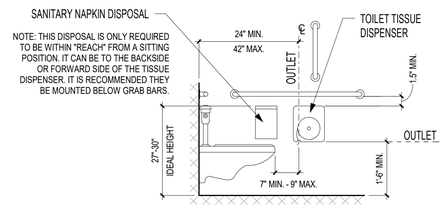


(A)
SIDE WALL GRAB BARS AT WATER CLOSET
(APPLIES TO BOTH FLOOR AND WALL MOUNTED W.C.)

(B)
REAR WALL GRAB BARS AT WATER CLOSET
(APPLIES TO BOTH FLOOR AND WALL MOUNTED W.C.)

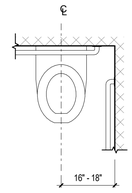
ACCESSIBLE TOILET COMPARTMENT GRAB BARS AND TOILET SEAT HEIGHT

NOTES:
1. THE MEASUREMENTS NOTED ON THIS SHEET FOLLOW CURRENT ADA AND 2009 ANSI A117.1 MINIMUM REQUIREMENTS.
2. THE TERM "IDEAL" DENOTES DIMENSIONS NOT NECESSARILY DICTATED BY CODE OR WHERE THE OWNER/ARCHITECT REQUIRE DIMENSIONS THAT EXCEED CODE REQUIREMENTS. WHERE THE TERM "IDEAL" IS NOTED IT SHALL SUPERCEDE ALL OTHER DIMENSIONS AND THE CONTRACTOR SHALL USE IT AS THEIR BASIS FOR INSTALLATION.
3. ALL DIMENSIONS ARE "CLEAR" DIMENSIONS AND ARE FROM FINISHED FACE OF ALL ELEMENTS.



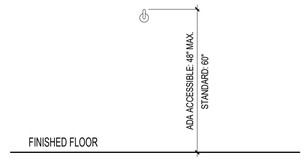
OUTLET = LOCATION PAPER DISPENSES OUT

WHEELCHAIR ACCESSIBLE
TOILET TISSUE DISPENSER AND
SANITARY NAPKIN DISPOSAL LOCATIONS

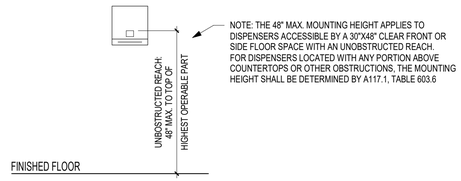


(A)
WHEELCHAIR ACCESSIBLE WATER CLOSETS

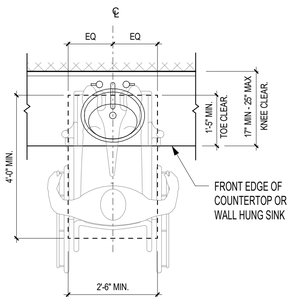
WHEELCHAIR ACCESSIBLE WATER CLOSET LOCATIONS



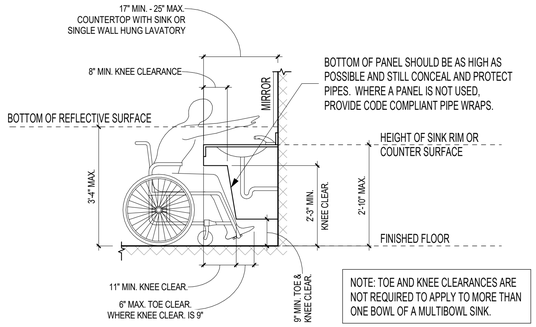
COAT HOOKS



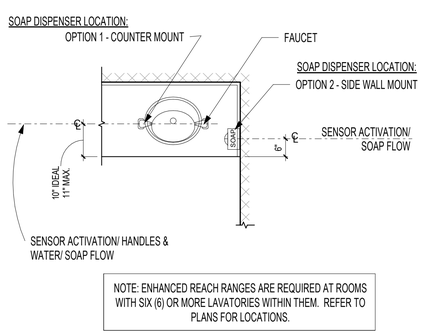
PAPER TOWEL DISPENSERS/ AUTOMATIC HAND DRYERS



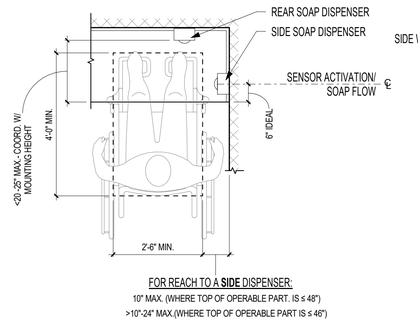
POSITION OF CLEAR FLOOR SPACE AT ACCESSIBLE FORWARD APPROACH



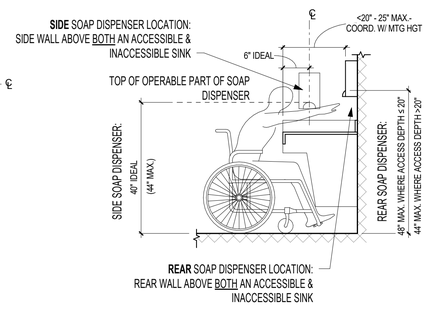
TOE & KNEE CLEARANCES AT ACCESSIBLE ADULT LAVATORIES & SINKS/ HEIGHT OF ACCESSIBLE ADULT LAVATORIES & SINKS/ HEIGHT OF ACCESSIBLE ADULT MIRRORS



POSITION OF FAUCET AND SOAP DISPENSERS AT *ENHANCED* REACH RANGE LAVATORY



REACH DEPTH & POSITION OF SOAP DISPENSER AT ACCESSIBLE LAVATORY



POSITION OF SOAP DISPENSER (SIDE & REAR MOUNT OPTIONS) AT ALL ADULT LAVATORIES

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BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

ACCESSIBILITY DETAILS

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: --- Checked: ---
Project: 221049

A-002

Plotted on: 9/29/2022 2:09:10 PM

OCCUPANCY ZONES:

- ASSEMBLY USE, 1 OCCUPANT PER 15 SF — 1,983 SF = 132 OCCUPANTS
- ASSEMBLY USE, 1 OCCUPANT PER 15 SF — 873 SF = 58 OCCUPANTS
- ASSEMBLY USE, 1 OCCUPANT PER 15 SF — 408 SF = 27 OCCUPANTS
- KITCHEN USE, 1 OCCUPANT PER 200 SF — 549 SF = 3 OCCUPANTS
- KITCHEN USE, 1 OCCUPANT PER 200 SF — 363 SF = 2 OCCUPANTS
- STORAGE USE, 1 OCCUPANT PER 300 SF — 186 SF = 1 OCCUPANTS
- BUSINESS USE, 1 OCCUPANT PER 150 SF — 408 SF = 3 OCCUPANTS

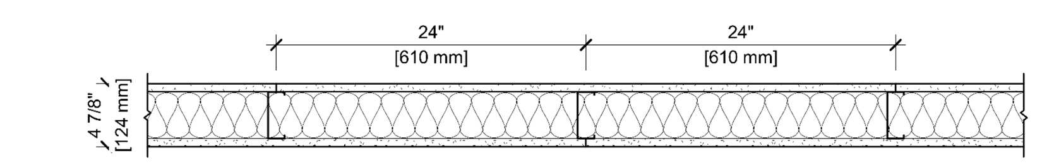
TOTAL OCCUPANCY = 226 OCCUPANTS

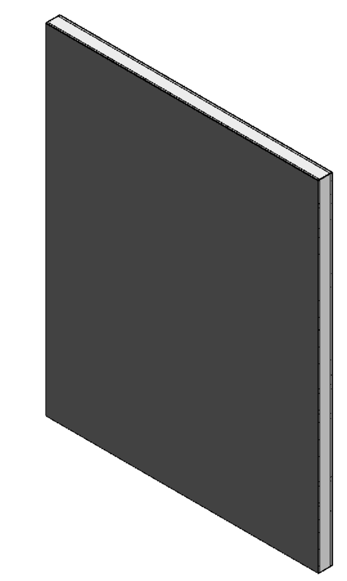
LEGEND

- 100' - 0" — EGRESS PATH AND DISTANCE
- FE — FIRE EXTINGUISHER
- ACCESSIBLE ROUTE
- EXIT SIGN
- 1-HR RATED WALL, UL U419

DESIGN NO. UL U419

FIRE RATING:	1 HOUR
STC RATING:	48
SOUND TEST:	USG-180617
SYSTEM THICKNESS:	4-7/8" [124 MM]
LOCATION:	INTERIOR
FRAMING TYPE:	STEEL STUD (NONLOAD-BEARING)





ASSEMBLY REQUIREMENTS:

GYPSUM PANELS:	ONE LAYER 5/8" [15.9 MM] SHEETROCK® ECOSMART GYPSUM PANEL (UL TYPE ULIX™)
STEEL STUDS:	3-5/8" [92 MM] STEEL STUDS, EQ20 (0.018"), 24" [610 MM] O.C.
INSULATION:	3-1/2" [89 MM] FIBERGLASS INSULATION
GYPSUM PANELS:	ONE LAYER 5/8" [15.9 MM] SHEETROCK® ECOSMART GYPSUM PANEL (UL TYPE ULIX™)

GENERAL WALL NOTES:

1. REFER TO APPLICABLE CODES REQUIREMENTS TO ENSURE COMPLIANCE PRIOR TO CONSTRUCTION.
2. FOR THE MOST UP-TO-DATE DETAILS, INCLUDING CONSTRUCTION VARIATIONS, REFER TO THE PUBLISHED DESIGN.
3. WHERE DESIGN NO. INDICATES "PER", THE FIRE RATING IS BASED ON LABORATORY TEST DATA OF THE REFERENCED SIMILARLY CONSTRUCTED ASSEMBLIES.
4. STUD SIZES AND INSULATION THICKNESS ARE MINIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
5. STUD AND FASTENER SPACINGS ARE MAXIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
6. PANEL ORIENTATION SHALL BE AS SPECIFIED IN THE PUBLISHED DESIGN.
7. FIRE-RATINGS ARE FROM BOTH SIDES UNLESS OTHERWISE STATED.
8. FIRE-RATINGS ARE MAINTAINED WITH ONE OR MORE OF THE FOLLOWING MODIFICATIONS: INCREASE STUD DEPTH, INCREASE STUD MATERIAL THICKNESS, DECREASE STUD SPACING, DECREASE FASTENER SPACING, INCREASE INSULATION THICKNESS UP TO CAVITY DEPTH.
9. WHERE ACOUSTICAL PERFORMANCE IS PROVIDED IN AN ESTIMATED RANGE, THE VALUES ARE BASED ON LABORATORY TEST DATA OF SIMILARLY CONSTRUCTED ASSEMBLIES.
10. SOUND-RATINGS ARE MAINTAINED WITH ONE OR MORE OF THE FOLLOWING MODIFICATIONS: INCREASE STUD DEPTH, DECREASE STUD MATERIAL THICKNESS, INCREASE STUD SPACING, INCREASE FASTENER SPACING, INCREASE INSULATION THICKNESS UP TO CAVITY DEPTH. MODIFICATIONS MUST NOT EXCEED LIMITATIONS OF FIRE RATING.

USG CGC
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Chicago, IL 60661 USA
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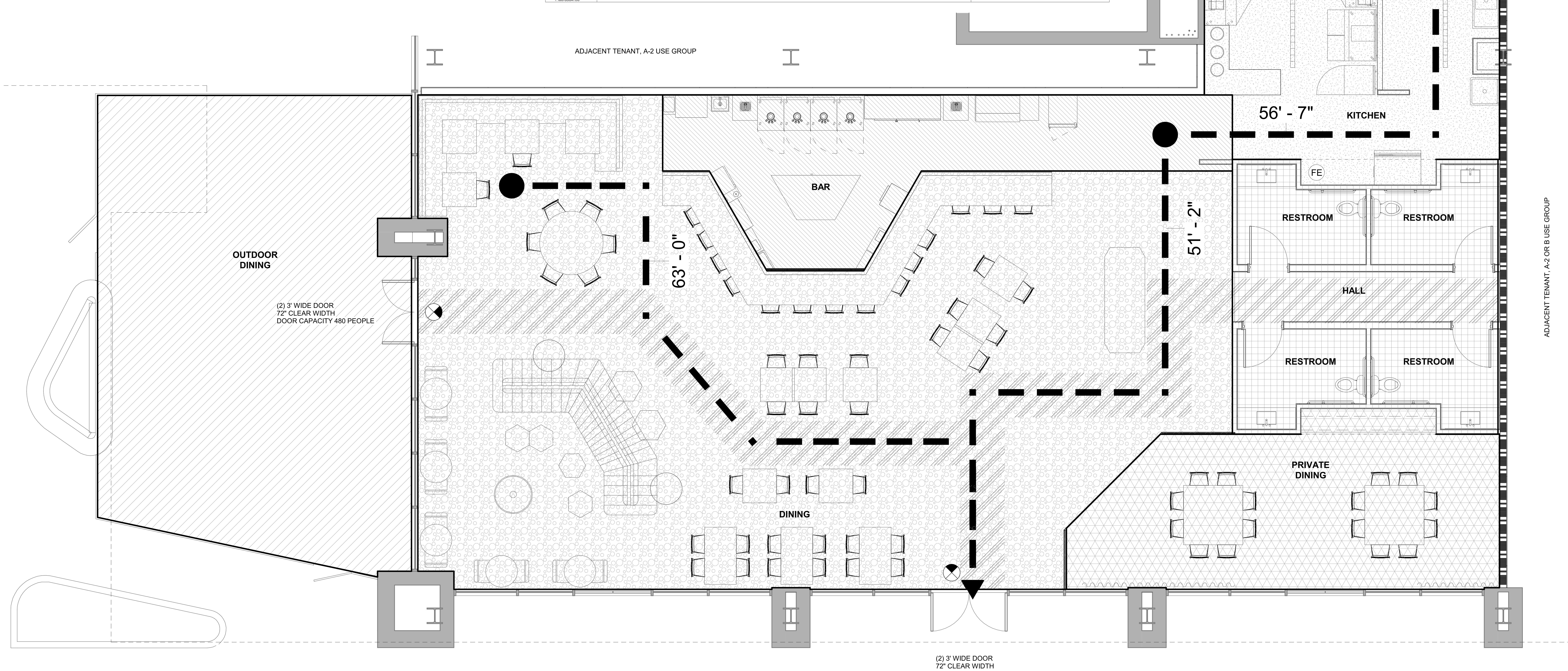
UL U419

ISSUE RECORD:
Revision Date
10/05/2021 11:49:24 PM

SHEET INFORMATION:
SN-P-1-03



1 A-010 FIRST FLOOR OCCUPANCY USE PLAN
1/4" = 1'-0"

N

1/4" = 1' - 0" 0 1' 5' 10' 15'

Plotted on: 9/29/2022 2:09:13 PM

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BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

LIFE SAFETY PLAN

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-010

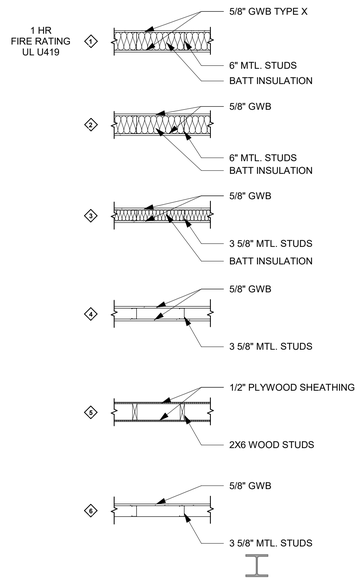
GENERAL NOTES

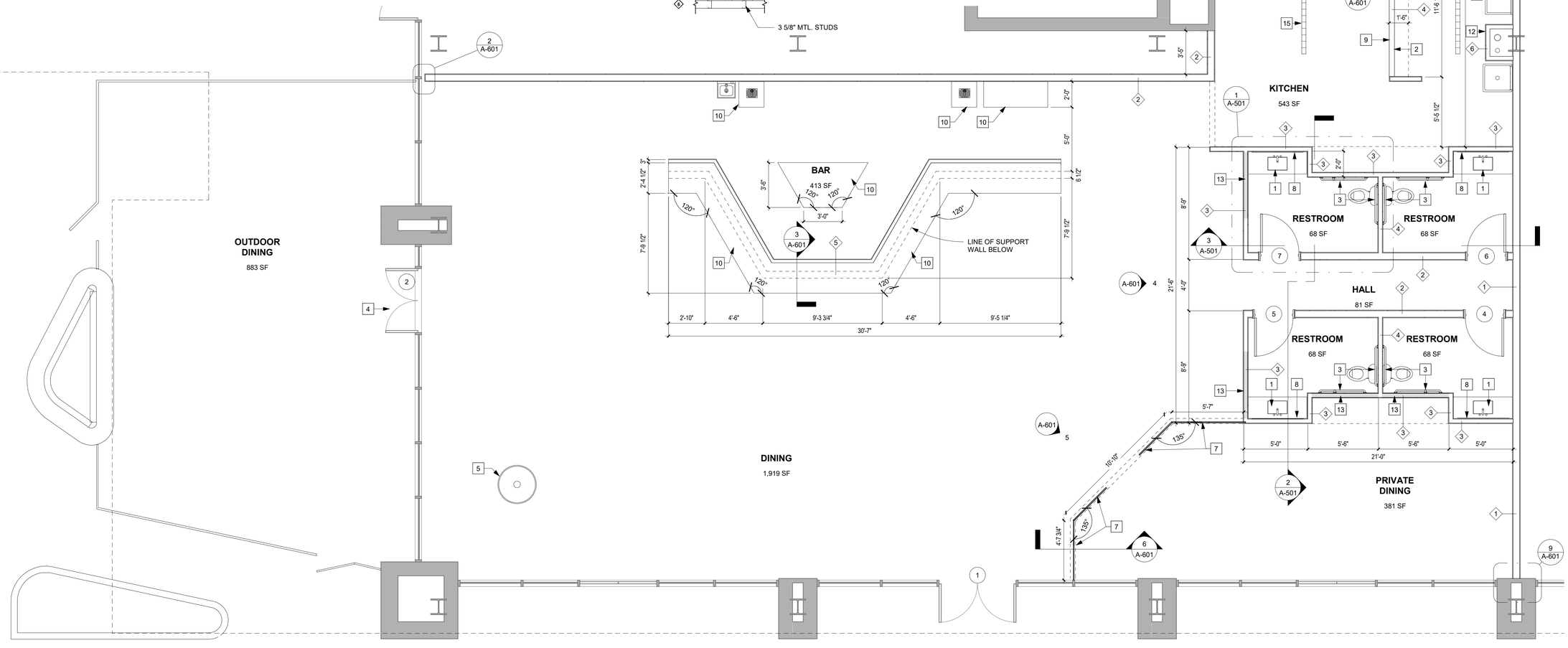
1. UNLESS OTHERWISE STATED, FOR NEW WALLS, DIMENSIONS ARE TAKEN FROM FACE OF STUD, AND FOR EXISTING WALLS, DIMENSION ARE TAKE FROM FINISH FACE. ANY CONFLICT WITH FIELD CONDITIONS, DRAWINGS, AND/OR TRADES SHALL BE REPORTED TO THE DESIGNER IMMEDIATELY UPON DISCOVERY FOR CLARIFICATION PRIOR TO PROCEEDING WITH ASSOCIATED WORK
2. ALL ITEMS SHOWN ON THIS PLAN ARE TO BE PROVIDED AND INSTALLED BY THE GC UNLESS OTHERWISE NOTED.
3. COORDINATE WITH PME SHEETS FOR EQUIPMENT CONNECTION LOCATIONS.
4. REFER TO REFLECTED CEILING PLAN FOR CEILING HEIGHTS.

FLOOR PLAN KEYNOTES:

1	NEW ACCESSIBLE SOLID SURFACE TROUGH SINK. FINAL SELECTION BY OWNER
2	4'-0" TALL KNEE WALL
3	ACCESSIBLE GRAB BARS - SEE ACCESSIBILITY DETAILS FOR MOUNTING HEIGHTS
4	RELOCATED STOREFRONT DOOR
5	48" SUSPENDED GAS FIREPLACE
6	MOP SINK - SEE PLUMBING
7	3/4" GLASS WALL WITH TOP AND BOTTOM TRACK ONLY, NO VERTICAL MULLIONS.
8	36"X48" WALL MOUNTED MIRROR
9	STAINLESS STEEL WALL COVERING FROM FLOOR TO CEILING
10	COUNTERTOP - FINAL SELECTION BY OWNER
11	STAINLESS STEEL SHELVES ABOVE
12	FUR OUT WALL TO COVER COLUMN AND ADJACENT PIPES. DIMENSIONS DETERMINED IN FIELD.
13	4"-43 GA X-STRAP W/ SIMPSON HDU2 ON EACH END
14	4" TRENCH DRAIN

WALL TYPES





1 A-101 FIRST FLOOR PLAN
1/4" = 1'-0"

N

1/4" = 1' - 0" 0 1' 5' 10' 15'

Plotted on: 9/29/2022 2:09:14 PM

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VIRGINIA TECH FOUNDATION
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REVISION SCHEDULE

	DESCRIPTION	DATE	INITIALS
1			

FLOOR PLAN

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-101

EQUIPMENT KEYNOTES:

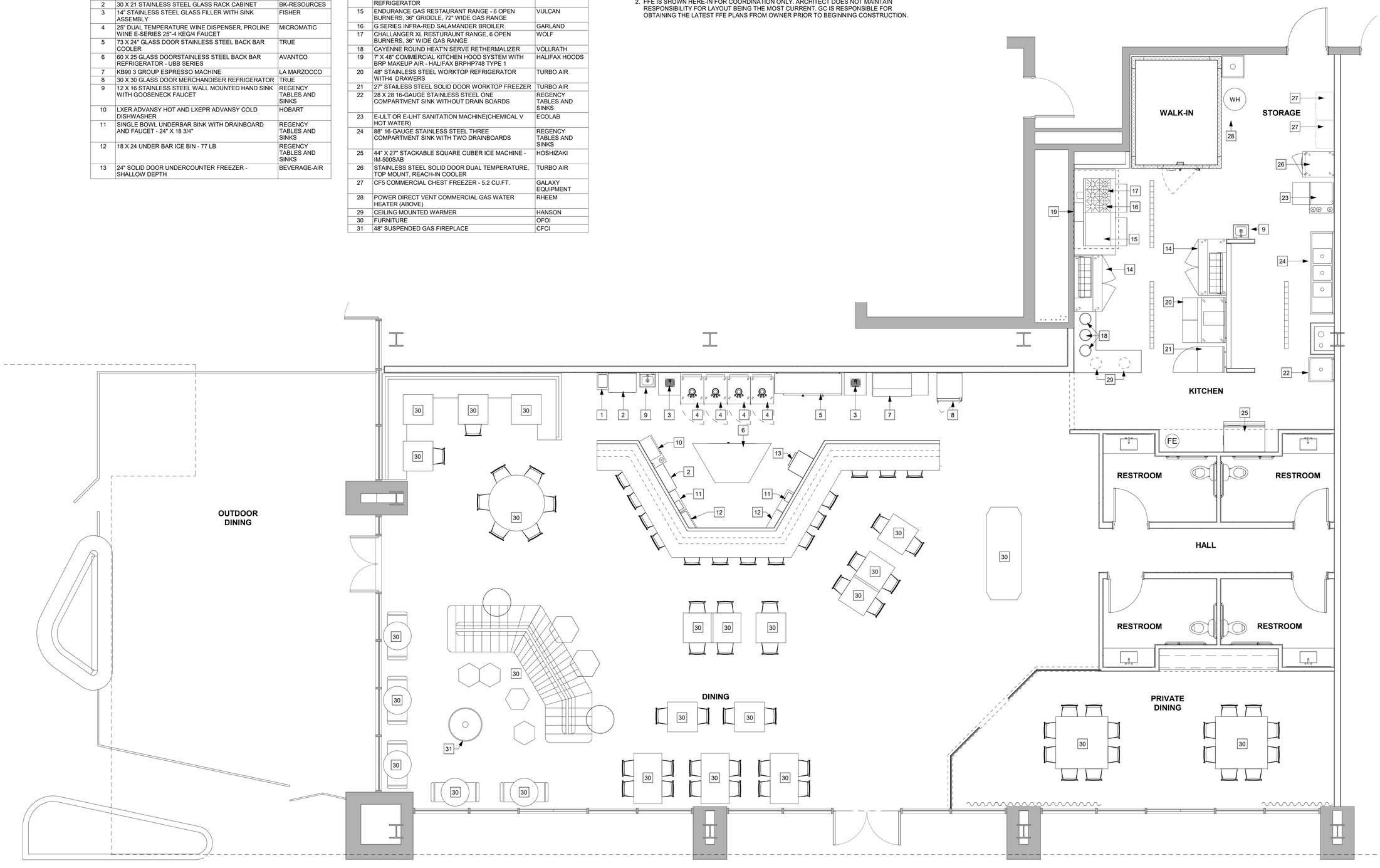
Keynote	EQUIPMENT	MANUFACTURER
1	12X 18 STAINLESS STEEL UNDERBAR DUMP SINK	BK-RESOURCES
2	30 X 21 STAINLESS STEEL GLASS RACK CABINET	BK-RESOURCES
3	14" STAINLESS STEEL GLASS FILLER WITH SINK ASSEMBLY	FISHER
4	25" DUAL TEMPERATURE WINE DISPENSER, PROLINE WINE E-SERIES 25"-4 KEG/4 FAUCET	MICROMATIC
5	73 X 24" GLASS DOOR STAINLESS STEEL BACK BAR COOLER	TRUE
6	60 X 25 GLASS DOORSTAINLESS STEEL BACK BAR REFRIGERATOR - UBB SERIES	AVANTCO
7	KB90 3 GROUP ESPRESSO MACHINE	LA MARZOCCO
8	30 X 30 GLASS DOOR MERCHANDISER REFRIGERATOR	TRUE
9	12 X 16 STAINLESS STEEL WALL MOUNTED HAND SINK WITH GOOSENECK FAUCET	REGENCY TABLES AND SINKS
10	LXER ADVANSY HOT AND LXEPR ADVANSY COLD DISHWASHER	HOBART
11	SINGLE BOWL UNDERBAR SINK WITH DRAINBOARD AND FAUCET - 24" X 18 3/4"	REGENCY TABLES AND SINKS
12	18 X 24 UNDER BAR ICE BIN - 77 LB	REGENCY TABLES AND SINKS
13	24" SOLID DOOR UNDERCOUNTER FREEZER - SHALLOW DEPTH	BEVERAGE-AIR

EQUIPMENT KEYNOTES:

Keynote	EQUIPMENT	MANUFACTURER
14	60" SOLID DOOR FOOD PREP TABLE AND REFRIGERATOR	TRUE
15	ENDURANCE GAS RESTAURANT RANGE - 6 OPEN BURNERS, 36" GRIDDLE, 72" WIDE GAS RANGE	VULCAN
16	G SERIES INFRA-RED SALAMANDER BROILER	GARLAND
17	CHALLANGER XL RESTURAUNT RANGE, 6 OPEN BURNERS, 36" WIDE GAS RANGE	WOLF
18	CAYENNE ROUND HEAT'N SERVE RETHERMALIZER	VOLLRATH
19	7' X 48" COMMERCIAL KITCHEN HOOD SYSTEM WITH BRP MAKEUP AIR - HALIFAX BRPHP748 TYPE 1	HALIFAX HOODS
20	48" STAINLESS STEEL WORKTOP REFRIGERATOR WITH4 DRAWERS	TURBO AIR
21	27" STAILESS STEEL SOLID DOOR WORKTOP FREEZER	TURBO AIR
22	28 X 28 16-GAUGE STAINLESS STEEL ONE COMPARTMENT SINK WITHOUT DRAIN BOARDS	REGENCY TABLES AND SINKS
23	E-ULT OR E-UHT SANITATION MACHINE(CHEMICAL V HOT WATER)	ECOLAB
24	88" 16-GAUGE STAINLESS STEEL THREE COMPARTMENT SINK WITH TWO DRAINBOARDS	REGENCY TABLES AND SINKS
25	44" X 27" STACKABLE SQUARE CUBER ICE MACHINE - IM-500SAB	HOSHIZAKI
26	STAINLESS STEEL SOLID DOOR DUAL TEMPERATURE, TOP MOUNT, REACH-IN COOLER	TURBO AIR
27	CF5 COMMERCIAL CHEST FREEZER - 5.2 CU.FT.	GALAXY EQUIPMENT
28	POWER DIRECT VENT COMMERCIAL GAS WATER HEATER (ABOVE)	RHEEM
29	CEILING MOUNTED WARMER	HANSON
30	FURNITURE	OFOI
31	48" SUSPENDED GAS FIREPLACE	CFCI

GENERAL EQUIPMENT PLAN NOTES

1. ALL FFE WILL BE PROVIDED AND INSTALLED BY OWNER, UNLESS OTHERWISE NOTED. HOOK UP OF MECHANICAL, ELECTRICAL, AND PLUMBING SHALL BE EXECUTED BY GC.
2. FFE IS SHOWN HERE-IN FOR COORDINATION ONLY. ARCHITECT DOES NOT MAINTAIN RESPONSIBILITY FOR LAYOUT BEING THE MOST CURRENT. GC IS RESPONSIBLE FOR OBTAINING THE LATEST FFE PLANS FROM OWNER PRIOR TO BEGINNING CONSTRUCTION.



1 A-102 EQUIPMENT PLAN
1/4" = 1'-0"

N

1/4" = 1' - 0" 0 1' 5' 10' 15'

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BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

EQUIPMENT PLAN

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-102

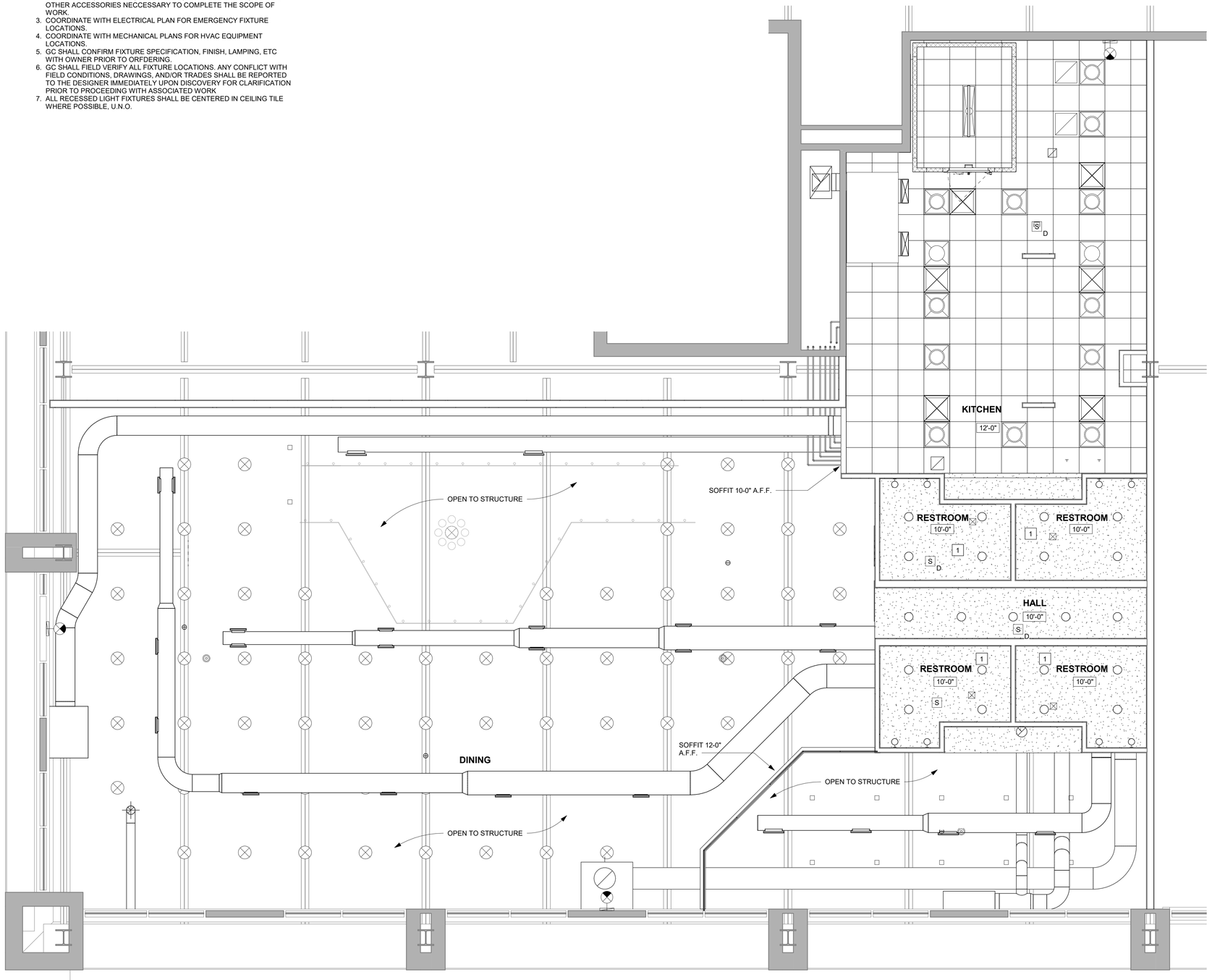
Plotted on: 9/29/2022 2:09:15 PM

CEILING PLAN LEGEND

- 2'-0" x 4'-0" LIGHT FIXTURE - SEE ELECTRICAL
- RECESSED CAN LIGHT FIXTURE - SEE ELECTRICAL
- JUNCTION BOX - SEE ELECTRICAL
- SUPPLY AIR DIFFUSER - SEE MECHANICAL
- RETURN AIR GRILLE - SEE MECHANICAL
- EXHAUST FAN - SEE MECHANICAL
- 2X2 PARABOLIC TROFFER LIGHT FIXTURE - SEE ELECTRICAL
- 1X4 PARABOLIC TROFFER LIGHT FIXTURE - SEE ELECTRICAL
- TRACK LIGHTING - SEE ELECTRICAL
- CHANDELIER - SEE ELECTRICAL
- PENDANT LIGHT - SEE ELECTRICAL
- WALL MOUNTED SCONCE - SEE ELECTRICAL
- 48" SUSPENDED GAS FIREPLACE
- 1/2" GYPSUM BOARD CEILING
- 24"X48" ACT CEILING

CEILING PLAN NOTES

1. ALL ITEMS ARE NEW, UNLESS NOTED OTHERWISE.
2. ALL ITEMS ARE TO BE PROVIDED AND INSTALLED BY THE GC INCLUDING CEILING TILES, MAIN TEES, CROSS TEES, WALL MOULDINGS, AND ALL OTHER ACCESSORIES NECCESSARY TO COMPLETE THE SCOPE OF WORK.
3. COORDINATE WITH ELECTRICAL PLAN FOR EMERGENCY FIXTURE LOCATIONS.
4. COORDINATE WITH MECHANICAL PLANS FOR HVAC EQUIPMENT LOCATIONS.
5. GC SHALL CONFIRM FIXTURE SPECIFICATION, FINISH, LAMPING, ETC WITH OWNER PRIOR TO ORFDERING.
6. GC SHALL FIELD VERIFY ALL FIXTURE LOCATIONS. ANY CONFLICT WITH FIELD CONDITIONS, DRAWINGS, AND/OR TRADES SHALL BE REPORTED TO THE DESIGNER IMMEDIATELY UPON DISCOVERY FOR CLARIFICATION PRIOR TO PROCEEDING WITH ASSOCIATED WORK.
7. ALL RECESSED LIGHT FIXTURES SHALL BE CENTERED IN CEILING TILE WHERE POSSIBLE, U.N.O.



1 A-120 REFLECTED CEILING PLAN - NEW
1/4" = 1'-0"

N

1/4" = 1' - 0" 0 1' 5' 10' 15'

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

REFLECTED CEILING PLAN

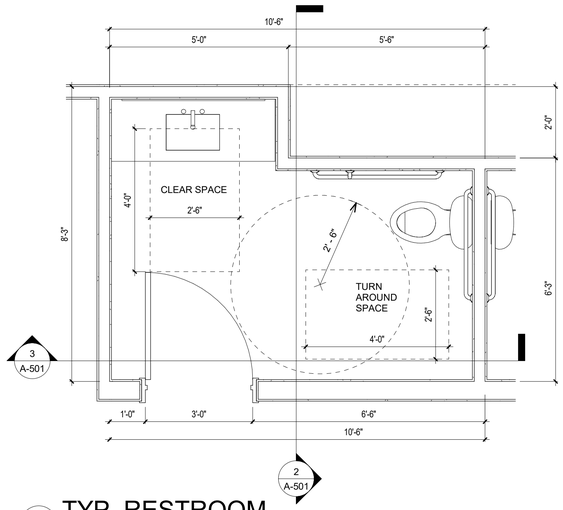
PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

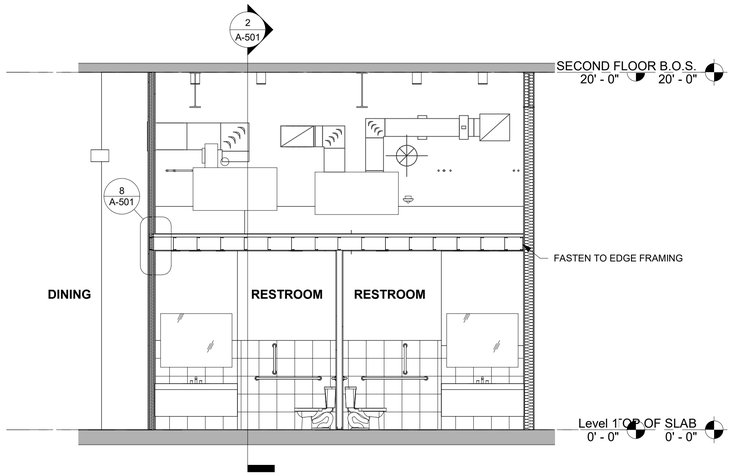
Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-120

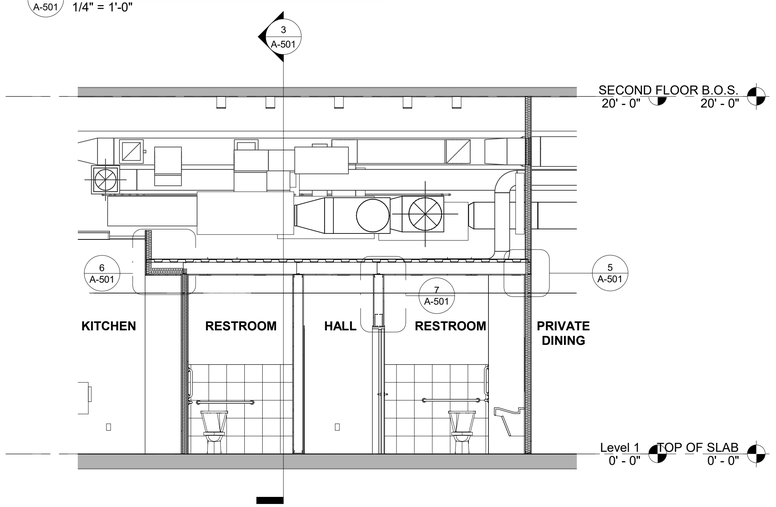
Plotted on: 9/29/2022 2:09:16 PM



1 A-501 **TYP. RESTROOM**
1/2" = 1'-0"



3 A-501 **SECTION - RESTROOM**
1/4" = 1'-0"



2 A-501 **SECTION - RESTROOM**
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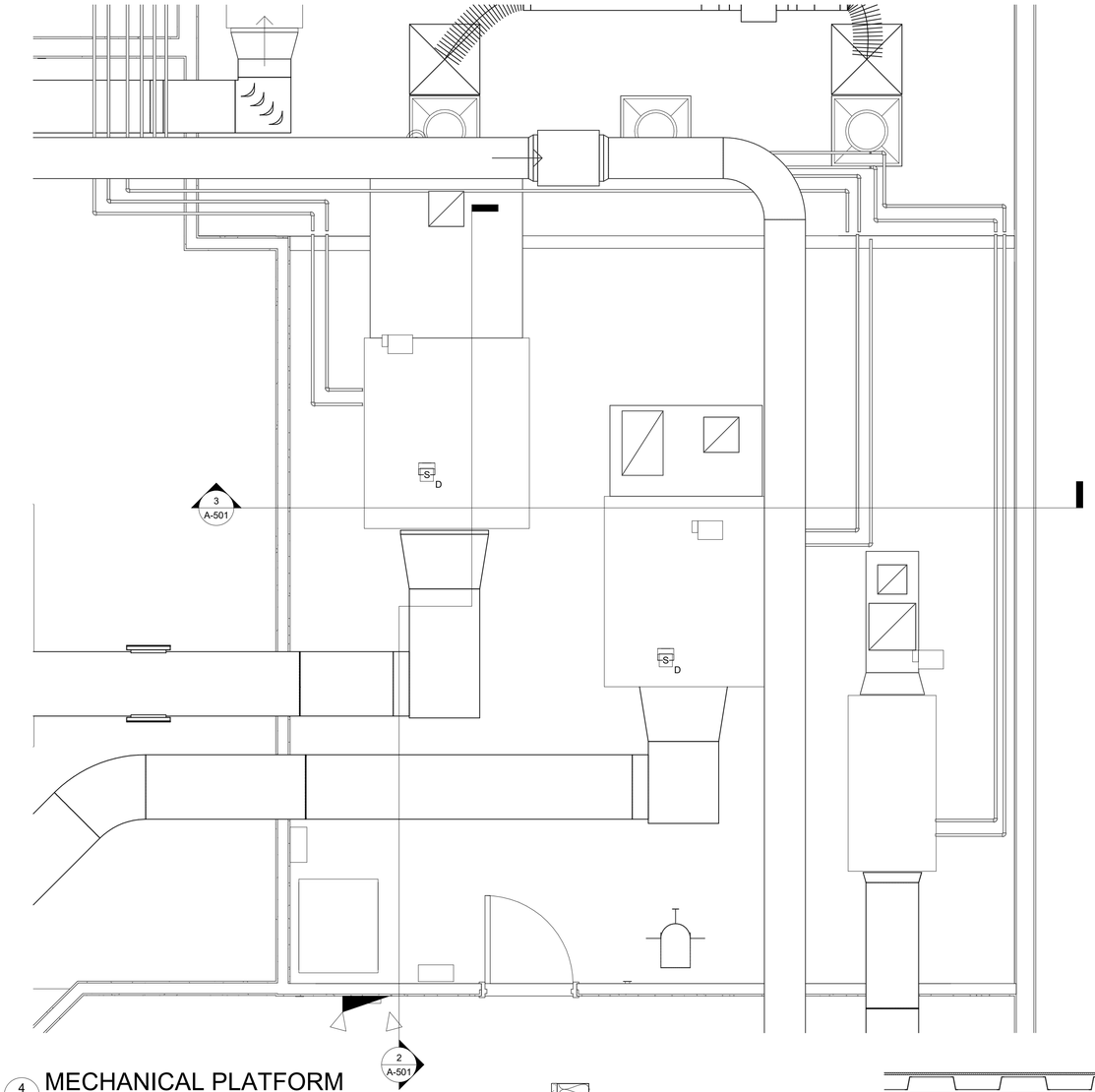
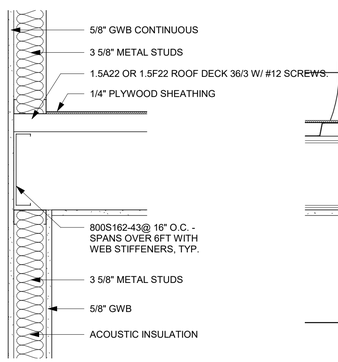
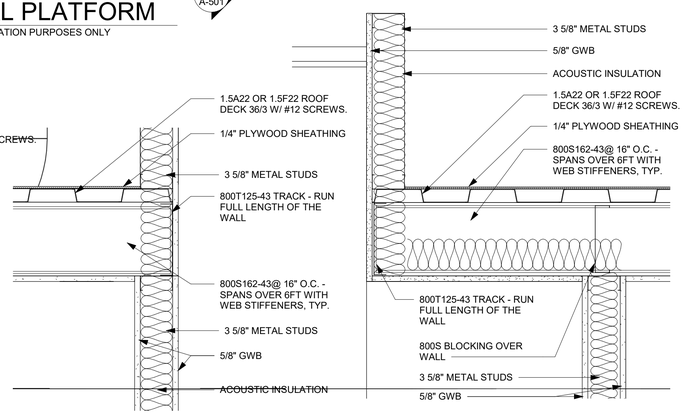


4 A-501 **MECHANICAL PLATFORM**
1/2" = 1'-0" FOR COORDINATION PURPOSES ONLY

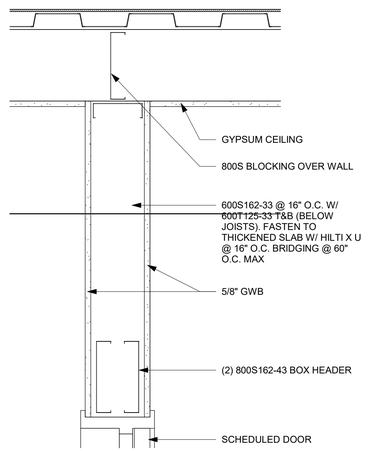


8 A-501 **PLATFORM EDGE DETAIL**
1 1/2" = 1'-0"



5 A-501 **PLATFORM EDGE DETAIL**
1 1/2" = 1'-0"

6 A-501 **CANTILEVER DETAIL**
1 1/2" = 1'-0"



7 A-501 **RR DOOR HEAD DETAIL**
1 1/2" = 1'-0"

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400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

RESTROOM PLAN AND SECTIONS

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-501

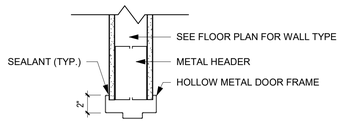
Plotted on: 9/29/2022 2:09:19 PM

DOOR SCHEDULE

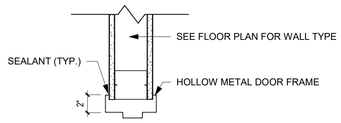
#	TYPE	DOOR				FRAME		DETAILS			HARDWARE SET	COMMENTS
		WIDTH	HEIGHT	THICKNESS	MATERIAL	TYPE	MATERIAL	HEAD	JAMB	THRESHOLD		
1	EX.	6' - 0"	7' - 11"	0' - 2"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	(none)	
2	EX.	5' - 0"	9' - 3"	0' - 2"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	(none)	
3	EX.	3' - 6"	6' - 8"	0' - 1 3/4"	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	(none)	
4	A	3' - 0"	7' - 0"	0' - 1 3/4"	SC WD	A	HM	1/A-601	1/A-601	2/A-601	HW-1	
5	A	3' - 0"	7' - 0"	0' - 1 3/4"	SC WD	A	HM	1/A-601	1/A-601	2/A-601	HW-1	
6	A	3' - 0"	7' - 0"	0' - 1 3/4"	SC WD	A	HM	1/A-601	1/A-601	2/A-601	HW-1	
7	A	3' - 0"	7' - 0"	0' - 1 3/4"	SC WD	A	HM	1/A-601	1/A-601	2/A-601	HW-1	

HARWARE

HW-1:
- 3 HINGE, FULL MORTISE
- 1 PRIVACY LOCK
- 1 SURFACE CLOSER
- 1 KICK PLATE
- 1 MOP PLATE
- 1 DOOR STOP
- 3 SILENCER
- 1 COAT HOOK

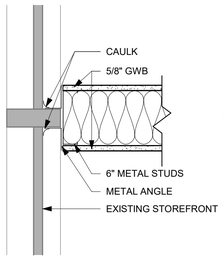


HEAD

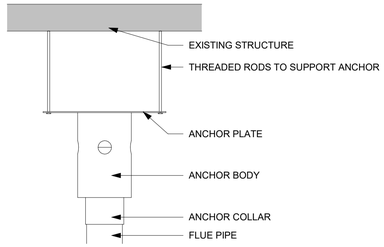


JAMB

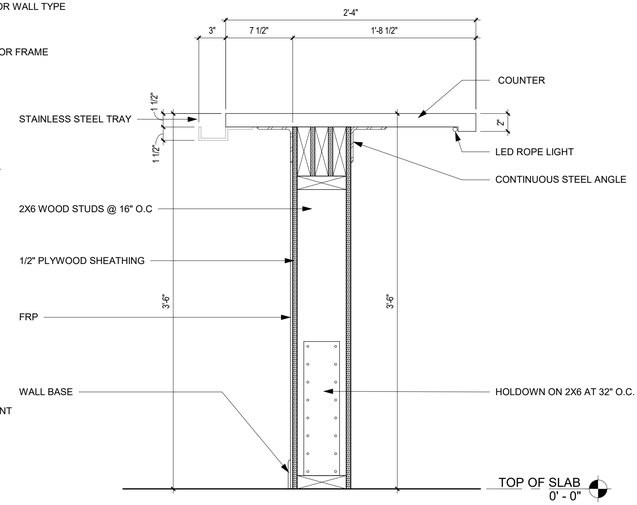
1 HEAD AND JAMB
A-601 — 1 1/2" = 1'-0"



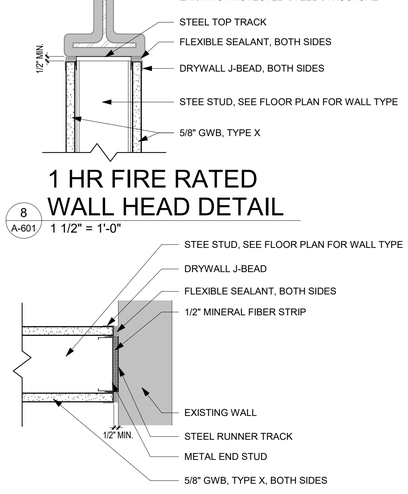
2 WALL CONNECTION DETAIL
A-601 — 1 1/2" = 1'-0"



11 FIREPLACE MOUNTING DETAIL
A-601 — 3/4" = 1'-0"

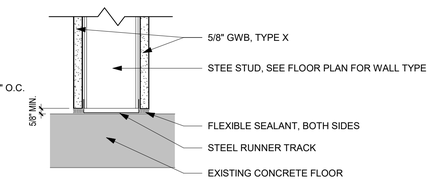


3 SECTION - BAR COUNTER
A-601 — 1 1/2" = 1'-0"

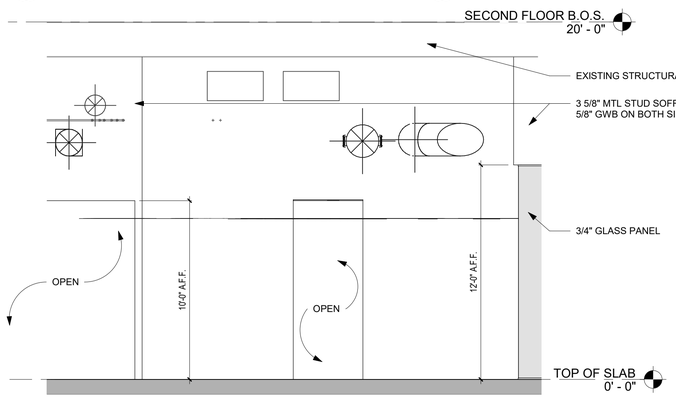


8 1 HR FIRE RATED WALL HEAD DETAIL
A-601 — 1 1/2" = 1'-0"

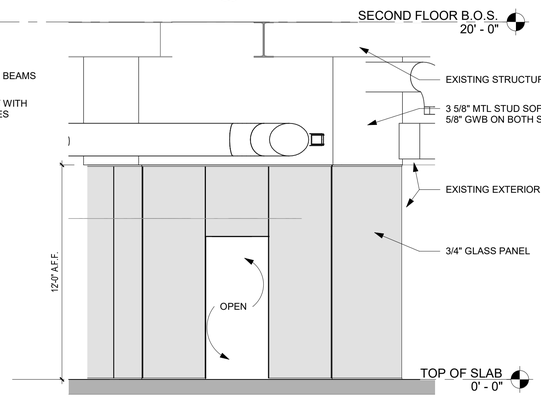
1 HR RATED WALL JAMB DETAIL
9 A-601 — 1 1/2" = 1'-0"



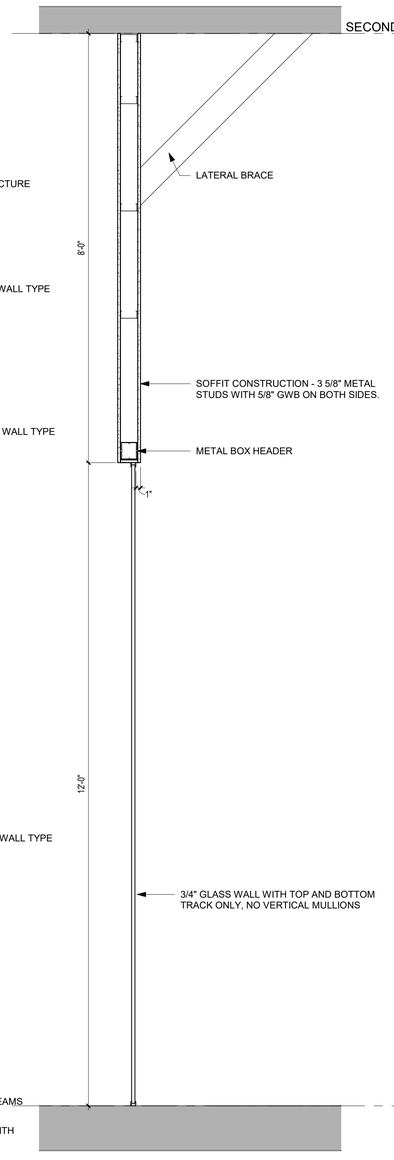
10 1 HR FIRE RATED WALL SILL DETAIL
A-601 — 1 1/2" = 1'-0"



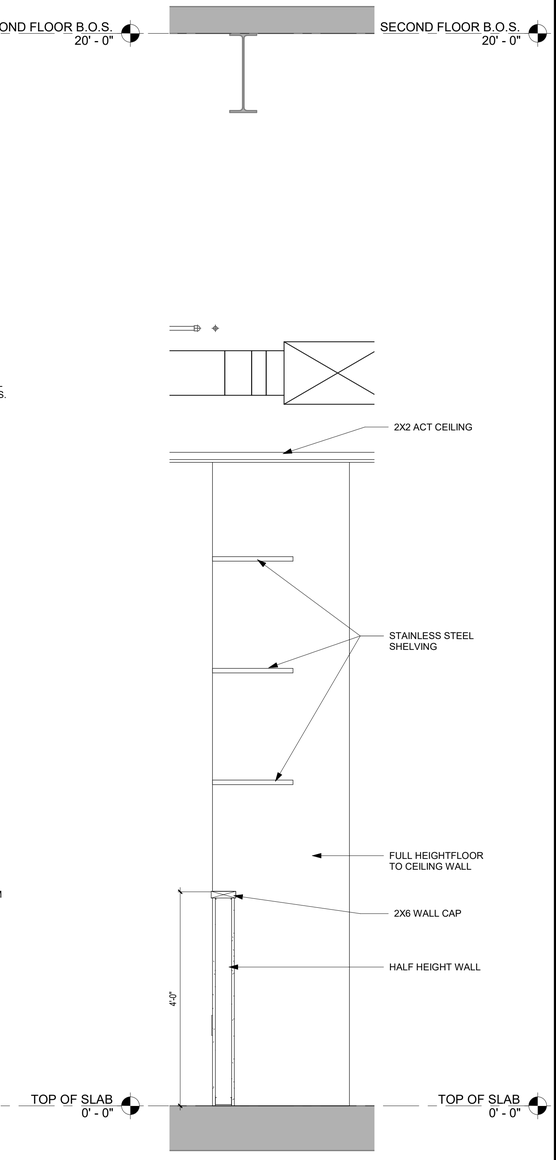
4 WINE WALL ELEVATION A
A-601 — 1/4" = 1'-0"



5 WINE WALL ELEVATION B
A-601 — 1/4" = 1'-0"



6 WINE WALL SECTION
A-601 — 3/4" = 1'-0"



7 SECTION @ HALF WALL
A-601 — 3/4" = 1'-0"

1/4" = 1' - 0" (0, 1', 5', 10', 15')

3/4" = 1' - 0" (0, 6", 1', 2', 3', 4', 5')

1 1/2" = 1' - 0" (0, 3", 6", 9", 1', 2')

GuernseyTingle
757-220-0220 Williamsburg, VA
guernseytingle.com

BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

DOOR & WINDOW SCHEDULES & DETAILS

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

A-601

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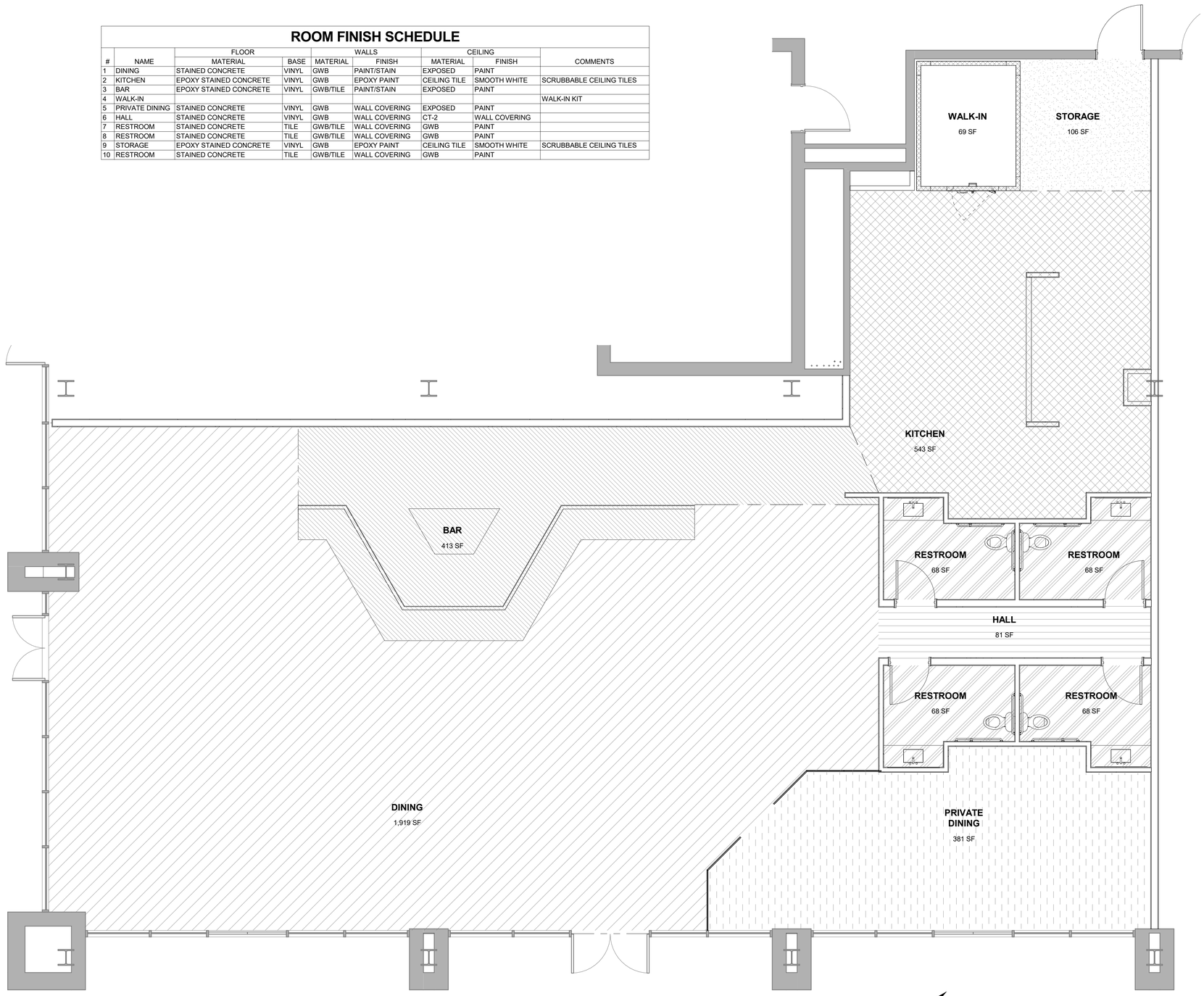
GENERAL FINISH PLAN NOTES

1. THE WALL-FLOOR JUNCTION SHALL BE COVED AND SEALED.
2. SUBMIT SAMPLES OF ALL FINISH MATERIALS TO THE DESIGNER FOR APPROVAL PRIOR TO COMMENCING WORK.
3. INSTALL ALL FINISH MATERIALS TO MANUFACTURERS INSTRUCTIONS.
4. ALL SURFACES WHICH ARE TO RECEIVE A FINISH APPLICATION SHALL BE COMPLETELY SMOOTH AS SUITABLE FOR SCHEDULED FINISH MATERIAL. REPAIR EXISTING CONDITIONS AS REQUIRED.
5. ALL MISCELLANEOUS GRILLS, PLATES, ETC. OCCURRING ON WALLS OR CEILINGS ARE TO BE FINISHED TO MATCH WALL OR CEILING ON WHICH THEY OCCUR. CONSULT DESIGNER ON FINAL FINISH.
6. ALL PAINT SURFACES ARE TO RECEIVE ONE PRIME COAT AND A MINIMUM OF TWO FINISH COATS. APPLY ADDITIONAL COATS OF PRIME AND FINISH PAINT AS REQUIRED UNTIL EXISTING UNDERCOATS OR OTHER CONDITIONS ARE FULLY CONCEALED AND PAINT FILM IS OF UNIFORM FINISH, COLOR AND APPEARANCE.
7. ALL OPENINGS, WALL PENETRATIONS AND JOINTS BETWEEN WALLS AND EQUIPMENT SHALL BE SEALED WITH FOOD-SERVICE GRADE SILICONE SEALANT IN ACCORDANCE WITH HEALTH DEPARTMENT STANDARDS TO ALLOW FOR CLEANING AND TO PREVENT PASSAGE OF PESTS.

ROOM FINISH SCHEDULE

#	NAME	FLOOR		WALLS		CEILING		COMMENTS
		MATERIAL	BASE	MATERIAL	FINISH	MATERIAL	FINISH	
1	DINING	STAINED CONCRETE	VINYL	GWB	PAINT/STAIN	EXPOSED	PAINT	
2	KITCHEN	EPOXY STAINED CONCRETE	VINYL	GWB	EPOXY PAINT	CEILING TILE	SMOOTH WHITE	SCRUBBABLE CEILING TILES
3	BAR	EPOXY STAINED CONCRETE	VINYL	GWB/TILE	PAINT/STAIN	EXPOSED	PAINT	
4	WALK-IN							WALK-IN KIT
5	PRIVATE DINING	STAINED CONCRETE	VINYL	GWB	WALL COVERING	EXPOSED	PAINT	
6	HALL	STAINED CONCRETE	VINYL	GWB	WALL COVERING	CT-2	WALL COVERING	
7	RESTROOM	STAINED CONCRETE	TILE	GWB/TILE	WALL COVERING	GWB	PAINT	
8	RESTROOM	STAINED CONCRETE	TILE	GWB/TILE	WALL COVERING	GWB	PAINT	
9	STORAGE	EPOXY STAINED CONCRETE	VINYL	GWB	EPOXY PAINT	CEILING TILE	SMOOTH WHITE	SCRUBBABLE CEILING TILES
10	RESTROOM	STAINED CONCRETE	TILE	GWB/TILE	WALL COVERING	GWB	PAINT	



1 A-701 FINISH PLAN
1/4" = 1'-0"

Plotted on: 9/29/2022 2:09:21 PM

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BLACKSBURG WINE LAB

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

FINISH FLOOR PLAN AND DETAILS

PERMIT SET

COMMONWEALTH OF VIRGINIA
Timothy Michael Creasy
Lic. No. 0401018466
09-30-22
ARCHITECT

Date: 09/30/22
Drawn: NMO Checked: TMC
Project: 221049

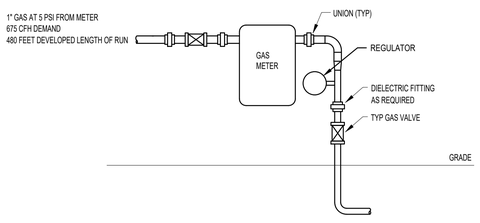
A-701

GENERAL MECHANICAL & PLUMBING NOTES AND SPECFICIATIONS:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, ALL FEDERAL, STATE, AND CITY CODES, ORDINANCES, AND STANDARDS.
2. IT IS THE INTENT OF THESE DOCUMENTS THAT THE CONTRACTOR PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND TOOLS FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE PLANS AND/OR DESCRIBED HEREIN, INCLUDING ALL DEVISES AND CONTROLS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM.
3. ALL WORK PROVIDED UNDER THIS CONTRACT INCLUDING ALL MECHANICAL EQUIPMENT, MATERIALS, AND LABOR SHALL BE PROVIDED WITH A 1 YEAR WARRANTY.
4. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL EQUIPMENT FOR APPROVAL PRIOR TO INSTALLATION.
5. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. NOT ALL FITTINGS, OFFSETS, VENTS, OR DRAINS ARE SHOWN. THE CONTRACTOR SHALL INCLUDE ALL OFFSETS, VENTS, AND DRAINS AS REQUIRED FOR A FULLY FUNCTIONING SYSTEM.
6. ALL DUCTWORK CONSTRUCTION AND INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE SMACNA DUCT CONSTRUCTION HANDBOOK.
7. SLOPES AND INVERT ELEVATIONS OF EXISTING SEWER SHALL BE ESTABLISHED AND VERIFIED BY CONTRACTOR BEFORE ANY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPE WILL BE MAINTAINED AND NECESSARY INVERT ELEVATIONS OBTAINED.
8. ALL PIPES SHALL BE COORDINATED WITH OTHER NEW AND EXISTING DUCTS, PIPES, LIGHTS, STRUCTURAL SYSTEM, CEILING SUPPORTS AND FRAMING BEFORE INSTALLATION. MINOR PIPE OFFSETS SHALL BE PROVIDED AS REQUIRED. MEASUREMENTS FOR VERTICAL CLEARANCES SHALL BE TAKEN AT THE JOB SITE BEFORE INSTALLATION OF ANY PIPING.
9. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. COORDINATE INSTALLATION OF PIPES WITH ELECTRICAL PANELS WHEN SHOWN NEAR PANELS OR OVER ELECTRICAL ROOMS.

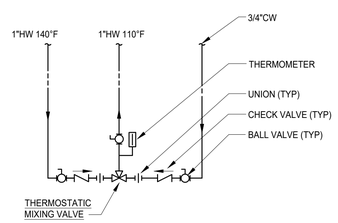
SPRINKLER NOTES:

1. SPRINKLER CONTRACTOR SHALL MODIFY EXISTING SPRINKLER SYSTEM FOR AREA OF WORK AND PROVIDE THE DESIGN AND INSTALLATION OF THE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 13 AND THE CURRENT VIRGINIA UNIFORM STATEWIDE BUILDING CODE.
2. THE DINING AREAS WITHIN THE RENOVATION ARE CONSIDERED TO HAVE AN OCCUPANCY CLASSIFICATION OF LIGHT HAZARD. THE KITCHEN AREAS WITHIN THE RENOVATION AREAS ARE CONSIDERED TO HAVE AN OCCUPANCY CLASSIFICATION OF ORDINARY HAZARD, GROUP 1.
3. REMOVE ALL SPRINKLER HEADS AND SPRINKLER BRANCH PIPING NOT REQUIRED FOR NEW LAYOUT.
4. PROVIDE NEW QUICK RESPONSE TYPE SPRINKLER HEADS WITHIN THE RENOVATION AREAS. NEW HEADS SHALL BE CENTERED WITHIN THE CEILING GRID TILES WHERE APPLICABLE AND SHALL MATCH THE EXISTING TYPE OF SPRINKLER HEADS CURRENTLY LOCATED WITHIN THE EXISTING FACILITY. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE OWNERS DESIGN STANDARDS FOR THE FACILITY.
5. HYDRAULIC CALCULATIONS SHALL BE PERFORMED AS NECESSARY TO MEET SPECIFIC DEMAND FOR THE RENOVATED AREAS.



DETAIL-GAS METER CONNECTION

NO SCALE



DETAIL- MIXING VALVE (TMV)

NO SCALE

PLUMBING FIXTURE SCHEDULE:

WC-1 WATER CLOSET: AMERICAN STANDARD "TOWNSEND" VORMAX MODEL #2922A.104, 1.28 GPF WATER-SAVING, VITREOUS CHINA ELONGATED ONE-PIECE TOILET WITH SEAT, ADA COMPLIANT.

L-1 LAVATORY: AMERICAN STANDARD "AQUALYN" 0476.028 WHITE VITREOUS CHINA COUNTERTOP HANDICAP LAVATORY, THREE HOLE MOUNT FOR 4" CENTERS, WITH MOEN 8413F05 CENTERSET CHROME FAUCET WITH SINGLE LEVER HANDLE, 0.5 GPM, METAL GRID STRAINER, OFFSET CHROME P-TRAP WITH CLEANOUT, FLEXIBLE TUBING SUPPLIES, COMPRESSION FITTINGS AND STOPS. PROVIDE TRUEBRO #102W PRE-MOLDED INSULATION ON BOTH WATER SUPPLIES AND DRAIN.

MS-1 MOP SINK: FIAT MODEL MSB-2424, 24 INCH X 24 INCH X 10 INCH MOLDED STONE MOP SERVICE BASIN, WITH BUMPER GUARD, STAINLESS STEEL DRAIN BODY, COMBINATION S.S. DOME STRAINER AND REMOVEABLE BASKET, FIAT 830-AA WALL MOUNTED CHROME COMBINATION FAUCET, SUPPLY FITTING WITH VACUUM BREAKER, FOUR ARM HANDLES, INTEGRAL STOPS, WALL BRACE, PAIL HOOK, THREADED SPOUT, RUBBER HOSE, WALL HOOK AND MOP HANGER

PLUMBING EQUIPMENT SCHEDULE:

FD FLOOR DRAIN, ZURN MODEL Z415, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS.

FOR MECHANICAL ROOM DRAINS NOT RECIEVING INDIRECT WASTE, FINISHED SPACES INCLUDING TOILET, SHOWER, LOCKER ROOMS, ETC., PROVIDE WITH TYPE B, ROUND, POLISHED NICKEL BRONZE, LIGHT DUTY HEEL PROOF STRAINER.

FOR ANY FLOOR DRAINS RECIEVING INDIRECT WASTE OR CONDESATE (NOT FLOOR SINKS), PROVIDE TYPE I POLISHED NICKEL BRONZE STRAINER WITH RAISED FLANGE.

ALL FLOOR DRAINS SHALL BE PROTECTED AGAINST LOSS OF TRAP SEAL BY EVAPORATION BY INSTALLATION OF ELASTOMERIC TRAP GUARD DRAIN INSERT, EQUAL TO PROSET SYSTEMS MODEL #TG.

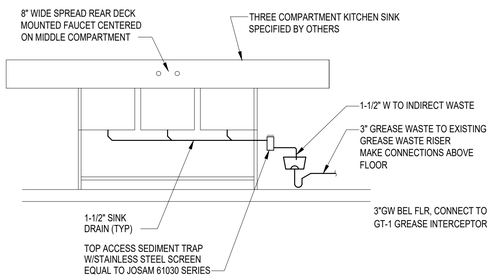
TD TRENCH DRAIN, ZURN MODEL ZS890, 7" WIDE REVEAL TRENCH DRAIN SYSTEM WITH "V" BOTTOM. CHANNELS ARE 80" LONG, 7" WIDE AND HAVE A 4" THROAT. MODULAR CHANNEL SECTIONS ARE MADE OF 16 GA. FABRICATED STAINLESS STEEL CONFORMING TO ASTM A-240 (TYPE 304). CHANNELS HAVE 10GA. BOLTED, FLANGED CONNECTION BETWEEN CHANNEL SECTIONS THAT WILL NOT SEPARATE DURING THE INSTALLATION, GASKETS AVAILABLE. CHANNELS WEIGH LESS THAN 2.31 LBS. PER LINEAR FOOT, HAVE A SMOOTH, 1-1/2" RADIUSED SELF CLEANING BOTTOM. CHANNELS HAVE FEET FOR PATTY POUR OR LEVELING STUDS STANDARD TO SECURE TRENCH IN ITS FINAL LOCATION. CHANNELS ARE PROVIDED WITH STANDARD FS GRATES THAT LOCK DOWN TO FRAME. ZURN 6" WIDE REVEAL FABRICATED STAINLESS STEEL GRATE CONFORMING TO ASTM SPECIFICATION A-240, (TYPE 304), IS RATED CLASS A PER THE DIN EN1433 TOP LOAD CLASSIFICATION. SUPPLIED IN 40" [1016MM] NOMINAL LENGTHS WITH 5/16" WIDE SLOTS, AND 3/4" BEARING DEPTH. GRATE HAS AN OPEN AREA OF 12.00 SQ. IN PER FT.

BFP BACK FLOW PREVENTER, FOR INSTALLATION ON POTABLE WATER LINES TO PROTECT AGAINST BACKSIPHONAGE OF CONTAMINATED WATER INTO THE POTABLE WATER SUPPLY. PROVIDE ATMOSPHERIC VACUUM BREAKER, ZURM MODEL 35XLPCH WITH POLISHED CHROME FINISH. SHALL BE LEAD FREE.

EX EXPANSION TANK - AMTROL THERM-X-TROL MODEL #ST-5 THERMAL EXPANSION TANK, 2.0 GALLONS MIN. ACCEPTANCE VOLUME WITH DIAPHRAGM. FACTORY PRE-CHARGED TO 40 PSI, SET EQUAL TO LINE PRESSURE.

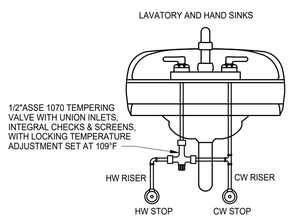
GWH-1 A.O. SMITH #BTH-250 GAS WATER HEATER, 120 GALLON CAPACITY TANK, 341 GAL./HR. RECOVERY AT 40 DEG.F. ENT.AND 100 DEG.F. RISE, 250MBH NATURAL GAS INPUT. 1 20V/1PH; T & P RELIEF VALVE. PIPING CONNECTIONS INCLUDING T&P RELIEF VALVE ON SIDE OF EQUIPMENT, PROVIDE 4" AIR INTAKE AND 4" EXHAUST FLUE THROUGH EXTERIOR WALL. PROVIDE ACID NEUTRALIZATION TRAP ON CONDENSATE ELBOW.

HWCP-1 B&G SERIES PL-30 CIRCULATING PUMP, 1/6 HP., 115V/1PH, 2 GPM AT 17 FT. OF HEAD, ALL BRONZE CONSTRUCTION.



3-COMP SINK DETAIL

NO SCALE



SINK TEMPERING VALVE DETAIL (TV)

NO SCALE

LEGEND

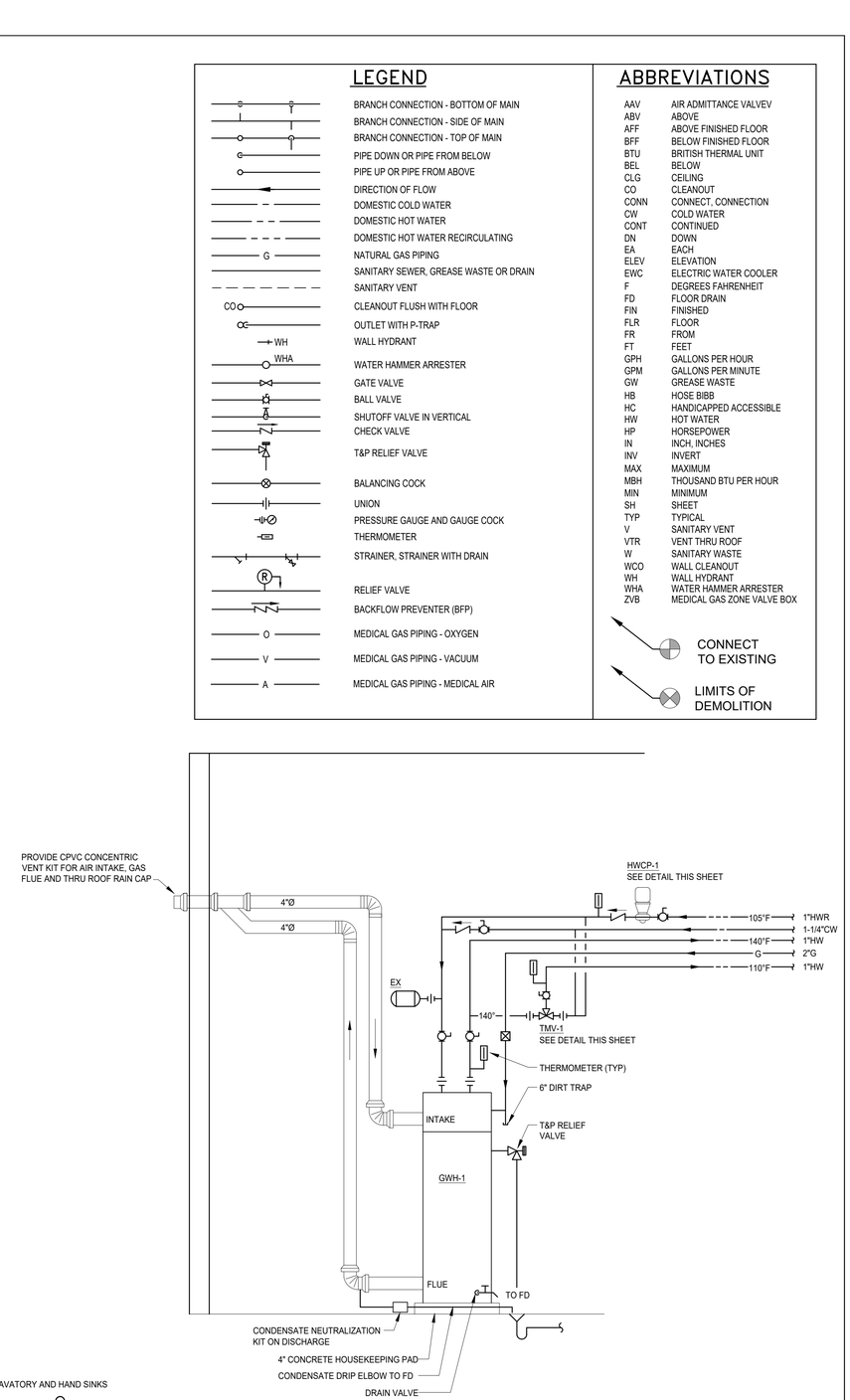
- BRANCH CONNECTION - BOTTOM OF MAIN
- BRANCH CONNECTION - SIDE OF MAIN
- BRANCH CONNECTION - TOP OF MAIN
- PIPE DOWN OR PIPE FROM BELOW
- PIPE UP OR PIPE FROM ABOVE
- DIRECTION OF FLOW
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRCULATING
- G — NATURAL GAS PIPING
- SANITARY SEWER, GREASE WASTE OR DRAIN
- SANITARY VENT
- CO — CLEANOUT FLUSH WITH FLOOR
- OUTLET WITH P-TRAP
- WH — WALL HYDRANT
- WHA — WATER HAMMER ARRESTER
- GATE VALVE
- BALL VALVE
- SHUTOFF VALVE IN VERTICAL
- CHECK VALVE
- T&P RELIEF VALVE
- BALANCING COCK
- UNION
- PRESSURE GAUGE AND GAUGE COCK
- THERMOMETER
- STRAINER, STRAINER WITH DRAIN
- R — RELIEF VALVE
- BACKFLOW PREVENTER (BFP)
- O — MEDICAL GAS PIPING - OXYGEN
- V — MEDICAL GAS PIPING - VACUUM
- A — MEDICAL GAS PIPING - MEDICAL AIR

ABBREVIATIONS

AAV	AIR ADMITTANCE VALVEV
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
BTU	BRITISH THERMAL UNIT
BEL	BELOW
CLG	CEILING
CO	CLEANOUT
CONN	CONNECT, CONNECTION
CW	COLD WATER
CONT	CONTINUED
DN	DOWN
EA	EACH
ELEV	ELEVATION
EWC	ELECTRIC WATER COOLER
F	DEGREES FAHRENHEIT
FD	FLOOR DRAIN
FIN	FINISHED
FLR	FLOOR
FR	FROM
FT	FEET
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GW	GREASE WASTE
HB	HOSE BIBB
HC	HANDICAPPED ACCESSIBLE
HW	HOT WATER
HP	HORSEPOWER
IN	INCH, INCHES
INV	INVERT
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MIN	MINIMUM
SH	SHEET
TYP	TYPICAL
V	SANITARY VENT
VTR	VENT THRU ROOF
W	SANITARY WASTE
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTER
ZVB	MEDICAL GAS ZONE VALVE BOX

CONNECT TO EXISTING

LIMITS OF DEMOLITION



DETAIL- WATER HEATER (GWH-1)

NO SCALE

STOTTSBERG ENGINEERING

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Project # 22030

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BLACKSBURG WINE LAB

VIRGINIA TECH FOUNDATION
400 TURNER STREET, SUITE 100, BLACKSBURG, VA 24060

REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

PLUMBING NOTES, LEGEND, SCHEDULES, & DETAILS

PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
Lic. No. 051165
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

P101

PLUMBING SPECIFICATIONS:

1. GENERAL PROVISIONS:
   - 1.A. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, ALL FEDERAL, STATE, AND CITY CODES, ORDINANCES, AND STANDARDS.
   - 1.B. THE PLANS ARE DIAGRAMMATIC IN NATURE AND BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT. VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO BE USED. INSTALLATION SHALL BE WITHIN THE LIMITATIONS IMPOSED BY THE ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, AND PLUMBING REQUIREMENTS WITH ADEQUATE SPACE FOR MAINTENANCE.
   - 1.C. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECTS WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.
   - 1.D. MAJOR ITEMS ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
   - 1.E. A TRADE NAMES AND CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A GENERAL DESIGN AND STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. UNLESS STATED OTHERWISE, THE CONTRACTOR MAY USE ANY ARTICLE WHICH, IN HIS JUDGEMENT, AND WITH WRITTEN COMMENT FROM THE ARCHITECT/ENGINEER INDICATING NO OBJECTION, IS EQUAL OR SUPERIOR TO THAT SPECIFIED. DRAWINGS SHOWING CHANGES OR REVISIONS REQUIRED BY THE SUBSTITUTION FOR SPECIFIED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWING DATA, AND THE COSTS OF ALL SUCH CHANGES SHALL BE BORNE BY THE CONTRACTOR.
   - 1.F. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
   - 1.G. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND/OR OTHER RELEVANT TRADES.
   - 1.H. ALL PIPING SHALL BE INSTALLED ABOVE THE CEILING UNLESS INDICATED OTHERWISE. ALL WATER PIPING AND P-TRAPS SHALL BE INSTALLED WITHIN THE BUILDINGS INSULATION ENVELOPE OR BE PROVIDED WITH A FREEZE PROTECTION SYSTEM.
   - 1.I. PROVIDE SUPPORTS TO RIGIDLY ATTACH ALL EQUIPMENT, APPURTENANCES AND PIPE AS REQUIRED FOR SUPPORT. PRIOR TO INSTALLATION OF HANGERS AND INSERTS, THE CONTRACTOR SHALL COORDINATE LOCATIONS AND REQUIREMENTS TO MINIMIZE CONFLICTS WITH OTHER BUILDING SYSTEMS. INSTALLATION OF PIPE HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS STANDARDIZATION SOCIETY (MSS) STANDARDS SP-58, 69 AND 89.
   - 1.J. THE CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.

2. SUBMITTAL AND SHOP DRAWINGS:
   - 2.A. SUBMIT MANUFACTURER'S CERTIFIED DATA RELATIVE TO ALL EQUIPMENT, PIPING, CONTROLS, ETC. REQUIRED FOR THE INSTALLATION OF THE PLUMBING AND FIRE PROTECTION SYSTEMS. SUBMIT FOR REVIEW ALL NECESSARY ENGINEERING, PRODUCT AND INSTALLATION DATA, SHOP DRAWINGS, SAMPLES ETC. FOR ALL EQUIPMENT, MATERIAL, AND SYSTEMS TO ASCERTAIN COMPLIANCE WITH THE TECHNICAL REQUIREMENTS OF THE CONTRACT DOCUMENTS.
   - 2.B. SUBMIT A DIGITAL PDF OF ALL NECESSARY DATA, CUTS, MANUFACTURER'S SELECTIONS, CATALOGS, BULLETINS, INSTALLATION INSTRUCTIONS, DRAWINGS, DIAGRAMS, CURVES, ETC. CLEARLY INDICATE ON THE SUBMITTED DATA, THE MANUFACTURER'S NAME, PRODUCT NUMBER(S), OPTIONS, EQUIPMENT CAPACITY, DIMENSIONAL DATA, WEIGHTS, AND OTHER APPLICABLE TECHNICAL DATA FOR THE PROJECT.
   - 2.C. TRADE NAMES, MANUFACTURERS, AND CATALOGUE NUMBERS ARE MENTIONED HEREIN AND ON THE DRAWINGS SOLELY IN ORDER TO ESTABLISH A STANDARD FOR THE TYPE, GENERAL DESIGN, AND QUALITY OF PRODUCT REQUIRED. OTHER PRODUCTS SIMILAR IN DESIGN OF EQUIVALENT QUALITY CAPABLE OF FITTING WITHIN THE SPACES ALLOCATED AND COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS WILL BE CONSIDERED AFTER THE CONTRACT IS LET UNLESS "PRIOR APPROVAL" REQUIREMENTS ARE SET FORTH IN THESE DOCUMENTS.
   - 2.D. REVIEW OF SUBMITTALS AND SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FITTING THE EQUIPMENT IN THE SPACE ALLOTTED WITH SPACE FOR ALL CONNECTIONS AND SERVICING AND FOR THE COORDINATION OF THE WORK WITH WORK OF OTHER TRADES.
   - 2.E. THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS AND SHOP DRAWINGS AND INDICATE BY STAMP OR LETTER THAT HE HAS REVIEWED THEM, BEFORE FORWARDING THEM TO THE ARCHITECT AND/OR ENGINEER. SUBMITTALS AND DRAWINGS WILL BE RETURNED AFTER REVIEW INDICATING WHETHER EXCEPTIONS ARE TAKEN, THE SUBMITTAL RETURNED WITH CORRECTIONS, OR IS COMPLETELY REJECTED. RESUBMISSION OF REVISED SUBMITTALS AND SHOP DRAWINGS, IF REQUIRED, SHALL BE DONE BEFORE INSTALLATION AND CONSTRUCTION IS BEGUN.
   - 2.F. CORRECTIONS OR COMMENTS MADE ON THE SUBMITTALS AND DRAWINGS DURING THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, COORDINATING THE WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER. REVIEW OF THE SUBMITTALS SHALL NOT PERMIT ANY DEVIATION FROM PLANS AND SPECIFICATIONS.

3. AS-BUILT DRAWINGS:
   - 3.A. MAINTAIN DAILY UPDATED DRAWINGS SHOWING DEVIATIONS FROM CONSTRUCTION DOCUMENTS. AT THE END OF THE PROJECT, PROFESSIONALLY PREPARE AS-BUILT DRAWINGS AND SUBMIT DRAWINGS TO THE ARCHITECT/ENGINEER.

4. OPERATION AND MAINTENANCE MANUALS:
   - 4.A. UPON COMPLETION OF THE PROJECT, SUBMIT ALL OPERATION AND MAINTENANCE MANUALS, WARRANTIES, SPARE PARTS LIST, AS-BUILT DRAWINGS, TEST AND BALANCE REPORTS, AND LETTER OF GUARANTEE ALL BOUND IN THREE RING BINDERS, CLEARLY SHOWING WHICH EQUIPMENT WAS SUPPLIED TO THE JOB.

5. PIPING SPECIALTIES:
   - 5.A. ACCESS DOORS: ACCESS DOORS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CONTROLS, AND ANY OTHER EQUIPMENT OR MATERIALS REQUIRING INSPECTION OR MAINTENANCE. ACCESS DOORS SHALL BE FURNISHED FOR FLOORS, WALLS AND CEILINGS, OF ADEQUATE SIZE SO THAT CONCEALED ITEMS WILL BE READILY ACCESSIBLE FOR SERVICING OR FOR REMOVAL AND REPLACEMENT IF NECESSARY.
   - 5.B. PIPE ESCUTCHEONS: INSTALL PIPE ESCUTCHEONS ON EACH PIPE PENETRATION THRU FLOORS, WALLS PARTITIONS, AND CEILINGS WHERE PENETRATION IS EXPOSED TO VIEW AND ON EXTERIOR OF BUILDING. SECURE ESCUTCHEON TO PIPE OR INSULATION SO ESCUTCHEON COVERS PENETRATION HOLE, AND IS FLUSH WITH ADJOINING SURFACE. PROVIDE SHEET STEEL ESCUTCHEONS, SOLID OR SPLIT HINGED. FOR AREAS WHERE WATER AND CONDENSATION CAN BE EXPECTED TO ACCUMULATE, PROVIDE CAST BRASS OR SHEET BRASS ESCUTCHEONS, SOLID OR SPLIT HINGED.
   - 5.C. PIPE SLEEVES: INSTALL PIPE SLEEVES WHERE PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS. DO NOT INSTALL SLEEVES THROUGH STRUCTURAL MEMBERS OF WORK, EXCEPT AS DETAILED ON DRAWINGS, OR AS REVIEWED BY ARCHITECT/ENGINEER. SIZE SLEEVES SO THAT PIPING AND INSULATION (IF ANY) WILL HAVE FREE MOVEMENT IN SLEEVE, INCLUDING ALLOWANCE FOR THERMAL EXPANSION; BUT NOT LESS THAN 2 PIPE SIZES LARGER THAN PIPING RUN. INSTALL LENGTH OF SLEEVE EQUAL TO THICKNESS OF CONSTRUCTION PENETRATED, AND FINISH FLUSH TO SURFACE; EXCEPT FLOOR SLEEVES. EXTEND FLOOR SLEEVES 1/4 INCH ABOVE LEVEL FLOOR FINISH, AND 3/4 INCH ABOVE FLOOR FINISH SLOPED TO DRAIN. PROVIDE TEMPORARY SUPPORT OF SLEEVES DURING PLACEMENT OF CONCRETE AND OTHER WORK AROUND SLEEVES, AND PROVIDE TEMPORARY CLOSURE TO PREVENT CONCRETE AND OTHER MATERIALS FROM ENTERING SLEEVES.
   - 5.D. WATER HAMMER ARRESTORS (WHA): PROVIDE AT ALL FAST OPENING WATER VALVES INCLUDING WATER CLOSETS, URNIALS, AND CLOTHES WASHERS. SHALL BE ZURN MODEL 1260XL OR EQUIVALENT AND SHALL BE SIZED AND PLACED WITHIN THE SYSTEM AS RECOMMENDED BY THE MANUFACTURER.

6. INSULATION:
   - 6.A. FLAME/SMOKE RATINGS: PROVIDE COMPOSITE PLUMBING INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD RATING OF 25 OR LESS, AND SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 METHOD. INSULATION SHALL BE LABELED BY THE MANUFACTURER. THE LABEL SHALL INDICATE THE INSULATING VALUE, FLAME SPREAD AND SMOKE-DEVELOPED RATING.
   - 6.B. INSTALLATION: INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING ONLY ADHESIVES, MASTICS AND PLUMBING FASTENERS APPROVED BY THE INSULATION MANUFACTURER. INSULATION SHALL NOT BE APPLIED UNTIL AFTER THE EQUIPMENT HAS BEEN TESTED WITH RESULTS ACCEPTABLE TO THE ARCHITECT/ENGINEER. INSULATION WITH A VAPOR BARRIER JACKET SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN VAPOR SEAL AND ALL JOINTS SHALL BE SEALED WITH A VAPOR BARRIER ADHESIVE UNLESS OTHERWISE INDICATED. STAPLES, STICK CLIPS AND HANGERS SHALL BE VAPOR SEALED WHERE THEY PUNCTURE VAPOR BARRIER JACKETS.
   - 6.C. MATERIALS:
     - 6.C.A. GLASS FIBER PIPE INSULATION: HEAVY DENSITY PREFORMED PIPE INSULATION WITH OPERATING TEMPERATURE RANGE OF -60 DEGREES F TO 350 DEGREES F, THERMAL CONDUCTIVITY "K"=0.24 BTU-IN/HOUR-SF-DEG F AT 100 DEGREES F. FACTORY APPLIED JACKET (ASJ) SHALL CONSIST OF WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBER YARN. EQUAL TO OWENS-CORNING ASJ.
     - 6.C.B. CELLULAR FOAM PIPE INSULATION: TUBULAR, FLEXIBLE, FIRE RESISTANT INSULATION WITH OPERATING TEMPERATURE RANGE OF -40 DEGREES F TO 220 DEGREES F, THERMAL CONDUCTIVITY "K"=0.27 BTU-IN/HOUR-SF-DEG F AT 75 DEGREES F. NO JACKET REQUIRED. EQUAL TO ARMSTRONG ARMAFLEX AP.
     - 6.C.C. A POLYETHYLENE PIPE INSULATION: INSULATION MATERIALS CORPORATION OF AMERICA (IMCOA), FLEXIBLE CLOSED CELL POLYETHYLENE TUBING, ASTM C534, "K"=0.24 AT 75 DEGREES F, SERVICE TEMPERATURE -110F TO 210F. NO JACKET REQUIRED.
   - 6.D. OMIT INSULATION ON EXPOSED PLUMBING FIXTURE RUNOUTS FROM FACES OF WALL OR FLOOR TO FIXTURE; ON UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, AND EXPANSION JOINTS.
   - 6.E. COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN.
   - 6.F. ALL DOMESTIC WATER PIPING ABOVE GROUND INCLUDING COLD, HOT, AND HOT WATER RE-CIRCULATING PIPING SHALL BE INSULATED WITH A MINIMUM 1/2" THICK INSULATION.

7. PLUMBING PIPING:
   - 7.A. DOMESTIC WATER PIPING SHALL BE COPPER TUBE AND FITTINGS IN ACCORDANCE WITH ASTM B88, TYPE L HARD DRAWN COPPER. JOINTS SHALL BE MADE WITH LEAD FREE SOLDER.
   - 7.B. STORM, SOIL, WASTE, AND VENT PIPING BELOW GRADE SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS. PVC SCHEDULE 40 PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785. INJECTION MOLDED PVC SCHEDULE 40 FITTINGS SHALL CONFORM TO ASTM D 2466. PIPE AND FITTINGS SHALL BE MANUFACTURED AS A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARD 61 AND THE HEALTH-EFFECTS PORTION OF NSF STANDARD 14.
   - 7.C. STORM, SOIL, WASTE, AND VENT PIPING ABOVE GRADE SHALL BE HUBLESS CAST IRON TYPE DESIGNED FOR SAID APPLICATION. HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE® AND LISTED BY NSF® INTERNATIONAL. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310, SHALL BE MANUFACTURED IN THE UNITED STATES, AND BE CERTIFIED BY NSF® INTERNATIONAL.
   - 7.D. CONDENSATE DRAINS SHALL BE TYPE L HARD DRAWN COPPER. JOINTS SHALL BE MADE WITH LEAD FREE SOLDER.
   - 7.E. SLOPE ALL DRAIN LINES AT 1/4 INCH PER FOOT FOR SIZES LESS THAN 4 INCHES. SLOPE AT 1/8 INCH PER FOOT FOR SIZES 4 INCH AND LARGER.
   - 7.F. SOIL, WASTE, AND VENT PIPING BELOW GRADE SHALL BE A MINIMUM OF 2 INCH AND SHALL BE PROVIDED WITH METALLIC TRACING/DETECTION WIRE.
   - 7.G. VENTS SHALL EXTEND A MINIMUM OF 12 INCHES ABOVE THE ROOF. ROOF FLASHING SHALL BE PROVIDED AND COORDINATED WITH THE GENERAL AND ROOFING CONTRACTORS.
   - 7.H. TRENCHING AS REQUIRED FOR UNDERGROUND PIPING SHALL BE GRADED TO UNIFORM PITCH AND SHALL BE NO WIDER THAN NECESSARY FOR PIPING INSTALLATION. CLEAN BACKFILL SHALL BE USED AND THOROUGHLY TAMPED IN LAYERS NOT EXCEEDING 6 INCHES TO A MINIMUM DEPTH OF 1 FOOT ABOVE PIPE. COMPACTED BACKFILL SHALL BE USED FOR THE ENTIRE DEPTH OF EXCAVATION UNDER SLAB ON GRADE CONSTRUCTION.
   - 7.I. NATURAL GAS SYSTEMS: PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE, ASTM A120/A53-CW OR ASTM/A53 GRADE B (WELDED OR SEAMLESS); WROUGHT STEEL BUTTWELDING FITTINGS. GAS COCKS 2 INCHES AND SMALLER SHALL BE RATED FOR 150 PSI, NON SHOCK WOG, BRONZE STRAIGHTWAY COCK, FLAT OR SQUARE HEAD, WITH THREADED ENDS. ALL GAS PIPING CONNECTIONS SHALL BE PROVIDED WITH A 6 INCH DIRT TRAP, UNION, AND GAS COCK SHUT OFF VALVE. ALL JOINTS SHALL BE SEALED WITH CHEMICALLY RESISTANT SEALER APPLIED TO MALE THREADS OF PIPE CONNECTION. GAS PIPING SHALL BE INSTALLED WITH A 1/64 INCH PER FOOT DOWNWARD SLOPE IN THE DIRECTION OF FLOW. A ROLLER BEARING TYPE PIPE SUPPORT SHALL BE USED TO SUPPORT ALL GAS PIPING LOCATED ON THE ROOF. SUPPORTS SHALL HAVE A POLYCARBONATE BASE, WITH PIPE RESTING ON A SELF LUBRICATING POLYCARBONATE RESIN AXLE AND ROLLER AND BE SIZED FOR THE PIPE BEING SUPPORTED. MAXIMUM SPACING SHALL NOT EXCEED 10FT.

8. PLUMBING FIXTURES, PUMPS, AND WATER HEATERS SHALL BE PROVIDED AND INSTALLED AS PER THE PLUMBING FIXTURE SCHEDULE. ALL EXPOSED FIXTURE SUPPLIES AND WASTE LINES SHALL BE CHROME PLATED. NO EXPOSED COPPER, PVC, AND/OR CAST IRON IS ALLOWED.

9. CLEANOUTS SHALL BE THE SAME SIZE AS LINE SERVED, BUT NOT LARGER THAN 4 INCHES, AND SHALL BE PROVIDED AT THE BASE OF EACH SOIL AND WASTE STACK, AT ALL POINTS WHERE DIRECTION CHANGE IS MORE THAN 45 DEGREES, AT MINIMUM INTERVALS OF 50 FEET FOR 4 INCH AND SMALLER PIPING, AT MINIMUM INTERVALS OF 100 FEET FOR PIPING LARGER THAN 4 INCHES, AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. COVERS SHALL BE SET FLUSH WITH FLOOR OR WALL.

10. PLUMBING VALVES
    - 10.A. PROVIDE SHUT-OFF VALVE AND UNION OR EQUIVALENT AT EACH HOT AND COLD WATER EQUIPMENT CONNECTION. PROVIDE SHUTOFF VALVE ON EACH BRANCH OR RISER THAT SERVES TWO OR MORE PLUMBING FIXTURES.
    - 10.B. GATE VALVES 2-1/2 INCHES AND SMALLER: ALL BRONZE, RISING STEM, SOLID WEDGE DISC. STOCKHAM B-100 OR B-108.
    - 10.C. GLOBE VALVES: ALL BRONZE, RENEWABLE COMPOSITION DISC. STOCKHAM B-16 OR B-14-T.
    - 10.D. CHECK VALVES IN HORIZONTAL PIPES: 2 INCHES AND SMALLER: ALL BRONZE, REGRINDING BRONZE DISC, HORIZONTAL SWING, Y-PATTERN. STOCKHAM B-319OR B-309.
    - 10.E. CHECK VALVES IN VERTICAL PIPES AND PUMP DISCHARGE: SILENT CHECK VALVE WITH SEMI-STEEL BODY, BRONZE TRIM AND STAINLESS STEEL SPRING. METRAFLEX 700 SERIES.
    - 10.F. BALL VALVES MAY BE USED IN LIEU OF GATE VALVES 2 INCHES AND SMALLER. BALL VALVES SHALL HAVE BRONZE BODY, BRONZE BALL AND TFE SEATS AND SEALS. STOCKHAM S-216BRRT OR S-216BRRS.

11. CLEANING AND TESTING
    - 11.A. ALL WATER PIPING, VALVES, ETC. SHALL BE THOROUGHLY FLUSHED OF FOREIGN MATTER AND TESTED FOR LEAKS IN ACCORDANCE WITH THE PLUMBING AND BUILDING CODE, LATEST EDITION. ANY LEAKAGE SHALL BE REPAIRED. DISINFECT DOMESTIC WATER PIPING INCLUDING WATER SERVICE PIPING IN ACCORDANCE WITH AWWA C601.
    - 11.B. ALL DRAIN, WASTE AND VENT PIPING SHALL BE TESTED FOR LEAKS IN ACCORDANCE WITH THE PLUMBING AND BUILDING CODE CODE, LATEST EDITION. NO VISIBLE DROP IN WATER LEVEL WILL BE ACCEPTABLE.

END OF SPECIFICATIONS.

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

PLUMBING SPECIFICATIONS

PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
Lic. No. 051165
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

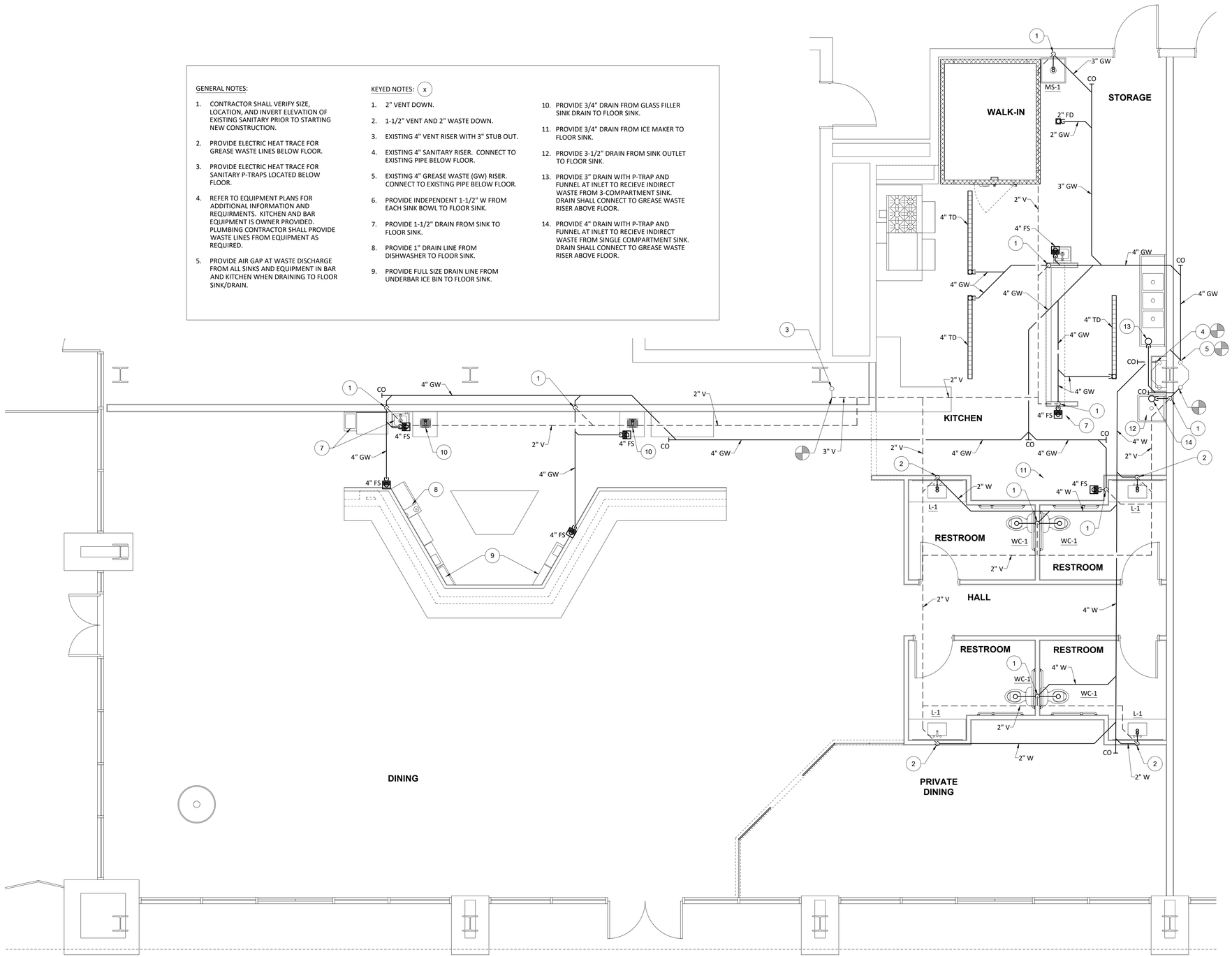
P102

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERT ELEVATION OF EXISTING SANITARY PRIOR TO STARTING NEW CONSTRUCTION.
2. PROVIDE ELECTRIC HEAT TRACE FOR GREASE WASTE LINES BELOW FLOOR.
3. PROVIDE ELECTRIC HEAT TRACE FOR SANITARY P-TRAPS LOCATED BELOW FLOOR.
4. REFER TO EQUIPMENT PLANS FOR ADDITIONAL INFORMATION AND REQUIRMENTS. KITCHEN AND BAR EQUIPMENT IS OWNER PROVIDED. PLUMBING CONTRACTOR SHALL PROVIDE WASTE LINES FROM EQUIPMENT AS REQUIRED.
5. PROVIDE AIR GAP AT WASTE DISCHARGE FROM ALL SINKS AND EQUIPMENT IN BAR AND KITCHEN WHEN DRAINING TO FLOOR SINK/DRAIN.

KEYED NOTES: (x)

1. 2" VENT DOWN.
2. 1-1/2" VENT AND 2" WASTE DOWN.
3. EXISTING 4" VENT RISER WITH 3" STUB OUT.
4. EXISTING 4" SANITARY RISER. CONNECT TO EXISTING PIPE BELOW FLOOR.
5. EXISTING 4" GREASE WASTE (GW) RISER. CONNECT TO EXISTING PIPE BELOW FLOOR.
6. PROVIDE INDEPENDENT 1-1/2" W FROM EACH SINK BOWL TO FLOOR SINK.
7. PROVIDE 1-1/2" DRAIN FROM SINK TO FLOOR SINK.
8. PROVIDE 1" DRAIN LINE FROM DISHWASHER TO FLOOR SINK.
9. PROVIDE FULL SIZE DRAIN LINE FROM UNDERBAR ICE BIN TO FLOOR SINK.
10. PROVIDE 3/4" DRAIN FROM GLASS FILLER SINK DRAIN TO FLOOR SINK.
11. PROVIDE 3/4" DRAIN FROM ICE MAKER TO FLOOR SINK.
12. PROVIDE 3-1/2" DRAIN FROM SINK OUTLET TO FLOOR SINK.
13. PROVIDE 3" DRAIN WITH P-TRAP AND FUNNEL AT INLET TO RECIEVE INDIRECT WASTE FROM 3-COMPARTMENT SINK. DRAIN SHALL CONNECT TO GREASE WASTE RISER ABOVE FLOOR.
14. PROVIDE 4" DRAIN WITH P-TRAP AND FUNNEL AT INLET TO RECIEVE INDIRECT WASTE FROM SINGLE COMPARTMENT SINK. DRAIN SHALL CONNECT TO GREASE WASTE RISER ABOVE FLOOR.



1 P201 FIRST FLOOR - WASTE & VENT

SCALE = 1/4"=1'-0"

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REVISION SCHEDULE

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FIRST FLOOR - WASTE & VENT

PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
Lic. No. 051165
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

P201

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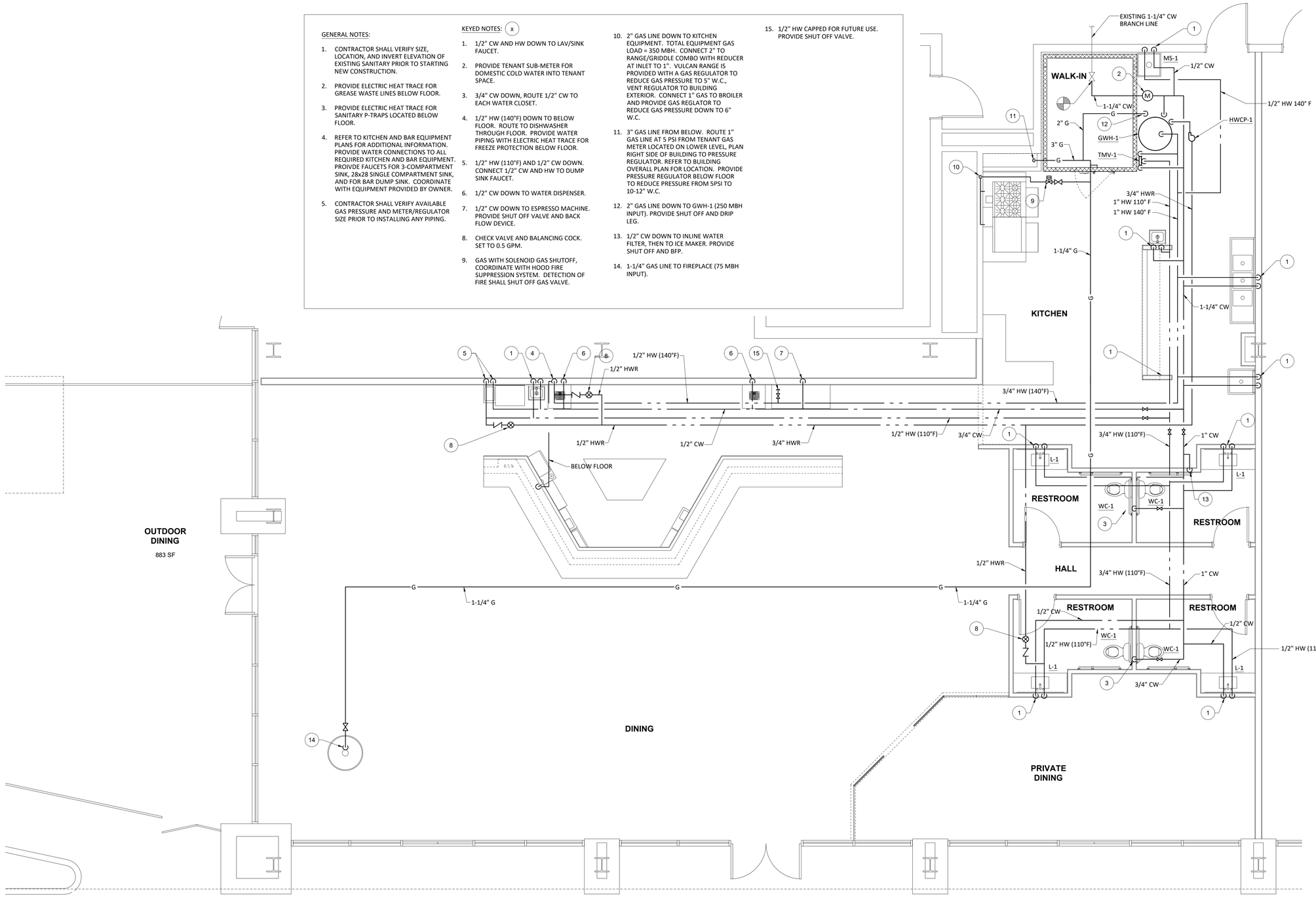
GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERT ELEVATION OF EXISTING SANITARY PRIOR TO STARTING NEW CONSTRUCTION.
2. PROVIDE ELECTRIC HEAT TRACE FOR GREASE WASTE LINES BELOW FLOOR.
3. PROVIDE ELECTRIC HEAT TRACE FOR SANITARY P-TRAPS LOCATED BELOW FLOOR.
4. REFER TO KITCHEN AND BAR EQUIPMENT PLANS FOR ADDITIONAL INFORMATION. PROVIDE WATER CONNECTIONS TO ALL REQUIRED KITCHEN AND BAR EQUIPMENT. PROIVDE FAUCETS FOR 3-COMPARTMENT SINK, 28x28 SINGLE COMPARTMENT SINK, AND FOR BAR DUMP SINK. COORDINATE WITH EQUIPMENT PROVIDED BY OWNER.
5. CONTRACTOR SHALL VERIFY AVAILABLE GAS PRESSURE AND METER/REGULATOR SIZE PRIOR TO INSTALLING ANY PIPING.

KEYED NOTES: (x)

1. 1/2" CW AND HW DOWN TO LAV/SINK FAUCET.
2. PROVIDE TENANT SUB-METER FOR DOMESTIC COLD WATER INTO TENANT SPACE.
3. 3/4" CW DOWN, ROUTE 1/2" CW TO EACH WATER CLOSET.
4. 1/2" HW (140°F) DOWN TO BELOW FLOOR. ROUTE TO DISHWASHER THROUGH FLOOR. PROVIDE WATER PIPING WITH ELECTRIC HEAT TRACE FOR FREEZE PROTECTION BELOW FLOOR.
5. 1/2" HW (110°F) AND 1/2" CW DOWN. CONNECT 1/2" CW AND HW TO DUMP SINK FAUCET.
6. 1/2" CW DOWN TO WATER DISPENSER.
7. 1/2" CW DOWN TO ESPRESSO MACHINE. PROVIDE SHUT OFF VALVE AND BACK FLOW DEVICE.
8. CHECK VALVE AND BALANCING COCK. SET TO 0.5 GPM.
9. GAS WITH SOLENOID GAS SHUTOFF, COORDINATE WITH HOOD FIRE SUPPRESSION SYSTEM. DETECTION OF FIRE SHALL SHUT OFF GAS VALVE.
10. 2" GAS LINE DOWN TO KITCHEN EQUIPMENT. TOTAL EQUIPMENT GAS LOAD = 350 MBH. CONNECT 2" TO RANGE/GRIDDLE COMBO WITH REDUCER AT INLET TO 1". VULCAN RANGE IS PROVIDED WITH A GAS REGULATOR TO REDUCE GAS PRESSURE TO 5" W.C., VENT REGULATOR TO BUILDING EXTERIOR. CONNECT 1" GAS TO BROILER AND PROVIDE GAS REGLATOR TO REDUCE GAS PRESSURE DOWN TO 6" W.C.
11. 3" GAS LINE FROM BELOW. ROUTE 1" GAS LINE AT 5 PSI FROM TENANT GAS METER LOCATED ON LOWER LEVEL, PLAN RIGHT SIDE OF BUILDING TO PRESSURE REGULATOR. REFER TO BUILDING OVERALL PLAN FOR LOCATION. PROVIDE PRESSURE REGULATOR BELOW FLOOR TO REDUCE PRESSURE FROM 5PSI TO 10-12" W.C.
12. 2" GAS LINE DOWN TO GWH-1 (250 MBH INPUT). PROVIDE SHUT OFF AND DRIP LEG.
13. 1/2" CW DOWN TO INLINE WATER FILTER, THEN TO ICE MAKER. PROVIDE SHUT OFF AND BFP.
14. 1-1/4" GAS LINE TO FIREPLACE (75 MBH INPUT).
15. 1/2" HW CAPPED FOR FUTURE USE. PROVIDE SHUT OFF VALVE.



FIRST FLOOR - WATER & GAS

1 / P202 SCALE = 1/4"=1'-0"

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FIRST FLOOR - WATER & GAS

PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
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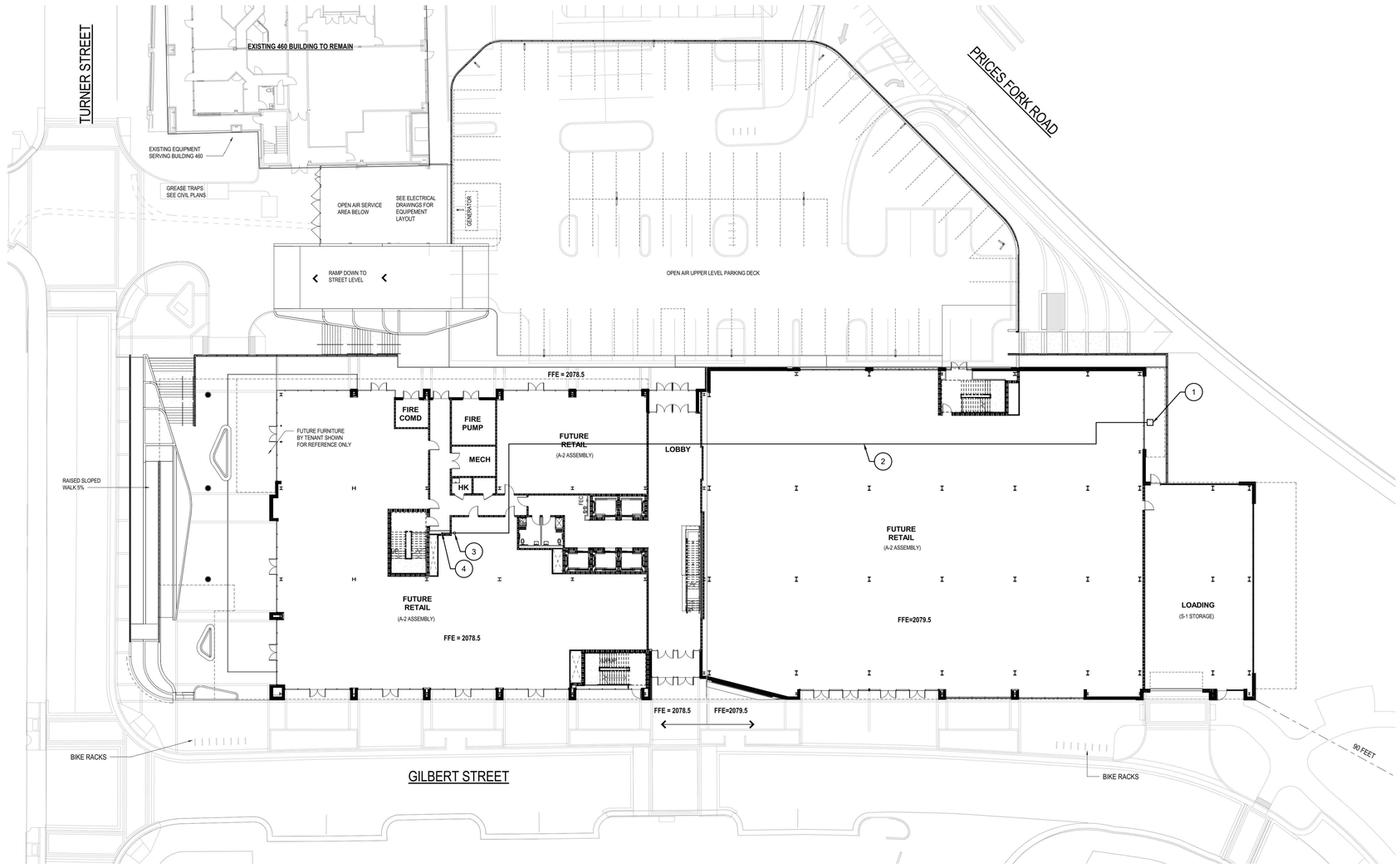
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

P202



1 P203 **FIRST FLOOR OVERALL PLAN**

SCALE = NOT TO SCALE

KEYED NOTES: (x)

1. TENANT GAS METER LOCATION ON LOWER LEVEL.
2. 1" GAS MAIN AT 5PSI TO WINE LABS TENANT SPACE. ROUTE PIPING IN LOWER LEVEL GARAGE SPACE.
3. PROVIDE GAS PRESSURE REGULATOR TO REDUCE DELIVERY PRESSURE DOWN FROM 5 PSI TO 10" W.C.
4. 3" GAS AT 10" W.C. UP TO TENANT SPACE. REFER TO PLAN P202 FOR CONTINUATION.

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Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

P203

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Project # 22030

GENERAL MECHANICAL NOTES AND SPECIFICATIONS:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, ALL FEDERAL, STATE, AND CITY CODES, ORDINANCES, AND STANDARDS.
2. PROVIDE SHOP DRAWINGS FOR APPROVAL FOR ALL NEW MECHANICAL EQUIPMENT.
3. PROVIDE OPERATION AND MAINTENANCE MANUALS FOR ALL NEW EQUIPMENT TO OWNER.
4. ALL WORK PROVIDED UNDER THIS CONTRACT SHALL BE PROVIDED WITH A 1-YEAR WARRANTY. NEW MECHANICAL UNITS WITH COMPRESSORS SHALL BE PROVIDED WITH 5-YEAR WARRANTY.
5. IT IS THE INTENT OF THESE DOCUMENTS THAT THE CONTRACTOR PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND TOOLS FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE PLANS AND/OR DESCRIBED HEREIN, INCLUDING ALL DEVISES AND CONTROLS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM.
6. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. NOT ALL FITTINGS, OFFSETS, VENTS, OR DRAINS ARE SHOWN. THE CONTRACTOR SHALL INCLUDE ALL OFFSETS, VENTS, AND DRAINS AS REQUIRED FOR A FULLY FUNCTIONING SYSTEM.
7. IN AREAS WITH UNFINISHED CEILINGS, DUCTWORK AND PIPING SHALL BE ROUTED AS TIGHT TO THE STRUCTURE AS POSSIBLE.
8. ENSURE MECHANICAL EQUIPMENT IS INSTALLED TO PROVIDE SUFFICIENT CLEARANCE FOR COIL PULL, AND MINIMUM MANUFACTURER RECOMMENDED MAINTENANCE ACCESS TO EQUIPMENT.
9. ALL SUPPLY AIR DIFFUSERS, RETURN, AND EXHAUST GRILLES SHALL BE INSTALLED WITH BALANCING DAMPER LOCATED IN DUCT RUN OUT. DIFFUSERS AND GRILLES SHALL HAVE AN OPPOSED BLADE DAMPER ONLY WHEN DUCT DAMPERS ARE INACCESSIBLE.
10. ALL PIPING SHALL BE LABELED FOR ITS USAGE. ALL EQUIPMENT SHALL BE PROVIDED WITH AN ENGRAVED EQUIPMENT TAG.
11. ALL DUCTWORK CONSTRUCTION AND INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE SMACNA DUCT CONSTRUCTION HANDBOOK. DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED METAL.
12. FLEXIBLE DUCTS SHALL BE EQUIVALENT TO THERMAFLEX MODEL M-KC WITH 2", 0.71# MEDIUM DENSITY FIBERGLASS R-6.0 INSULATION. FLEXIBLE DUCTS SHALL BE FACTORY MADE AND COMPOSED OF AN INNER DUCT OF WOVEN AND COATED FIBERGLASS PROVIDING AN AIR SEAL AND PERMANENTLY BONDED TO COATED STEEL WIRE HELIX, A FIBERGLASS INSULATING BLANKET AND LOW PERMEABILITY OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED METALLIZED FILM LAMINATE.
13. DUCT INSULATION SHALL BE IN COMPLIANCE WITH THE 2018 IECC STANDARDS AND SHALL BE FIBERGLASS INSULATION, 1.0 LB. DENSITY, 0.27 BTUIN./SQ.FT./°F/HR. MAXIMUM "K" VALUE AT 75°F, WITH FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER.
14. PROVIDE UL RATED FIRE STOPPING AROUND ALL DUCTS AND PIPES THAT PENETRATE RATED WALL AND/OR FLOORS. PROVIDE CAULKED SEAL AROUND ALL DUCT AND/OR PIPING PENETRATIONS THROUGH NON RATED FULL HEIGHT WALLS TO MINIMIZE SOUND TRANSFER.
15. PROVIDE ALL SUPPLY AIR SYSTEMS WITH A MINIMUM MERV 8 FILTER UNLESS NOTED OTHERWISE. PROVIDE TEMPORARY AIR FILTERS IN AIR HANDLER UNITS AND RETURN AIR INLETS AND GRILLES DURING CONSTRUCTION AND REPLACE AT COMPLETION. FILTERS SHALL BE INSTALLED SUCH THAT THEY ARE ACCESSIBLE FOR REPLACEMENT AND LOCATED PRIOR TO ANY HEATING OR COOLING COILS.
16. FOR THE AIR CONDITIONING, HEATING AND VENTILATION SYSTEMS THE CONTRACTOR SHALL PROVIDE ALL SERVICES FOR TOTAL SYSTEM AIR TESTING AND BALANCING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING CHANGES IN PULLEYS, BELTS AND DAMPERS WHERE NECESSARY TO OBTAIN THE REQUIRED AIR VOLUME. THE CONTRACTOR SHALL PROVIDE ALL LABOR, ENGINEERING AND TEST EQUIPMENT REQUIRED TO ADJUST, TEST AND BALANCE ALL HEATING, VENTILATING, AIR CONDITIONING AND EXHAUST SYSTEMS. ALL PERSONNEL INVOLVED IN THE WORK SHALL BE EXPERIENCED AND TRAINED SPECIFICALLY IN THE TOTAL BALANCING OF MECHANICAL SYSTEMS. PROVIDE TYPED REPORT TO OWNER/ENGINEER FOR APPROVAL

HVAC LEGEND

DUCTWORK

- SUPPLY AIR DUCT, (RECTANGULAR)
- RETURN AIR DUCT, (RECTANGULAR)
- OUTDOOR AIR DUCT, (RECTANGULAR)
- EXHAUST AIR DUCT, (RECTANGULAR)
- 12x6 — RECTANGULAR DUCTWORK (1ST FIG. SIDE SHOWN, 2ND SIDE NOT SHOWN)
- 12" — ROUND DUCTWORK
- MD — MANUAL DAMPER
- CD — MOTORIZED DAMPER
- FD — FIRE DAMPER
- FLEXIBLE DUCT CONNECTION
- R — RISE; D — DROP — DUCT INCLINE IN DIRECTION OF AIR FLOW
- 90° ELBOW TURNED UP, (RECTANGULAR)
- 90° ELBOW TURNED DOWN, (RECTANGULAR)
- 90° ELBOW TURNED UP, (ROUND)
- 90° ELBOW TURNED DOWN, (ROUND)
- DUCT TRANSITION, ROUND TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR OR ROUND
- 90° RADIUS ELBOW; RECTANGULAR OR ROUND
- 45° RADIUS ELBOW; RECTANGULAR OR ROUND
- 90° VANED ELBOW, RECTANGULAR (PROVIDE WITH TURNING VANES EVEN THOUGH NOT SHOWN)
- 45° VANED ELBOW, RECTANGULAR (PROVIDE WITH TURING VANES EVEN THOUGH NOT SHOWN)
- FLEXIBLE DUCT, (ROUND)

PIPING

- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- CDS — CONDENSER WATER SUPPLY
- CDR — CONDENSER WATER RETURN
- DRAIN W/CLEANOUT
- DIRECTION OF FLOW
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- BALANCING COCK
- H — HANGER OR SUPPORT
- PA — PIPE ANCHOR
- UNION
- STRAINER
- BALL VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- CAP
- FLEXIBLE CONNECTION
- ELBOW, 90 DEGREES
- ELBOW, 90 DEGREESTURNED UP
- ELBOW, 90 DEGREESTURNED DOWN
- ELBOW, 45 DEGREES
- TOP OF MAIN BRANCH CONNECTION
- BOTTOM OF MAIN BRANCH CONNECTION
- SIDE OF BRANCH CONNECTION
- AUTOMATIC CONTROL VALVE, 2 WAY
- AUTOMATIC CONTROL VALVE, 3 WAY
- PRESSURE GAGE
- THERMOMETER
- AAV — AUTOMATIC AIR VENT
- TEMPERATURE / PRESSURE PORT
- DV — DRAIN VALVE

MISCELLANEOUS

- T — THERMOSTAT (MH=4'-0")
- S — TEMPERATURE SENSOR (MH=4'-0")
- C — CARBON DIOXIDE SENSOR (MH=4'-0")
- C1 — CARBON MONOXIDE MONITOR (MH=4'-0")

EQUIPMENT IDENTIFICATION

- AH — TYPE EQUIPMENT
- 1 — MARK

SF - SUPPLY FAN
EF - EXHAUST FAN
AHU - AIR HANDLING UNIT
HP - HEAT PUMP UNIT
H - KITCHEN HOOD

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REVISION SCHEDULE

MECHANICAL GENERAL NOTES, SCHEDULES & LEGEND

PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
Lic. No. 051165
09/23/2022
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

M101

FAN SCHEDULE

MARK	MODEL	MANUFACTURER	AIRFLOW	STATIC PRESSURE	MOTOR ENCLOSURE	MOTOR DRIVE	MOTOR HP	MOTOR V	MOTOR PH	MOTOR HZ
SF-1	SQ-160-VG	GREENHECK	1400 CFM	0.75 in-wg	ODP	DIRECT	0.75 hp	115 V	1	60 Hz
EF-2	SP-A90L	GREENHECK	75 CFM	0.25 in-wg	ODP	DIRECT	0.02 hp	115 V	1	60 Hz
EF-3	SP-A90L	GREENHECK	75 CFM	0.25 in-wg	ODP	DIRECT	0.02 hp	115 V	1	60 Hz
EF-4	SP-A90L	GREENHECK	75 CFM	0.25 in-wg	ODP	DIRECT	0.02 hp	115 V	1	60 Hz
EF-5	SP-A90L	GREENHECK	75 CFM	0.25 in-wg	ODP	DIRECT	0.02 hp	115 V	1	60 Hz
EF-6	CUE-140-VG	GREENHECK	1750 CFM	0.75 in-wg	ODP	DIRECT	0.75 hp	115 V	1	60 Hz
EF-7	SQ-120-VG	GREENHECK	800 CFM	0.30 in-wg	ODP	DIRECT	0.50 hp	115 V	1	60 Hz

NOTES:
1. MANUFACTURER TO PROVIDE FANS WITH BACKDRAFT AND INSECT SCREEN.
2. MANUFACTURER TO PROVIDE STARTER & INTEGRAL NON-FUSED DISCONNECT SIZED PER NEC.
3. CEILING FANS EF-2 THROUGH EF-5 SHALL HAVE INTEGRAL LIGHT. FANS SHALL BE INTERLOCKED WITH RESTROOM LIGHT SWITCH.
4. INLINE SUPPLY FAN, SF-1, SHALL BE PROVIDED WITH 1 INCH MERV 8 FILTER.
5. SF-1 SHALL BE INTERLOCKED WITH TYPE 1 KITCHEN HOOD, H-1 AND HOOD EXHAUST FAN, EF-6, FOR A COMPLETE & FUNCTIONING SYSTEM.
6. PROVIDE EF-6 WITH INSULATED ROOF CURB.
7. EF-6 SHALL BE INTERLOCKED WITH H-1 & SF-1. MANUFACTURER TO PROVIDE ALL ACCESSORIES & DAMPERS REQUIRED FOR FULL & COMPLETE FUNCTIONING SYSTEM.
8. EF-7 SHALL BE INTERLOCKED WITH AHU-1 & AHU-2. FAN SHALL RUN CONTINOUSLY WHILE AHU-1 & 2 ARE RUNNING.

OUTDOOR HEAT PUMP UNIT SCHEDULE

MARK	AMBIENT AIR TEMP SUMMER	AMBIENT AIR TEMP WINTER	COOLING CAPACITY (MBH)	COOLING SENSIBLE (MBH)	COOLING EER / IEER	HEATING CAPACITY (MBH) @ DESIGN	HEATING CAPACITY @ 47°F	HEATING CAPACITY @ 17°F	HEATING COP @ 47°F / 17°F	ELECTRICAL MCA (AMPS)	ELECTRICAL MOCP (AMPS)	ELECTRICAL V / HZ / PH	WIDTH (IN.)	DEPTH (IN.)	HEIGHT (IN.)	WEIGHT (LBS)	BASIS OF DESIGN	NOTES
HP-1	92°F	15°F	88.2	66.4	11.0 / 16.0	52.5	78.0	45.0	3.4 / 2.3	34.9	45.0	208 / 60 / 3	59"	32"	45"	445	JOHNSON CONTROLS #J07PEC00A2JAB5	ALL
HP-2	92°F	15°F	83.7	61.2	11.0 / 16.0	50.0	78.0	45.0	3.4 / 2.3	34.9	45.0	208 / 60 / 3	59"	32"	45"	445	JOHNSON CONTROLS #J07PEC00A2JAB5	ALL
HP-3	92°F	15°F	53.0	42.8	12.5 EER	-	60.8	-	-	32.4	50.0	208 / 60 / 1	40"	36"	50"	304	FRASER-JOHNSTON #TH6B6021S	ALL
HP-4	92°F	15°F	49.7	35.3	12.5 EER	-	46.6	-	-	35.9	40.0	208 / 60 / 1	40"	36"	50"	292	FRASER-JOHNSTON #TH6B4821S	ALL

NOTES:
1. MATCH ASSOCIATED OUTDOOR HEAT PUMP UNIT WITH INDOOR AIR HANDLER.
2. HEATING AND COOLING CAPACITIES SHALL MATCH THAT OF THE ASSOCIATED INDOOR AIR HANDLER.
3. HP-3 & HP-4 SHALL HAVE A SEER OF AT LEAST 14.0
4. PROVIDE REFRIGERANT LINES TO/FROM OUTDOOR HEAT PUMP UNIT SIZED AND ROUTED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. REFRIGERANT PIPING SHALL ALSO COMPLY WITH VMC 1107.2.2 REQUIREMENTS. IF PIPING LENGTHS ARE LONGER THAN RECOMMENDED DISTANCE CONTRACTOR SHALL PROVIDE LONG LINE SET AND ALL ASSOCIATED PIPING SPECIALTIES TO ACCOMMODATE THE LONG PIPING RUN.
5. PROVIDE HP-3 WITH LOW AMBIENT COOLING KIT.
6. HEAT PUMP UNIT SHALL BE LOCATED ON GRADE. PROVIDE EQUIPMENT PAD AND SECURE UNIT TO IT. PROVIDE BOLLARDS IF NECESSARY TO PREVENT DAMAGE BY VEHICLES.

AIR HANDLER UNIT SCHEDULE

MARK	OUTSIDE AIR (CFM)	SUPPLY AIR (CFM)	ESP (IN.W.C.)	FAN HP	TOTAL COOLING CAPACITY (MBH)	SENSIBLE COOLING CAPACITY (MBH)	COOLING E.A.T °F DB/WB	COOLING L.A.T °F DB/WB	NOMINAL ELECTRIC HEAT (KW)	APPLIED HEAT (KW)	E.A.T / L.A.T. °F DB	UNIT ELECTRICAL	MCA / MOP	UNIT WEIGHT	BASIS OF DESIGN
AHU-1	540	2400	0.6	1.5	83.7	61.2	80.1 / 65.9	56.5 / 54.4	36.0	27.0	55.0 / 90.5	208 / 60 / 3	99.0 / 100.0	524	JOHNSON CONTROLS #J07NLC00B2BAA2
AHU-2	540	2400	0.6	1.5	83.7	61.2	80.1 / 65.9	56.5 / 54.4	36.0	27.0	55.0 / 90.5	208 / 60 / 3	99.0 / 100.0	524	JOHNSON CONTROLS #J07NLC00B2BAA2
AHU-3	225	1970	0.6	0.75	53.0	42.8	76.3 / 62.6	56.2 / 53.1	10.0	8.8	60.0 / 74.1	230 / 60 / 1	54.6 / 60.0	150	FRASER-JOHNSTON #JHETD60JBCS2N1
AHU-4	360	1600	0.5	0.75	49.7	35.3	80.0 / 67.0	59.6 / 57.1	20.0	17.6	55.0 / 89.8	208 / 60 / 3	62.0 / 70.0	130	FRASER-JOHNSTON #JHETC48GBCS2N1

NOTES:
1. AIR HANDLERS SHALL BE SINGLE POINT ELECTRICAL CONNECTION.
2. PROVIDE NON-FUSED DISCONNECT.
3. PROVIDE COMPLETE HEATING/COOLING SYSTEM INCLUDING ELECTRIC HEATER KIT WITH INDOOR HEAT PUMP COIL AND ASSOCIATED OUTDOOR HEAT PUMP UNIT.
4. PROVIDE 1-1/4" CONDENSATE DRAIN FOR AHU-1 & AHU-2. PROVIDE 1" CONDENSATE DRAIN FOR AHU-3. & AHU-4.
5. AIR HANDLER COOLING AND HEATING SHALL BE 2-STAGE.
6. PROVIDE REFRIGERANT LINES TO/FROM OUTDOOR HEAT PUMP UNIT SIZED AND ROUTED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. REFRIGERANT PIPING SHALL ALSO COMPLY WITH VMC 1107.2.2 REQUIREMENTS. IF PIPING LENGTHS ARE LONGER THAN RECOMMENDED DISTANCE CONTRACTOR SHALL PROVIDE LONG LINE SET AND ALL ASSOCIATED PIPING SPECIALTIES TO ACCOMMODATE THE LONG PIPING RUN.
7. PROVIDE FLEXIBLE DUCT CONNECTIONS AT SUPPLY AND RETURN INLETS.
8. PROVIDE FILTER AND FILTER RACK AT THE RETURN OF THE AIR HANDLER. STANDARD 1" DISPOSABLE FILTER .
9. PROVIDE SECONDARY DRAIN PAN WITH LIQUID SENSOR.
10. PROVIDE BI-POLAR IONIZATION FOR AIR HANDLERS AHU-1, AHU-2, AND AHU-4. BI-POLAR IONIZATION SHALL BE ATMOS AIR MODEL #FC100. SYSTEM SHALL BE MOUNTED IN THE SUPPLY DISCHARGE PRIOR TO THE FIRST SUPPLY AIR OPENING. 115 OR 240 VAC, 60HZ, 5 WATTS POWER CONSUMPTION, 0.2 AMP CURRENT DRAW, 1.25 AMP INTERNAL FUSE. FIELD ELECTRICAL CONNECTION SHALL BE INTEGRATED INTO ASSOCIATED AHU.
11. PROVIDE EACH UNIT WITH HOT GAS BYPASS.

EXHAUST HOOD SCHEUDLE

MARK	MAKE-UP AIR (CFM)	EXHAUST AIR (CFM)	MAX S.P. (IN WC)	LENGTH (IN)	WIDTH (IN)	BOTTOM WIDTH (IN)	FRONT HEIGHT (IN.)	BACK HEIGHT (IN.)	BASIS OF DESIGN	NOTES
H-1	1400	1750	0.5	84	36	36	24	24	HALIFAX #BRPHP748	ALL

NOTES:
1. HOOD SHALL BE A TYPE 1 HOOD.
2. HOOD SHALL BE 18-GAUGE 430 STAINLESS STEEL WHERE EXPOSED WITH STANDING SEAM CONSTRUCTION.
3. PROVIDE WITH STAINLESS STEEL BAFFLE FILTERS.
4. PROVIDE WITH FIRE SUPPRESSION SYSTEM.
5. HOOD SHALL BE INTERLOCKED WITH EF-6 & SF-1.

GRILLE AND DIFFUSER SCHEDULE

MARK	DESCRIPTION	AIR PATTERN	MOUNTING/FRAME	DAMPER	MATERIAL	FINISH	BASIS OF DESIGN MANUFACTURER & MODEL	NOTES
A	SUPPLY DIFFUSER	4-WAY	SURFACE	OBD	ALUMINUM	WHITE	PRICE:SCD - SQUARE CONE DIFFUSERS	ALL
B	RETURN GRILLE	-	SURFACE	OBD	ALUMINUM	WHITE	PRICE: 80 - EGG CRATE	ALL
C	SUPPLY GRILLE	-	SPIRAL DUCT MOUNTED	OBD	ALUMINUM	CLEAR ANODIZED	PRICE: SDG - SPIRAL DUCT GRILLE	ALL
D	RETURN GRILLE	-	SIDEWALL	OBD	ALUMINUM	WHITE	PRICE: 630 - LOUVERED RETURN GRILLE	ALL
E	RETURN GRILLE	-	SPIRAL DUCT MOUNTED	OBD	ALUMINUM	CLEAR ANODIZED	PRICE: SDGR - SPIRAL DUCT RETURN GRILLE	ALL

NOTES:
1. ALL GRILLES AND DIFFUSERS SHALL NOT EXCEED NC-30 REGARDLESS OF SIZE LISTED UNLESS SPECIFIED OTHERWISE.
2. COORDINATE EXACT DIFFUSER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS.
3. DUCT MOUNTED BALANCING DAMPERS SHALL BE FURNISHED AND INSTALLED WHERE RUNOUT IS ABOVE AN ACCESSIBLE CEILING. IN LOCATIONS ABOVE HARD CEILINGS, DIFFUSERS SHALL BE FURNISHED WITH OPPOSED BLADE DAMPER OPERABLE THRU DIFFUSER FACE.
4. REGISTERS SHALL BE FURNISHED WITH OPPOSED BLADE DAMPER OPERABLE THROUGH REGISTER FACE.

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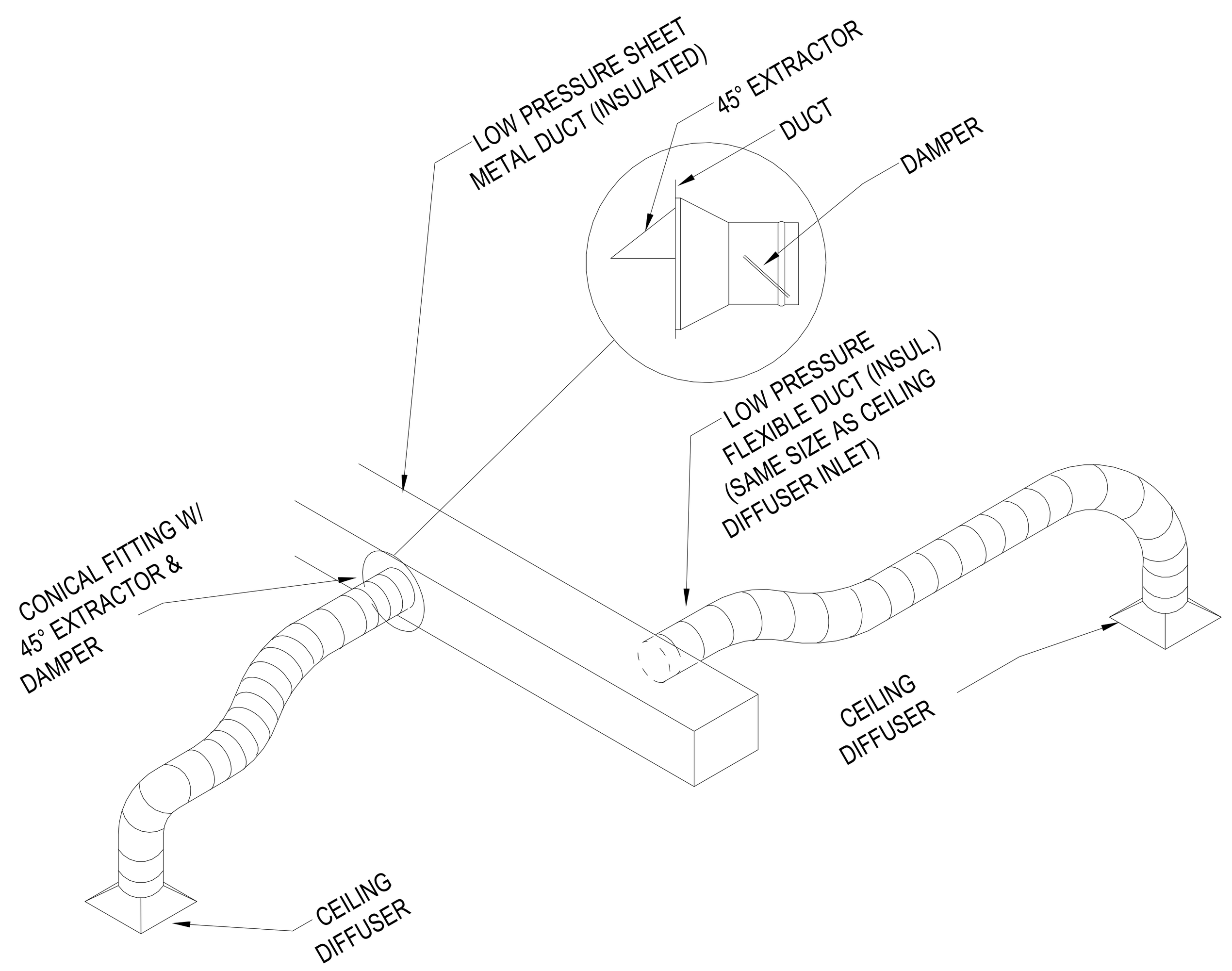
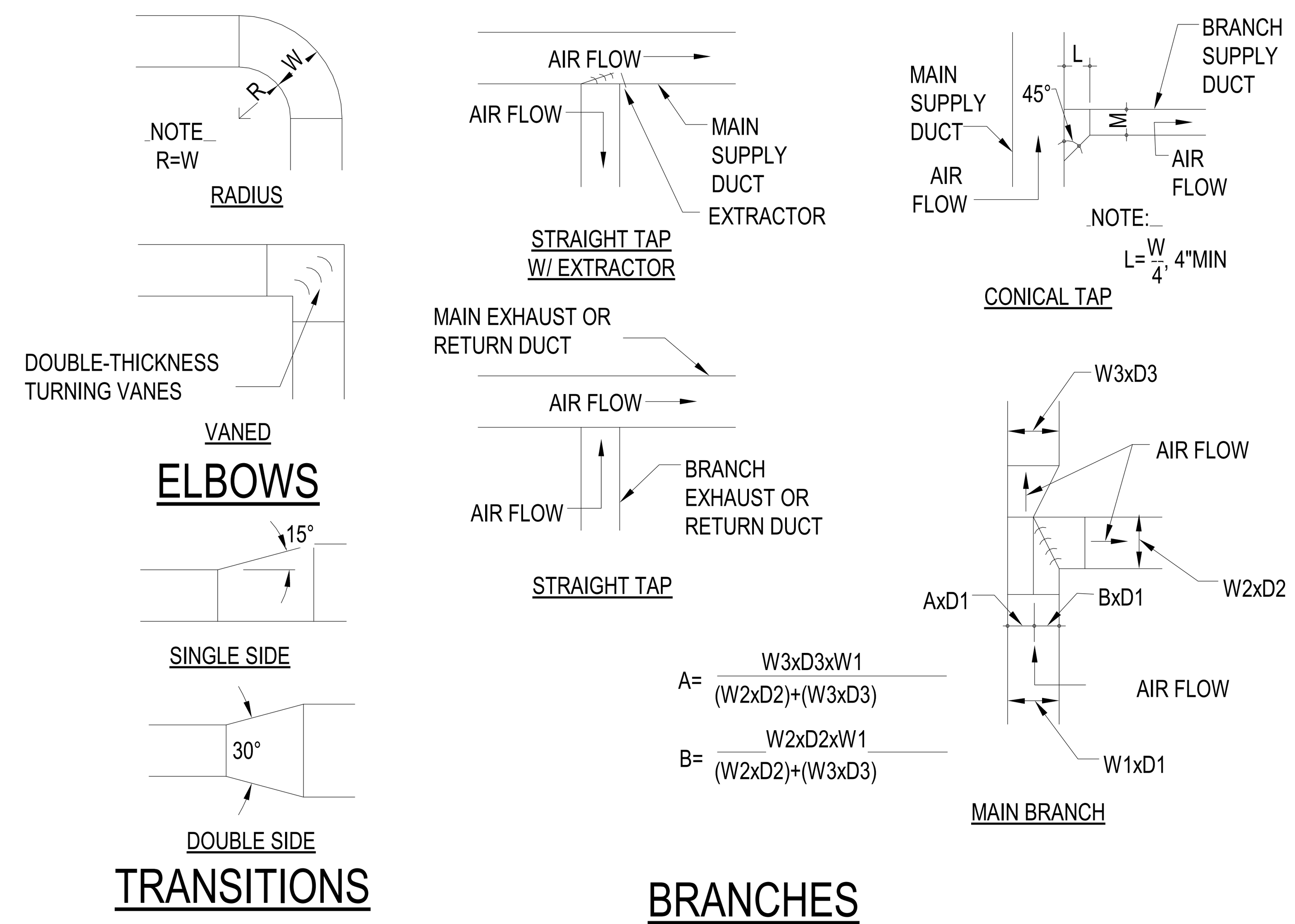
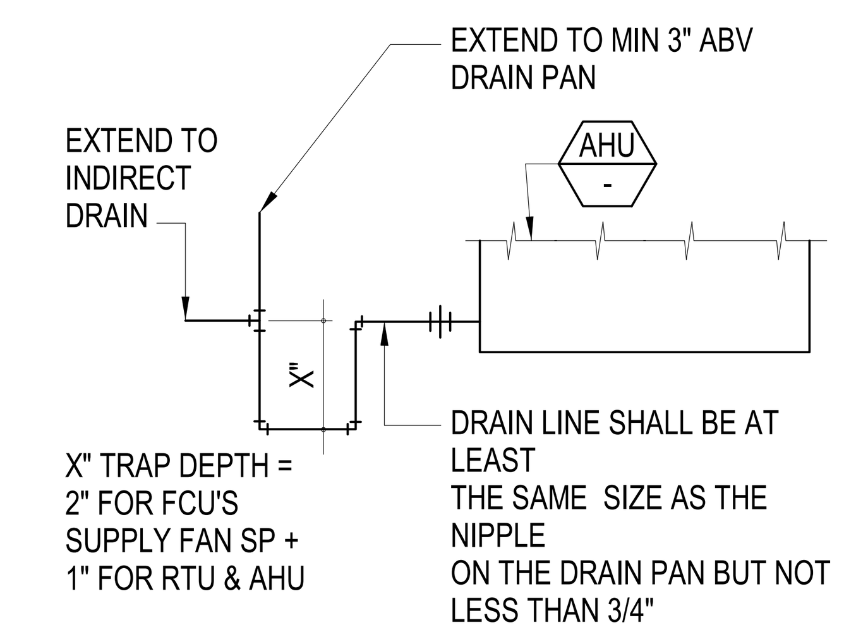
M102



1 M103 DETAIL - DIFFUSER CONNECTION
NOT TO SCALE



2 M103 DETAIL - DUCT FITTINGS
NOT TO SCALE



3 M103 DETAIL- CONDENSATE TRAP
NOT TO SCALE

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Date: 09/23/22
Drawn: GL Checked: JNB
Project: 221049

M103

MECHANICAL SPECIFICATIONS

1. SCOPE:

PROVIDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO INSTALL AND MAKE READY FOR OWNER'S USE COMPLETE SYSTEMS OF HEATING, VENTILATION, AIR CONDITIONING (HVAC), PLUMBING, FOR THE PROPOSED WORK AND BUILDING RENOVATIONS AS SHOWN ON THE DRAWINGS AND CALLED FOR IN THESE SPECIFICATIONS.

VISIT THE SITE TO OBTAIN DIMENSIONS, EXISTING LAYOUTS AND LOCATIONS AND EXISTING CONSTRUCTION DETAILS NOT SHOWN ON THESE DRAWINGS.

THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION WITH OTHER DIVISIONS OF WORK FOR THE FULL EXTENT OF THE SCOPE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL ASPECTS, COMPONENTS, SYSTEMS, ETC. AND ACCOMMODATE THE PERFORMANCE INTENT OF THE CONSTRUCTION DOCUMENTS THROUGHOUT THE PROJECT SCOPE.

2. BIDDERS RESPONSIBILITY:

EXAMINE THE DRAWINGS AND SPECIFICATIONS AND VISIT THE WORK SITE. BECOME FAMILIAR WITH THE CHARACTER OF THE WORK, THE COORDINATION WITH OTHER TRADES REQUIRED, AND ANY OTHER CONDITIONS THAT AFFECT THE COMPLETION OF THIS WORK. GENERAL CONTRACTOR SHALL BE REQUIRED TO COORDINATE WORK WITH TENANT FINISH CONTRACTOR IN A SIDE BY SIDE SCENARIO.

3. PERMITS, CODES AND LAWS:

APPLY FOR ALL PERMITS AND PAY ALL FEES.

ALL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITIONS OF THE FOLLOWING RULES AND REGULATIONS, HEREIN REFERRED TO AS “CODES”:

THE LATEST OR ADOPTED EDITION OF THE APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING, MECHANICAL, SANITATION, PLUMBING, ETC. CODES.

UNDERWRITER'S LABORATORIES, INC. (U.L) NATIONAL FIRE PROTECTION ASSOCIATION (N.F.P.A.)

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A)

WHERE ANY OF THESE CODES ARE AT VARIANCE WITH THE DRAWINGS AND SPECIFICATIONS, THEIR REQUIREMENTS SHALL TAKE PRECEDENCE, UNLESS THE DRAWINGS AND SPECIFICATIONS REQUIREMENTS EXCEED THESE CODES. INCLUDE ANY COST NECESSARY TO MEET THESE CODES IN THE BID PRICE.

4. MECHANICAL PLANS:

THE MECHANICAL PLANS ARE DIAGRAMMATIC AND BASED ON ONE MANUFACTURER'S EQUIPMENT.

THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT. VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO BE USED.

INSTALLATION SHALL BE WITHIN THE LIMITATIONS IMPOSED BY THE ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, AND PLUMBING REQUIREMENTS WITH ADEQUATE SPACE FOR MAINTENANCE.

5. QUESTIONS AND CLARIFICATIONS OF BID DOCUMENTS:

BIDDERS SHALL NOT RELY ON ANY ORAL CLARIFICATION OF THE DRAWINGS OR SPECIFICATIONS. ANY QUESTIONS OR CLARIFICATIONS SHALL BE REFERRED IN WRITING TO THE ARCHITECT.

6. GUARANTEES:

ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE. WARRANTIES SHALL BE IN WRITING AND SHALL INCLUDE FACTORY WARRANTIES FOR EACH PIECE OF EQUIPMENT. PROVIDE A CERTIFICATE FOR EACH PIECE OF EQUIPMENT. CLEARLY INDICATE ON EACH WARRANTY CERTIFICATE THE MODEL NO., SERIAL NO., LOCATION, AND OWNER'S NAME.

7. COMPLETE SYSTEM:

ALL PRODUCTS, MATERIALS AND ACCESSORIES SHALL BE FURNISHED AND INSTALLED AS REQUIRED FOR A COMPLETE SYSTEM READY FOR OWNER'S BENEFICIAL USE.

8. WORKMANSHIP:

ALL WORK SHALL BE PERFORMED BY COMPETENT MECHANICS USING PROPER TOOLS AND EQUIPMENT TO PRODUCE FIRST QUALITY WORK. ALL WORK SHALL BE NEATLY INSTALLED, ACCESSIBLE FOR MAINTENANCE, AND COMPLETE WITH ALL ACCESSORIES REQUIRED.

9. ACCESSIBILITY:

INSTALL ALL EQUIPMENT AND THEIR APPURTENANCES SUCH AS, BUT NOT LIMITED TO, VALVES, COILS, DRAIN PANS, DRAINS, DAMPERS, CONTROLS, MOTORS, CONTROLLERS, ETC., SO THAT THEY CAN BE SERVICED, RESET, REPLACED OR RECALIBRATED, ETC.

INSTALL ALL NECESSARY ACCESS PANELS AND BUILDING ACCESS DOORS, AS BELOW, WHERE REQUIRED TO ACCOMPLISH THIS. IF ANY EQUIPMENT OR COMPONENTS DO NOT FIT WHERE INTENDED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING, REQUESTING FURTHER GUIDANCE.

PROVIDE BUILDING ACCESS DOORS FOR ALL MECHANICAL EQUIPMENT REQUIRING SERVICE, INCLUDING BUT NOT LIMITED TO, AHU'S, FANS, DAMPERS, DUCT ACCESS PANELS, CONTROLS, PIPING, VALVES, REGULATORS, TRAPS, ETC., INSTALLED ABOVE HARD CEILINGS, BEHIND WALLS, AND BELOW FLOORS, FOR INSTALLATION BY OTHER DIVISIONS OF THE WORK. BUILDING ACCESS DOORS ARE NOT REQUIRED WHERE THE MECHANICAL EQUIPMENT IS INSTALLED ABOVE LAY-IN AND ACCESSIBLE SPLINE CEILINGS. OTHER TYPES OF SPLINE CEILINGS REQUIRE BUILDING ACCESS DOORS.

SIZE THE BUILDING ACCESS DOORS FOR THE USE INTENDED, BUT NOT LESS THAN 12 INCHES BY 12 INCHES. WHERE HUMAN ACCESS IS REQUIRED, PROVIDE 24 INCHES BY 24 INCHES, OR LARGER.

WHERE BUILDING ACCESS DOORS CANNOT BE INSTALLED FOR STRUCTURAL OR ARCHITECTURAL REASONS, NOTIFY THE ARCHITECT.

PRIME COAT BUILDING ACCESS DOORS IN PAINTED AREAS WITH FINISH PAINTING AS SPECIFIED IN OTHER DIVISIONS.

IN WET AREAS, TOILET ROOMS, OR AREAS WITH CERAMIC TILE FLOORS OR WALLS, PROVIDE STAINLESS STEEL BUILDING ACCESS DOORS.

PROVIDE BUILDING ACCESS DOORS WITH A CONCEALED KEY OPERATED LOCK AND CONCEALED HINGES. ALL LOCKS SHALL BE KEYED ALIKE.

PROVIDE BUILDING ACCESS DOORS AS SPECIFIED IN OTHER DIVISIONS OF THE WORK OR PROVIDE MILCOR DOORS, OR EQUIVALENT, SUITABLE FOR THE INSTALLATION INTENDED.

PROVIDE FIRE RATED DOORS FOR ALL FIRE RATED WALLS, PARTITIONS, AND CEILINGS.

10. WORK BY OTHER TRADES:

FURNISH ALL SLEEVE FRAMES, BUILDING ACCESS DOORS, PREFABRICATED EQUIPMENT CURBS, ROOF CURBS, ETC. FOR INSTALLATION BY OTHER TRADES.

INSTALL ALL MOTORS AND FURNISH THE STARTING EQUIPMENT AND DISCONNECTS TO THE DIVISION 26000 SUBCONTRACTOR FOR INSTALLATION. CONTROL WIRING, INCLUDING SWITCHES, THERMOSTATS, INTERLOCKS, ETC. SHALL BE FURNISHED BY DIVISION 23000.

ENSURE THAT THE ELECTRICAL EQUIPMENT MOUNTED NEAR THE MECHANICAL EQUIPMENT DOES NOT BLOCK ACCESS TO SERVICE AREAS OF THE MECHANICAL EQUIPMENT. DO NOT ALLOW ANY EQUIPMENT TO BE INSTALLED ON THE HVAC EQUIPMENT ENCLOSURES.

11. FIRE STOPPING:

ALL PENETRATIONS OF FLOORS AND OTHER FIRE-RATED ASSEMBLIES SHALL BE FIRE AND SMOKE-STOPPED IN STRICT ACCORDANCE WITH THE APPLICABLE CODES.

12. FOUNDATIONS AND SPECIAL SUPPORTS:

FURNISH AND INSTALL ALL SPECIAL FOUNDATIONS AND SUPPORTS REQUIRED FOR EQUIPMENT INSTALLED UNDER THIS SECTION, UNLESS THEY ARE A PART OF THE BUILDING STRUCTURE AND ARE SHOWN IN OTHER SECTIONS.

13. CLEANING AND PAINTING:

THOROUGHLY CLEAN ALL EQUIPMENT AND REMOVE ALL TRASH, CARTONS, ETC. MAKE ANY NECESSARY CORRECTIONS OR REPAIR/REPLACE ANY DAMAGED MATERIALS OR EQUIPMENT. LEAVE THE ENTIRE SYSTEM IN A THOROUGHLY CLEAN AND ORDERLY MANNER.

ANY FINISHED SURFACES THAT HAVE BEEN SCRATCHED OR DISCOLORED SHALL BE TOUCHED-UP OR REPAINTED BREAK TO BREAK WITH PAINT TO MATCH THE ORIGINAL COLOR. TOUCH UP PAINTED SURFACES OR REPAINT THE ENTIRE PAINTED SURFACE IF TOUCH UP IS UNACCEPTABLE. SEE ARCHITECTURAL PAINTING SPECIFICATIONS.

ALL METAL ITEMS SUBJECT TO RUSTING, INSIDE OR EXPOSED TO WEATHER SHALL BE GIVEN ONE COAT OF PROPER TYPE RUST PREVENTATIVE PRIMER AS SOON AS INSTALLED. APPLY TWO FINISH COATS WITH COLOR TO BE SELECTED BY THE ARCHITECT.

FOR ALL INTERIOR OR EXTERIOR STRUCTURAL GALVANIZED STEEL, COLD GALVANIZE ALL EXPOSED METAL CUT ENDS, HOLES, WELDS, SCRATCHES, ETC., OR HOT DIP GALVANIZE THE ENTIRE STRUCTURE OR FRAME AFTER FABRICATION AND MOUNTING HOLES ARE CUT.

UPON COMPLETION OF THE INSTALLATION, BUT NOT BEFORE, AND BEFORE ACCEPTANCE, THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, PIPING, DUCTWORK, INSULATION JACKETS, ETC., REMOVING ALL STICKERS, LABELS, MARKING, WRITING, FABRICATION MARKINGS, IDENTIFICATION, ADHESIVE, SEALER, GLUE, RUST, CORROSION, ETC., FROM THEIR EXTERIOR SURFACES.

THE CLEANLINESS AND PAINTING ACCEPTABILITY IS AT THE SOLE DISCRETION OF THE ARCHITECT AND MAY REQUIRE ADDITIONAL CLEANING AND COATS OF PAINT BEFORE ANY SURFACE IS ACCEPTED.

14. SUBMITTAL AND SHOP DRAWINGS:

SUBMIT MANUFACTURER'S CERTIFIED DATA RELATIVE TO ALL EQUIPMENT, PIPING, CONTROLS, ETC. REQUIRED FOR THE INSTALLATION OF THE HVAC, PLUMBING AND FIRE PROTECTION SYSTEMS. SUBMIT FOR REVIEW ALL NECESSARY ENGINEERING, PRODUCT AND INSTALLATION DATA, SHOP DRAWINGS, SAMPLES ETC. FOR ALL EQUIPMENT, MATERIAL, AND SYSTEMS TO ASCERTAIN COMPLIANCE WITH THE TECHNICAL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

SUBMIT SIX (6) COPIES OF ALL NECESSARY DATA, CUTS, MANUFACTURER'S SELECTIONS, CATALOGS, BULLETINS, INSTALLATION INSTRUCTIONS, DRAWINGS, DIAGRAMS, CURVES, ETC. CLEARLY INDICATE ON THE SUBMITTED DATA, THE MANUFACTURER'S NAME, PRODUCT NUMBER(S), OPTIONS, EQUIPMENT CAPACITY, DIMENSIONAL DATA, WEIGHTS, AND OTHER APPLICABLE TECHNICAL DATA FOR THE PROJECT.

TRADE NAMES, MANUFACTURERS, AND CATALOGUE NUMBERS ARE MENTIONED HEREIN AND ON THE DRAWINGS SOLELY IN ORDER TO ESTABLISH A STANDARD FOR THE TYPE, GENERAL DESIGN, AND QUALITY OF PRODUCT REQUIRED. OTHER PRODUCTS SIMILAR IN DESIGN OF EQUIVALENT QUALITY CAPABLE OF FITTING WITHIN THE SPACES ALLOCATED AND COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS WILL BE CONSIDERED AFTER THE CONTRACT IS LET UNLESS “PRIOR APPROVAL” REQUIREMENTS ARE SET FORTH IN THESE DOCUMENTS.

WHERE TWO OR MORE MANUFACTURERS OR MATERIALS ARE NAMED, THE CONTRACTOR MAY SUBMIT ANY OF THOSE NAMES, PROVIDED THEY CONFORM TO THE SPECIFICATIONS AND DESIGN INTENT. CONTRACTOR SHALL INCLUDE WITH THE SUBMITTAL A LIST OF ALL COMPARATIVE FEATURES INDICATING COMPLIANCE WITH THE SPECIFICATIONS.

THE ARCHITECT AND/OR ENGINEER MAY REQUIRE THE SUBMISSION OF SAMPLES, PARTICULARLY WHEREVER EQUIPMENT OR APPLIANCES ARE VISIBLE IN FINISHED AREAS, SUCH AS CEILINGS, INTERIOR AND EXTERIOR WALLS. THE CONTRACTOR AND SUPPLIER SHALL ARRANGE FOR DEMONSTRATIONS OF THE INSTALLATION OF ANY OF THESE PRODUCTS AND THEIR ABILITY TO PERFORM AS SPECIFIED, IF REQUIRED.

REVIEW OF SUBMITTALS AND SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FITTING THE EQUIPMENT IN THE SPACE ALLOTTED WITH SPACE FOR ALL CONNECTIONS AND SERVICING AND FOR THE COORDINATION OF THE WORK WITH WORK OF OTHER TRADES.

THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS AND SHOP DRAWINGS AND INDICATE BY STAMP OR LETTER THAT HE HAS REVIEWED THEM, BEFORE FORWARDING THEM TO THE ARCHITECT AND/OR ENGINEER. SUBMITTALS AND DRAWINGS WILL BE RETURNED AFTER REVIEW INDICATING WHETHER EXCEPTIONS ARE TAKEN, THE SUBMITTAL RETURNED WITH CORRECTIONS, OR IS COMPLETELY REJECTED. RESUBMISSION OF REVISED SUBMITTALS AND SHOP DRAWINGS, IF REQUIRED, SHALL BE DONE BEFORE INSTALLATION AND CONSTRUCTION IS BEGUN.

CORRECTIONS OR COMMENTS MADE ON THE SUBMITTALS AND DRAWINGS DURING THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, COORDINATING THE WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER. REVIEW OF THE SUBMITTALS SHALL NOT PERMIT ANY DEVIATION FROM PLANS AND SPECIFICATIONS.

SUBMITTALS FOR A SPECIFIC CLASS OF PRODUCTS, SYSTEMS, INSTALLATION PROCEDURES, SHOP DRAWINGS, ETC. WILL BE REVIEWED BY THE ENGINEER ONE TIME AND ITS RESUBMITTAL ONE TIME, IF NECESSARY, AS ABOVE, AT NO COST TO THE CONTRACTOR. THE CONTRACTOR WILL BEAR THE FULL COST FOR ALL SUBSEQUENT RESUBMITTAL REVIEWS AT THE ENGINEER'S STANDARD HOURLY RATES. PAYMENT WILL BE REQUIRED AT COMPLETION OF RESPECTIVE REVIEW.

REQUIRED SHOP DRAWINGS:

SUBMIT THE FOLLOWING SHOP DRAWINGS BEFORE ANY MECHANICAL DUCTWORK, PIPING, EQUIPMENT, ETC. IS FABRICATED AND INSTALLED. SUBMIT THESE SHOP DRAWINGS IN ¼ INCH PER FOOT MINIMUM SCALE WITH NECESSARY PLANS, ELEVATIONS, SECTIONS, DETAILS, AND ISOMETRICS. SUBMIT SIX (6) PAPER COPIES AND ONE (1) CD-ROM WITH ALL THESE DRAWINGS IN AUTOCAD DRAWING DWG FILES, LATEST AUTOCAD FORMAT.

SOON AFTER AWARD OF THE CONTRACT, DETERMINE WHERE THERE MAY BE INSTALLATION, SPACE CONCERNS, AND/OR WHERE OTHER CONFLICTS MAY OCCUR.

SUBMIT COORDINATION DRAWINGS, RELATING TO THESE CONFLICTS WITH THE MECHANICAL EQUIPMENT, DUCT, PIPING, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL SYSTEMS ETC., SHOWING CLEARANCES AND RELATIONSHIP TO STRUCTURAL MEMBERS, PIPING, LIGHTS, CONDUITS, ELECTRICAL EQUIPMENT, AND BUILDING COMPONENTS. IN PREPARING THESE SHOP DRAWINGS, ESTABLISH LINES AND LEVELS FOR ALL DIVISIONS OF THE WORK IN THE AFFECTED AREA. IMMEDIATELY CALL TO THE ATTENTION OF THE ARCHITECT ANY INTERFERENCE OR CONFLICT FOR CLARIFICATION IN WRITING.

SUBMIT SHOP DRAWINGS FOR ALL DUCTWORK.

SUBMIT LAYOUT DRAWINGS OF EACH MECHANICAL SYSTEM SHOWING THE LOCATION, ARRANGEMENT, ETC. OF ALL EQUIPMENT, ALL TRADES, ETC. TO BE INSTALLED RELATED TO THE RESPECTIVE SYSTEM.

15. AS-BUILT DRAWINGS:

MAINTAIN DAILY UPDATED DRAWINGS SHOWING DEVIATIONS FROM CONSTRUCTION DOCUMENTS. AT THE END OF THE PROJECT, PROFESSIONALLY PREPARE AS-BUILT DRAWINGS AND SUBMIT THREE COPIES, ONE REPRODUCIBLE.

16. OPERATION AND MAINTENANCE MANUALS:

UPON COMPLETION OF THE PROJECT, SUBMIT THREE COPIES OF ALL OPERATION AND MAINTENANCE MANUALS, WARRANTIES, SPARE PARTS LIST, AS-BUILT DRAWINGS, TEST AND BALANCE REPORTS, AND LETTER OF GUARANTEE ALL BOUND IN THREE RING BINDERS, CLEARLY SHOWING WHICH EQUIPMENT WAS SUPPLIED TO THE JOB.

17. PROJECT COMPLETION:

BEFORE STARTING AND TESTING ANY SYSTEM, HVAC, OR PLUMBING, TO PREVENT INADVERTENT OPERATION OF THE MECHANICAL EQUIPMENT BEFORE THE MANUFACTURER'S INSPECTION AND TESTING, THE CONTRACTOR SHALL:

VERIFY THAT ALL ELECTRICAL POWER IS OFF TO ALL MECHANICAL EQUIPMENT, INCLUDING THE AHU'S, ACCU'S, BOOSTER PUMPS, FIRE PUMPS, ETC.

LOCK OUT EACH SYSTEM USING SETON MODEL NUMBER 70329; “DO NOT OPERATE” LOCK ON LOCKOUT TAGS, OR EQUIVALENT. INSTALL LOCKOUT TAGS AT EACH PIECE OF EQUIPMENT, ELECTRICAL DISCONNECTS, STARTERS, SWITCHES, ETC.

REMOVE THESE TAGS ONLY WHEN THE MANUFACTURER APPROVES OF THE EQUIPMENT INSTALLATION IN WRITING.

EACH MANUFACTURER OR THEIR REPRESENTATIVE SHALL INSPECT THEIR EQUIPMENT FOR COMPLIANCE TO THEIR INSTALLATION REQUIREMENTS AND RECOMMENDATIONS.

IN ADDITION, THE COMPRESSOR MANUFACTURER SHALL INSPECT EACH REFRIGERANT PIPING INSTALLATION FOR ADHERENCE TO THE APPROVED REFRIGERANT PIPING DIAGRAMS, ROUTING.

EACH MANUFACTURER SHALL PREPARE A PUNCH LIST OF ALL DEFICIENCIES, IN WRITING WITH COPIES TO THE ARCHITECT AND CONTRACTOR.

EACH MANUFACTURER SHALL REINSPECT THE EQUIPMENT AFTER THE CONTRACTOR HAS CORRECTED ALL DEFICIENCIES.

WHEN THE MANUFACTURER HAS GIVEN THEIR WRITTEN APPROVAL WITH COPIES TO THE ARCHITECT AND CONTRACTOR, THE CONTRACTOR MAY REMOVE THE LOCKOUT TAGS, SAFELY START, AND TEST THE EQUIPMENT, AS REQUIRED HEREIN.

CONTRACTOR SHALL PROVIDE FOR ALL NECESSARY DRILLING OF WALL STUDS, CEILING JOISTS, PLATES, FINISHES, ETC. TO ACCOMMODATE ROUTING AND INSTALLATION OF ALL PIPING, DUCT, ETC.

HVAC EQUIPMENT, METHODS AND MATERIALS

18. DUCTWORK GENERAL:

DUCT SIZES SHOWN ON THE DRAWINGS ARE INSIDE DIMENSIONS AND DO NOT TAKE INTO ACCOUNT LINING THICKNESS. DUCTWORK SHALL BE GALVANIZED SHEET METAL WITH GAUGES, CONSTRUCTION DETAILS AND INSTALLATION ACCORDING TO N.F.P.A. STANDARD 90A, ASHRAE, AND SMACNA DUCT CONSTRUCTION MANUALS AND REQUIREMENTS.

PROVIDE FLEXIBLE CONNECTIONS AT AIR HANDLING UNITS AND FANS.

PROVIDE SINGLE THICKNESS TURNING VANES IN ELBOWS.

PAINT DUCTS, SLEEVES, PLENUMS, ETC., INTERIORS VISIBLE THROUGH AIR DEVICES WITH A MINIMUM OF ONE COAT OF PROPER TYPE RUST PREVENTATIVE PRIMER, SUITABLE FOR GALVANIZED STEEL, AND TWO FINISH COATS OF FLAT BLACK PAINT.

19. DUCT CONSTRUCTION MATERIALS:

RECTANGULAR SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST: LINED GALVANIZED SHEET METAL. ROUND DUCT AND RUN-OUTS: EXTERNALLY INSULATED GALVANIZED SHEET METAL DUCTS WITH SPIRAL LOCK SEAMS. FLEXIBLE DUCT: PRE-INSULATED FLEXIBLE DUCT. NO FLEXIBLE DUCT RUNS LONGER THAN 5 FEET.

PROVIDE DRYER VENT PIPING INSTALLED AS REQUIRED BY THE MANUFACTURER AND PER CODE USING 4 INCH ROUND GALVANIZED STEEL, SEALED AND SUPPORTED. THE USE OF FLEXIBLE DRYER VENT PIPE IS PROHIBITED.

20. FABRICATION, ERECTION, AND SUPPORT:

ALL DUCTWORK SHALL BE FABRICATED, ERECTED, BRACED, AND SUPPORTED IN STRICT ACCORDANCE WITH THE LATEST EDITIONS OF SMACNA AND ASHRAE REQUIREMENTS.

21. ACOUSTIC LINED DUCTWORK:

ACOUSTICALLY AND THERMALLY LINE 1O' OF RECTANGULAR SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCT AND PLENUMS WITH 1” THICK, 1 1/2 PCF FIBERGLASS DUCT LINER, APPLIED PER THE MANUFACTURER'S AND NAIMA REQUIREMENTS. DUCT LINER SHALL MEET AND/OR EXCEED ASHRAE'S I.A.Q. STANDARD 62. USE WELDED STICK CLIPS, IN LIEU OF ADHESIVE TYPE FASTENERS AND FULL COVERAGE ADHESIVE. PROVIDE EDGE NOSINGS WHERE REQUIRED. COAT ALL EXPOSED FIBERGLASS WITH HARDCAST “LAG-GRIP 671”.

22. JOINT SEALING:

SEAL ALL DUCT JOINTS AND SEAMS (LONGITUDINAL AND TRANSVERSE) WITH HIGH PRESSURE DUCT SEALER, HARDCAST “IRON-GRIP 601” OR APPROVED EQUIVALENT. REINFORCED FOIL BACKED TAPES, CLOTH OR PLASTIC BACKED TAPES (DUCT TAPE) ARE NOT ACCEPTABLE.

23. FLEXIBLE AIR DUCT:

DUCT SHALL BE UL LISTED UL-181, CLASS I AIR DUCT MATERIAL AND SHALL COMPLY WITH N.F.P.A 90A AND 90B AND ALL LOCAL REQUIREMENTS. DUCT SHALL HAVE AN OPERATING AIR PRESSURE OF 6 INCHES WG POSITIVE AND 4 INCHES WG NEGATIVE, ACOUSTICAL DOUBLE LAMINATED INNER FABRIC BONDED TO A STEEL HELIX WIRE. OUTER JACKET FIRE RETARDANT REINFORCED ALUMINUM MYLAR WITH FIBERGLASS INSULATION. FLEXMASTER TYPE “8M” ACOUSTICAL INSULATED OR EQUIVALENT.

MAKE ALL FLEXIBLE DUCT CONNECTIONS TO HARD DUCT USING STAINLESS STEEL SCREW CLAMPING BANDS AND SEALED AIR TIGHT WITH HIGH PRESSURE DUCT SEALER. PLASTIC BANDS ARE NOT ACCEPTABLE.

SEAL FLEXIBLE DUCT VAPOR BARRIER TO HARD DUCT AND/OR ADJACENT INSULATION. NO EXPOSED FIBERGLASS SHALL BE VISIBLE.

24. AIR DISTRIBUTION DEVICES:

COORDINATE THE EXACT LOCATIONS OF ALL AIR DEVICE NEEDS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION. COORDINATE THE EXACT LOCATION OF EACH OUTLET WITH THE ARCHITECT WITH REGARD TO CEILING AND WALL SPACING, CENTERING ALONG SOFFITS, WALLS, ETC. FURNISH AND INSTALL WHERE SHOWN ON THE DRAWINGS ALL DIFFUSERS, GRILLES, AND REGISTERS OF THE SIZE, TYPE, AND CAPACITY AS INDICATED IN THE AIR DEVICE SCHEDULE.

ELBOWS:

25. TURNING VANES AND SMOOTH RADIUS ELBOW (WITHOUT VANES):

AT ALL DUCT TURNS OF 45 DEGREES OR MORE, PROVIDE SINGLE THICKNESS TURNING VANES PER SMACNA REQUIREMENTS. ALTERNATIVELY, USE SMOOTH RADIUS ELBOW (R/W = 1.5).

26. BRANCH TAKEOFF FITTINGS:

AT ALL MAIN TO BRANCH DUCT TAPS, TAKEOFFS, OR RUN-OUTS, PROVIDE 45 DEGREE ENTRANCE TAPS, AS DETAILED BY SMACNA STANDARDS.

27. DUCT MOUNTED ACCESS PANELS:

INSTALL ACCESS PANELS AS FOLLOWS:

AT INLET OF EACH DUCT MOUNTED FIRE AND MOTORIZED DAMPER.

FOR DUCT MOUNTED CONTROLS.

AS REQUIRED AND DIRECTED BY THE TEST AND BALANCE CONTRACTOR.

WHERE REQUIRED FOR DUCT INSPECTION, MAINTENANCE, AND CLEANING.

ACCESS PANELS SHALL BE 18 INCHES X 18 INCHES OR LARGEST DUCT WILL ALLOW. NORMALLY CENTER THE ACCESS PANEL IN THE BOTTOM OF THE DUCT AS CLOSE AS POSSIBLE TO THE DUCT MOUNTED DEVICE. ACCESS PANELS MAY BE INSTALLED ON THE SIDE OF THE DUCT, WHERE NECESSARY.

ACCESS PANELS SHALL BE DOUBLE WALL INSULATED HINGED WITH NEOPRENE GASKETS AND CAM LOCKS ON EACH UNHINGED SIDE. WHERE REQUIRED BECAUSE OF PANEL OPENING CLEARANCE, SUBSTITUTE UNHINGED ACCESS PANELS WITH CAM LOCKS ON EACH SIDE AND CAPTIVE CHAIN. ACCESS PANELS SHALL BE FLEXMASTER “TBSM-TAB DOOR” GREENHECK MODEL “HAD-10”, OR EQUIVALENT.

28. REFRIGERANT PIPING:

REFRIGERANT PIPING SHALL CONFORM TO THE REQUIREMENTS OF THE SAFETY CODES FOR MECHANICAL REFRIGERATION AND REFRIGERANT PIPING AND THE MANUFACTURER REQUIREMENTS.

RUN ALL PIPING SQUARE TO BUILDING LINES WHEREVER POSSIBLE. FIELD ROUTE PIPING IN ORDER TO PROVIDE FOR EASE OF ACCESS TO VALVES AND OTHER APPURTENANCES.

SUPPORT INTERIOR PIPING FROM THE BUILDING STRUCTURE USING COPPER OR PVC COATED HANGERS. SUPPORT REFRIGERANT PIPING 4 FOOT ON CENTER AND AT EACH CHANGE OF DIRECTION. PROVIDE 4” WIDE INSULATION SADDLES.

SUBMIT REFRIGERANT PIPING LAYOUT SHOP DRAWINGS FOR EACH UNIQUE SYSTEM, REVIEWED AND APPROVED BY THE MANUFACTURER, IN WRITING.

SHOW ALL FILTERS, DRIERS, SIGHT-GLASSES, VALVES, ETC. AS REQUIRED BY THE MANUFACTURER.

USE REFRIGERANT GRADE, TYPE “K” HARD DRAWN COPPER PIPE WITH LONG RADIUS ELBOWS. NO CAST FITTINGS ARE ACCEPTABLE.

INSTALL FILTER DRIER EQUIVALENT TO SPORLAN CATCH-ALL.

INSTALL SIGHT GLASSES WITH MOISTURE INDICATORS COVERED BY A PROTECTIVE CAP. LOCATE THE SIGHT GLASSES INSIDE THE BUILDINGS, CLOSE TO THE FAN COIL IN THEIR RESPECTIVE MECHANICAL CLOSETS.

PROVIDE EXTERNAL FRONT SEATED BRASS SERVICE VALVES WITH SWEAT CONNECTIONS, WITH SERVICE PORTS FOR CHECKING OPERATING REFRIGERANT PRESSURES.

COPPER SHALL BE CLEANED AND SHINED BEFORE BRAZING. BRAZE USING J.W. HARRIS “DYNAFLOW” 6% SILVER BRAZING ALLOY.

PIPING SHALL BE PURGED WITH DRY NITROGEN WHILE BRAZING TO PREVENT OXIDATION. UPON COMPLETION OF A WELD, THE WELD SHALL BE WIPED WITH A DAMP RAG TO REMOVE FLUX WHILE STILL HOT.

ALL PIPING SHALL BE TESTED FOR 24 HOURS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE AND PROVEN TIGHT:

DISCHARGE AND LIQUID REFRIGERANT PIPING--300 PSIG, NITROGEN.

SUCTION REFRIGERANT PIPING--150 PSIG NITROGEN.

REFRIGERANT PIPING, AFTER PROVEN TIGHT, SHALL BE EVACUATED BY MEANS OF AN APPROVED VACUUM PUMP TO A VACUUM OF 2.5 MM HG ABSOLUTE. SYSTEMS SHALL STAND UNDER VACUUM WITH VACUUM PUMP OFF FOR A MINIMUM OF 12 HOURS. SYSTEMS MAY BE CHARGED WITH PROPER REFRIGERANT AFTER ARCHITECT'S APPROVAL OF VACUUM TEST. A DEHYDRATOR SHALL BE USED IN CHARGING HOSE DURING CHARGING OF SYSTEMS WITH REFRIGERANT.

29. GENERAL

THIS SECTION APPLIES TO ALL MECHANICAL WORK.

ALL INSULATION SHALL BE IN STRICT ACCORDANCE WITH ASHRAE STANDARDS AND ALL LOCAL AND STATE ENERGY CODES.

THE INSULATION WORK SHALL BE PERFORMED BY A FIRM REGULARLY ENGAGED IN THIS TYPE WORK USING MECHANICS SKILLED IN THE TRADE.

INSTALL ALL MATERIALS AS RECOMMENDED BY THE MANUFACTURER FOR THE SERVICE INTENDED. ALL INSULATION MATERIAL, INCLUDING SEALER MATERIAL, ADHESIVES, COVERING MATERIAL, FINISH, ETC. SHALL HAVE A U.L. LISTED FLAME SPREAD RATING NOT OVER 24 WITHOUT EVIDENCE OF CONTINUED PROGRESSIVE COMBUSTION AND WITH A SMOKE DEVELOPED RATING NOT HIGHER THAN 50. ALL COATINGS AND COVERINGS FOR HOT SERVICE SHALL BE BREATHER TYPE AND VAPOR BARRIER TYPE FOR COLD SERVICE

HVAC PIPING:

INSULATE REFRIGERANT SUCTION LINES AND ALL CONDENSATE DRAIN LINES WITH 1” THICK CLOSE CELLED ELASTOMERIC INSULATION INSTALLED PER THE MANUFACTURERS REQUIREMENTS. PAINT EXTERIOR INSULATION WITH TWO COATS OF PAINT AS REQUIRED BY THE INSULATION MANUFACTURER.

EXTERNALLY INSULATED DUCTS:

EXTERNALLY INSULATE ALL ROUND SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK WITH 1 1/2” THICK (3/4 LBS/CU. FT. DENSITY) DUCT WRAP WITH ALUMINUM ALL SERVICE JACKET, VAPOR BARRIER, EXCEPT PRE-INSULATED FLEXIBLE DUCT.

30. EQUIPMENT:

CAPACITY, PERFORMANCE AND CHARACTERISTICS OF EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS AND AS SPECIFIED OR IMPLIED HEREIN.

CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INCREASED COST TO HIMSELF OR OTHERS FOR EQUIPMENT WHICH DEVIATES FROM THAT SCHEDULED OR IMPLIED HEREIN. REGARDLESS OF COST AFFECT, THE ARCHITECT MUST APPROVE ANY DEVIATION FROM THE DRAWINGS AND THE SPECIFICATION.

31. MOTORS AND STARTERS:

ALL ELECTRIC MOTORS SHALL BE HIGH EFFICIENCY TYPE WITH MAXIMUM OF 1750 RPM WITH OPEN DRIP PROOF OR TEFC ENCLOSURES, UNLESS OTHERWISE NOTED. MOTORS LOCATED ON AIR HANDLING UNITS SHALL BE MOUNTED IN RUBBER SUPPORTS OR THE FAN SHALL BE INDEPENDENTLY SUPPORTED ON SPRING ISOLATORS. MOTORS LOCATED IN THE CONDITIONED SPACE SHALL BE SELECTED FOR QUIET OPERATION AND SHALL NOT PRODUCE AN OBJECTIONABLE “MOTOR NOISE” IN THE SPACE.

ELECTRICAL CHARACTERISTICS SHALL BE VERIFIED FROM THE ELECTRICAL DRAWINGS, PRIOR TO BIDDING, AND VERIFIED ON THE JOB WITH THE ELECTRICAL SUB-CONTRACTOR. IF A CONFLICT ARISES, THE ELECTRICAL DRAWINGS SHALL BE THE AUTHORITY.

PROVIDE MOTOR STARTERS AND PROPER HEATER ELEMENTS SIZED IN ACCORDANCE WITH NFPA 70. STARTERS SHALL BE SQUARE-D OR EQUIVALENT WITH OVERLOAD TRIP ELEMENT IN EACH PHASE. LARGER MOTORS AND THEIR STARTERS SHALL MEET THE REQUIREMENTS OF THE UTILITY COMPANY AS TO INRUSH ALLOWABLE AND THE TYPE OF STARTING PERMITTED.

SHOULD ANY MECHANICAL EQUIPMENT REQUIRE EXTRA WORK BY OTHER TRADES, FOR PROPER INSTALLATION, THIS CONTRACTOR SHALL BEAR ALL COSTS, SUCH AS INCREASED ELECTRICAL, STRUCTURAL, ROOFING, ETC.

32. SYSTEMS TEST AND BALANCE:

THE REQUIRED TEST & BALANCE OF THE HVAC SYSTEM SHALL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING AGENCY AS SPECIFIED BELOW.

AGENCY QUALIFICATIONS:

TEST & BALANCE AGENCY (TBA) SHALL BE PERFORMED BY AN INDEPENDENT AGENCY ENGAGED SOLELY IN TEST AND BALANCE WORK. AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) AND NATIONAL ENVIRONMENTAL BALANCING BUREAU, (NEBB).

SUBMIT A WRITTEN REPORT WITHIN 30 DAYS OF COMMENCING WORK, WITH ANY RECOMMENDED CHANGES TO INSURE BALANCING CAPABILITY.

SUBMIT A DETAILED TEST PLAN TO THE ARCHITECT ILLUSTRATING ALL FORMATS, DRAWINGS, AND TEST PROCEDURE TO BE USED FOR TESTING THE COMPLETED SYSTEM. THE APPROVED PLAN WILL BE USED FOR TESTING THE SYSTEMS. PROCEDURES SHALL INCLUDE REQUIREMENTS LISTED IN AABC/NEBB STANDARDS, LATEST EDITION AND ANY SPECIAL REQUIREMENTS FOR THIS PROJECT.

MAKE PROJECT VISITS AS REQUIRED DURING CONSTRUCTION PERIOD INSPECTING FOR PROPER INSTALLATION OF THE SYSTEM AND RELATED BALANCING DEVICES. PROJECT VISIT REPORTS SHALL BE MADE TO THE ARCHITECT IN WRITING.

CONTRACTORS REQUIREMENTS PRIOR TO TEST & BALANCE:

THE CONTRACTOR SHALL PERFORM ALL REQUIRED PRELIMINARY TESTS AND OTHER PREPARATORY WORK, INCLUDING BUT NOT LIMITED TO:

MAKE SURE ALL FANS ARE OPERATING, CHECK ROTATION, RPM, AND AMPS. CHECK ALL DAMPERS FOR OPERATION.

PUT ALL HVAC EQUIPMENT IN FULL OPERATION INCLUDING AIR UNITS, ACCU'S AND FANS. MAKE SURE ALL HVAC CONTROLS ARE INSTALLED AND FULLY OPERATIONAL. CLEAN/REPLACE FILTERS JUST PRIOR TO TESTING.

PROVIDE ALL BALANCING DEVICES AND DRIVE CHANGES THAT ARE DEEMED NECESSARY BY T&B AGENCY FOR BALANCE AT NO ADDITIONAL COST TO THE OWNER.

TEST & BALANCE AGENCY SHALL BALANCE ALL AIR SYSTEMS FOR OPERATION WITHIN DESIGN CRITERIA. PRIME MOVERS SHALL BE WITHIN 5% OF DESIGN AND TERMINALS WITHIN 10% OF DESIGN.

AIR SYSTEMS SHALL BE BALANCED AS DESCRIBED HEREIN.

TEST REPORT:

THE TBA SHALL PREPARE FIVE (5) COPIES OF A FINAL COMPREHENSIVE TEST REPORT IN THE FOLLOWING FORMAT.

REPORT SHALL BE BOUND 8-1/2 X 11” WITH SUBSTANTIAL COVERS USING APPROVED FORMS. TYPED OR COMPUTER GENERATED REPORTS ARE ACCEPTABLE.

REPORT SHALL BE INDEXED.

TABLE OF CONTENTS SHALL LIST ALL REPORTS.

ALL AIR OUTLETS SHALL BE LOCATED ON CODED DRAWINGS PREPARED BY THE T&B AGENCY. AIR OUTLETS FORMS SHALL BE PREPARED AND CORRELATED TO THE CODED DRAWINGS.

TEST SUMMARY SHALL DESCRIBE FINAL TEST PROCEDURES AND SPECIAL CONDITIONS DURING TESTS (SUCH AS THERMOSTAT OUTSIDE/RETURN AIR RELATIONSHIP), AND DUCT STATIC PRESSURE. DESCRIBE OTHER DATA THAT MAY ASSIST OPERATING PERSONNEL IN THE CONTINUING OPERATION OF THE SYSTEM.

T&B CONTRACTOR SHALL TAKE AND RECORD ALL NECESSARY READINGS AT THE FINAL BALANCE POINTS, SUCH AS BUT NOT LIMITED TO: AIR QUANTITIES, PRESSURES, SETPOINTS, ENTERING AND LEAVING COIL TEMPERATURES, SPACE INDOOR AND OUTSIDE WET AND DRY BULB TEMPERATURES, OUTDOOR WEATHER CONDITIONS, ELECTRICAL READINGS OF ALL NEW AND EXISTING MOTORS, COMPRESSORS, ETC.

TEST REPORT SHALL CONTAIN TBA CERTIFICATION OF TEST DATA AND SYSTEM CONDITIONS. SUBMIT THE TEST REPORTS, FOR REVIEW, BEFORE SUBSTANTIAL COMPLETION.

END OF MECHANICAL SPECIFICATIONS

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REVISION SCHEDULE

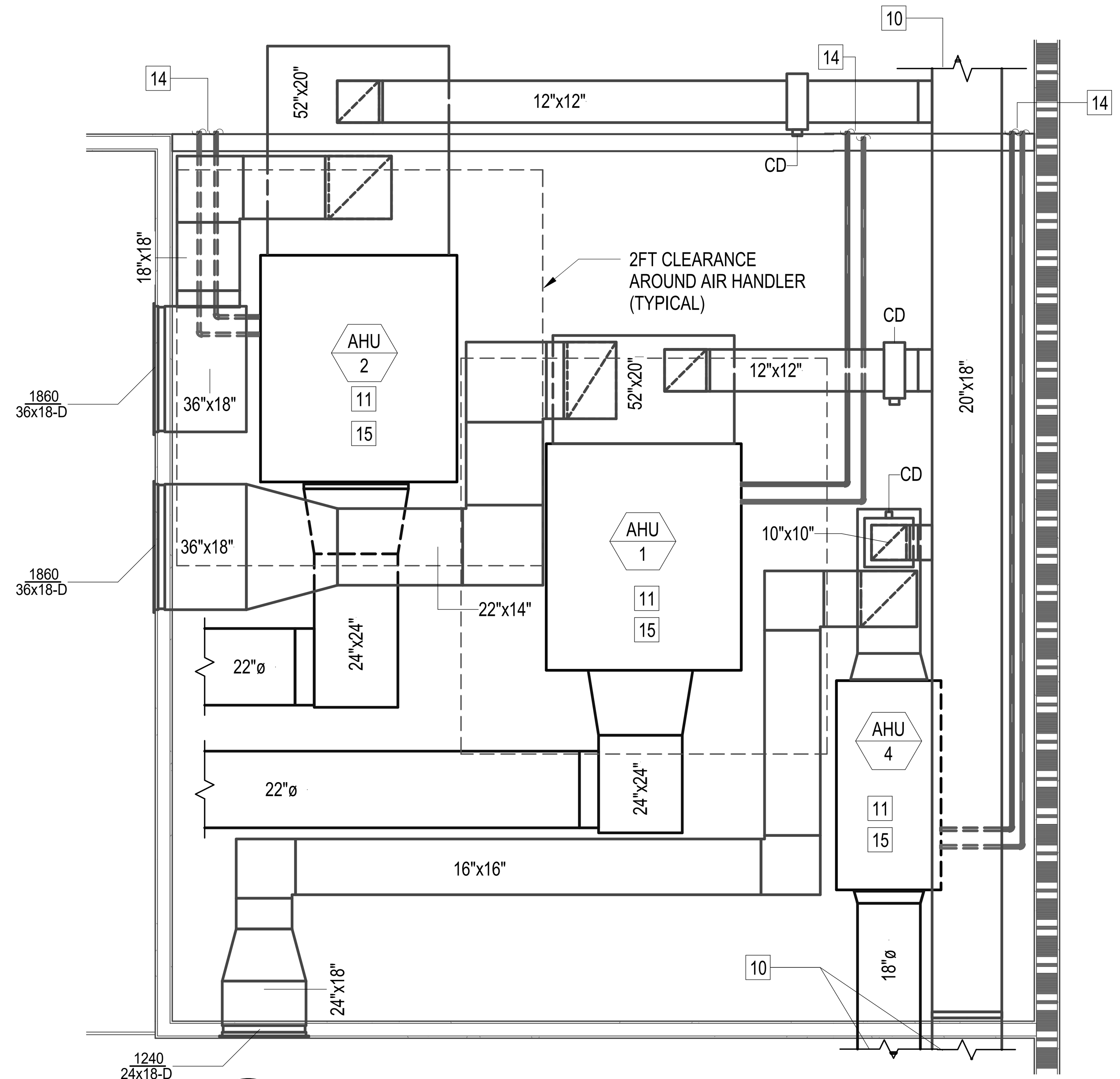
SPECIFICATIONS

PERMIT SET

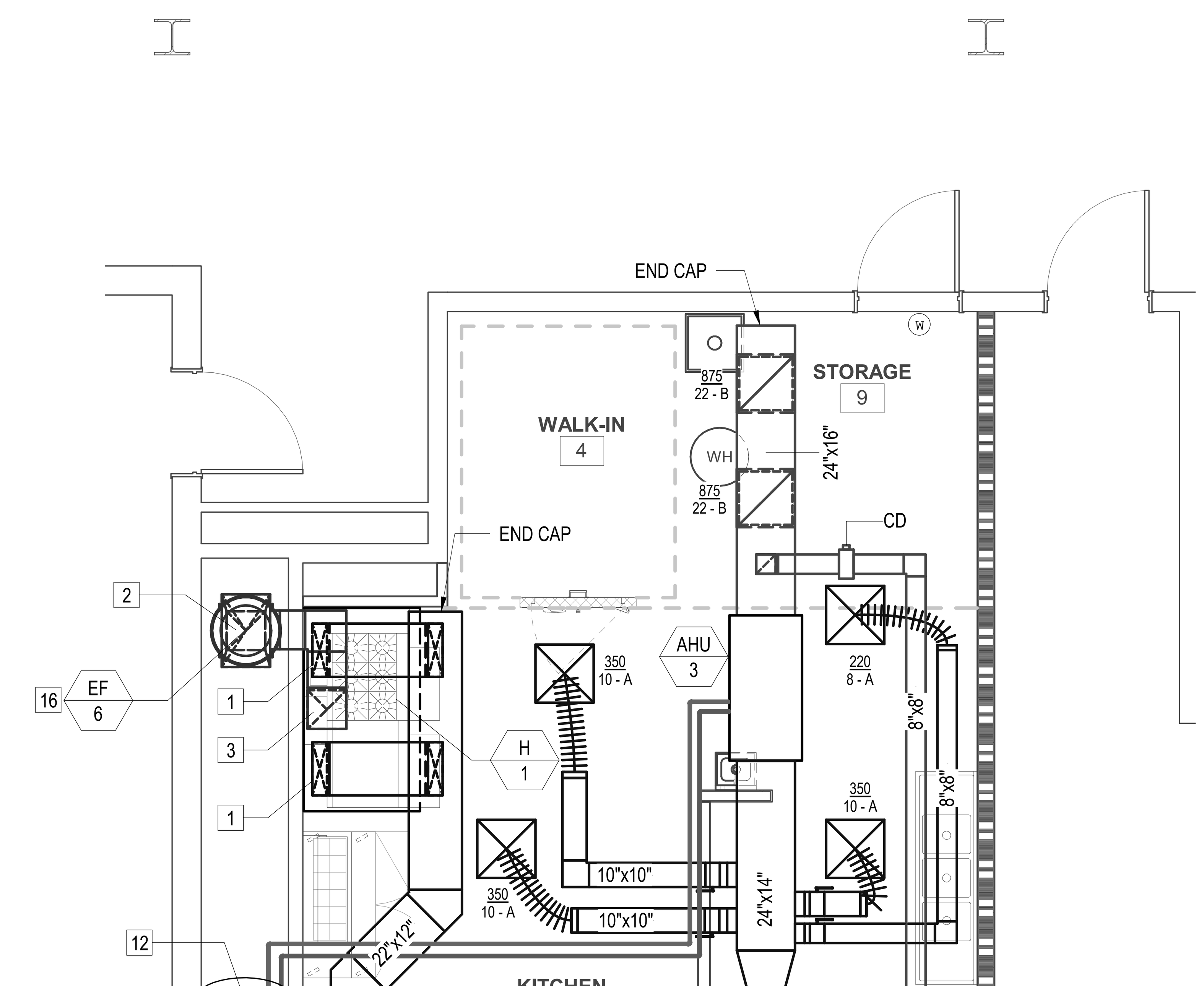
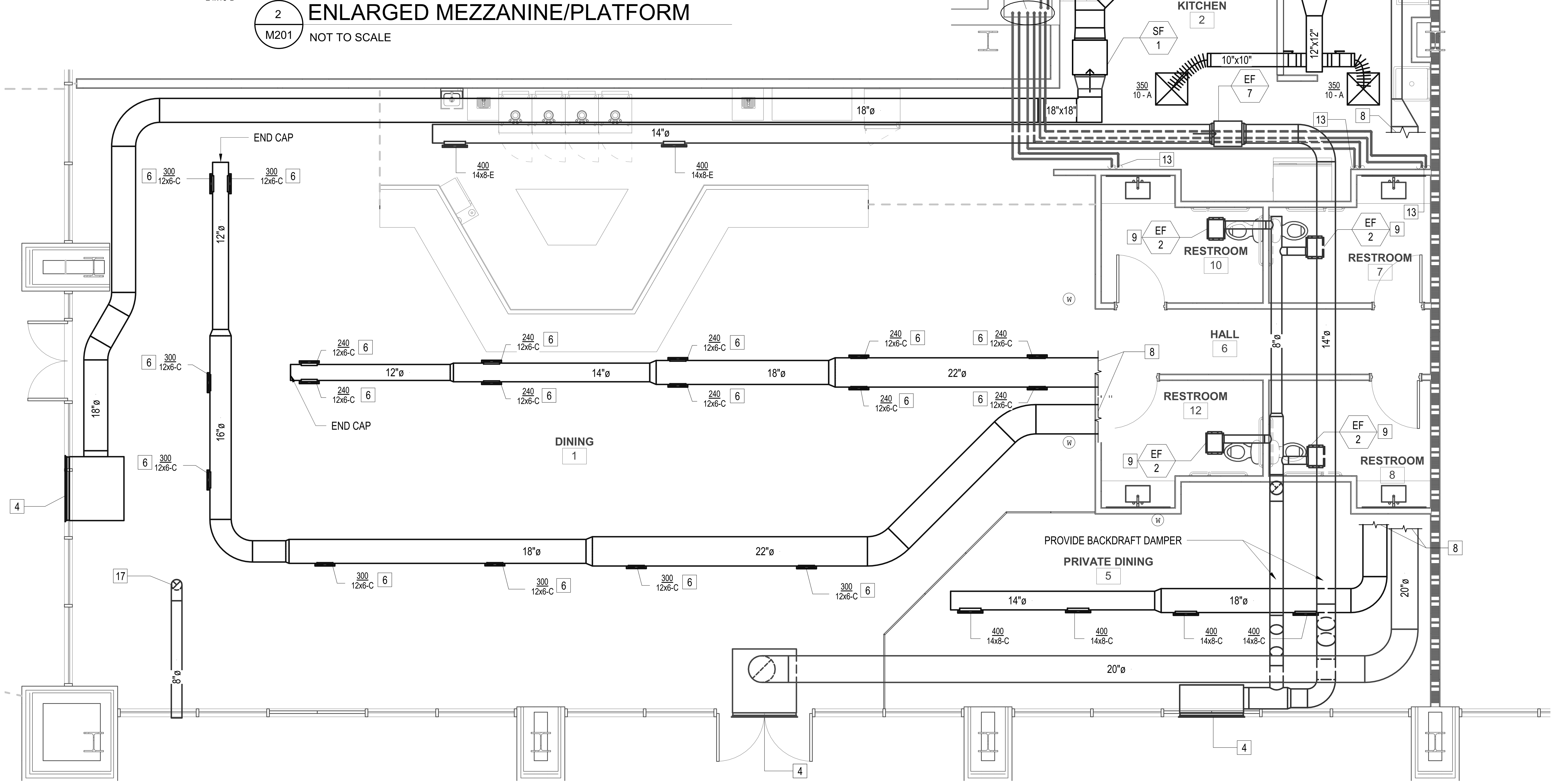
JOHN N. BERG, JR
Lic. No. 051165
09/23/2022

Date: 09/23/22
Drawn: GL Checked: JNB
Project: 221049

M104



2 ENLARGED MEZZANINE/PLATFORM
M201 NOT TO SCALE

1 FIRST FLOOR PARTIAL PLAN
M201 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. ALL EXPOSED DUCTWORK SHALL BE SPIRAL DOUBLE WALL DUCTWORK WITH INTERNAL INSULATION. DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
2. SPIRAL DUCT GRILLES SHALL HAVE CLEAR ANODIZED FINISH.
3. KITCHEN EXHAUST DUCTS CARRYING GREASE LADEN AIR (AND ALL SUPPLY DUCTS LOCATED WITHIN 18" OF A TYPE I EXHAUST HOOD) SHALL BE FACTORY FABRICATED, DOUBLE WALL, INSULATED GREASE DUCT AS MANUFACTURED BY METAL-FAB, METALBESTOS, OR HART & COOLEY. DUCT SHALL BE SUITABLE FOR 0" CLEARANCE TO COMBUSTIBLES. DUCT SHALL CONSIST OF MINIMUM 0.035" THICK STAINLESS STEEL INNER WALL, MINIMUM 0.024" ALUMINIZED STEEL OUTER WALL, AND HIGH TEMPERATURE CERAMIC INSULATION. DUCT SHALL BE CLASSIFIED UNDER UL 1978 AND UL 2221 AND SHALL COMPLY WITH NFPA-96. DUCT SYSTEM SHALL BE RATED AS REQUIRED BY VUSBC. GREASE DUCT SYSTEM SHALL INCLUDE ALL SUPPORTS, FITTINGS, ROOF PENETRATIONS, EXPANSION JOINTS, ETC. AS NECESSARY FOR A FULL AND PROPER INSTALLATION. GREASE DUCT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SHOP DRAWING SHALL INCLUDE A SKETCH SHOWING THE ASSEMBLY OF ALL SECTIONS. PROVIDE GREASE CLEANOUTS AND SLOPE DUCTS AS REQUIRED BY VUSBC.

SHEET KEYED NOTES:

1. 22x6 MAKE-UP AIR DUCT DOWN TO HOOD SUPPLY AIR PLENUM. BALANCE EACH SUPPLY BRANCH TO 700 CFM (TOTAL=1400 CFM).
2. EXISTING 30x30 I.D. GREASE DUCT RISER UP TO EF-6 ON ROOF.
3. 16x16 I.D. GREASE EXHAUST DUCT FROM HOOD DISCHARGE. TIE INTO EXISTING 30x20 I.D. GREASE DUCT RISER. WRAP GREASE DUCT WITH 3M FIRE WRAP. GREASE DUCT SHALL BE SLOPED AT 1/4" PER FOOT TOWARD THE HOOD OR TOWARD A GREASE RESERVOIR.
4. EXISTING 48x24 WALL LOUVER. PROVIDE 24" DEEP INSULATED PLENUM BOX BEHIND LOUVER.
5. BOTTOM OF SUPPLY DUCT SHALL BE 13'-0" +/- 6" ABOVE FINISHED FLOOR.
6. INSTALL DUCT MOUNTED SUPPLY GRILLES AT 50° DOWN FROM HORIZONTAL. ADJUST BLADES FOR EVEN DISTRIBUTION.
7. AH-1 & AH-2 SHALL BE LOCATED ON PLATFORM ABOVE BATHROOM AND HALL CEILING. PLATFORM SHALL BE AT LEAST 2'-0" ABOVE CEILING.
8. SEE ENLARGED MEZZANINE/PLATFORM PLAN THIS SHEET FOR CONTINUATION OF DUCTWORK.
9. 6" EXHAUST DUCT FROM BATHROOM CEILING FAN.
10. SEE FIRST FLOOR PARTIAL PLAN THIS SHEET FOR CONTINUATION OF DUCTWORK.
11. AIR HANDLER IN THE HORIZONTAL CONFIGURATION LOCATED ON PLATFORM ABOVE RESTROOM AND HALL CEILING. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL DETAILS ON THE PLATFORM.
12. REFRIGERANT LINE SETS (LIQUID & GAS) DOWN IN CHASE TO OUTDOOR HEAT PUMP UNITS LOCATED BELOW IN PARKING AREA. SEE SHEET #M301 FOR APPROXIMATE LOCATION.
13. SEE ENLARGED PLAN THIS SHEET FOR CONTINUATION OF REFRIGERANT PIPING TO AIR HANDLERS ON MECHANICAL PLATFORM.
14. SEE FIRST FLOOR PARTIAL PLAN THIS SHEET FOR CONTINUATION OF REFRIGERANT PIPING.
15. ROUTE FULL SIZE CONDENSATE DRAIN FROM AHU TO NEAREST PRIMARY STORM DRAIN RISER. CONTRACTOR SHALL FIELD VERIFY ROUTING AND EXACT TIE-IN LOCATION. INSULATE WITHIN THE BUILDING ALL CONDENSATE DRAIN LINES WITH 3/4" THICK ARMAFLEX INSULATION.
16. UPBLAST EXHAUST FAN ON ROOF, EF-6. FAN IS SHOWN FOR REFERENCE. PROVIDE ANY TRANSITIONS AND FITTINGS REQUIRED TO CONNECT TO THE EXISTING 30x20 GREASE DUCT RISER AT THE ROOF LEVEL.
17. PROVIDE 8" DIAMETER EXHAUST FLUE FOR SUSPENDED GAS FIREPLACE. MANUFACTURER TO PROVIDE POWER EXHAUST FAN WITH WEATHERPROOF JUNCTION BOX FOR HORIZONTAL TERMINATION. COORDINATE EXACT LOCATION OF FIREPLACE WITH ARCHITECTURAL DRAWINGS.

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REVISION SCHEDULE

MECHANICAL NEW WORK PLANS

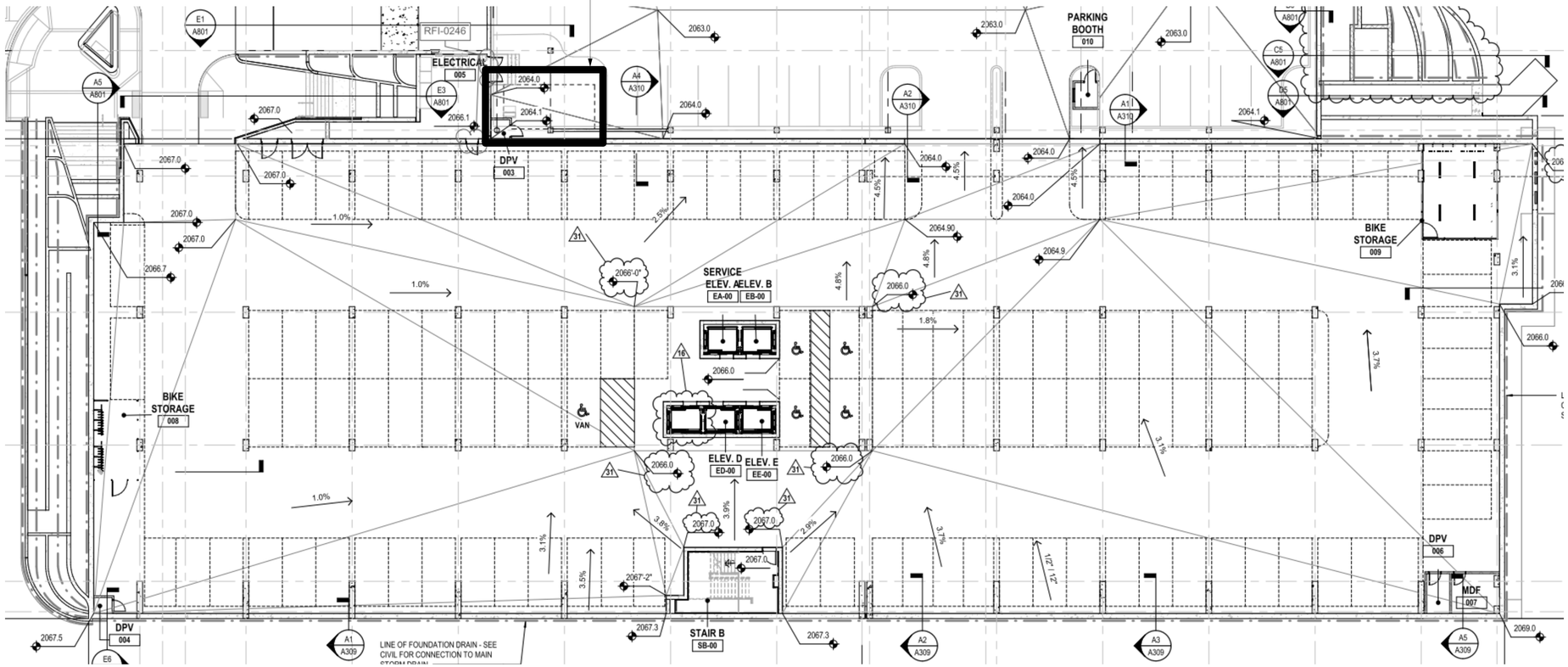
PERMIT SET

COMMONWEALTH OF VIRGINIA
JOHN N. BERG, JR
Lic. No. 051165
09/23/2022
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: JNB Checked: JNB
Project: 221049

M201

PROPOSED LOCATION OF OUTDOOR HEAT PUMP UNITS HP-1, HP-2, HP-3. & HP-4.



1 / M301 PROPOSED HEAT PUMP LOCATION

1/4" = 1'-0"

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REVISION SCHEDULE

NO.	DESCRIPTION	DATE

VIEWS FOR REFERENCE

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M301

ELECTRICAL LEGEND

	PANELBOARD, 208Y/120-VOLT, 3-PHASE, 4-WIRE, MOUNTING HEIGHT = 6'-0" TO TOP. SEE PANELBOARD SCHEDULES.
	DISCONNECT SWITCH, EXTERNALLY OPERATED, 250V, 3-POLE UNLESS OTHERWISE NOTED. NOTATION INDICATES NUMBER OF POLES AND AMPERAGE CAPACITY. 'NF' INDICATES NON-FUSED. COORDINATE WITH MECHANICAL CONTRACTOR FOR DISCONNECTS TO BE PROVIDED WITH EQUIPMENT.
	BRANCH CIRCUIT HOME RUN TO PANELBOARD. NOTATION INDICATES PANELBOARD & BRANCH CIRCUIT CONNECTION.
J	JUNCTION BOX. SEE NOTATION AND PANEL SCHEDULE FOR CONNECTED EQUIPMENT.
	DUPLEX WALL RECEPTACLE, MOUNTING HEIGHT = 1'-6". 'GF' SUBSCRIPT INDICATES GROUND FAULT, 'WP' INDICATES GFI WEATHERPROOF, 'EWC' INDICATES GFI BEHIND ELECTRIC WATER COOLER, '" INDICATES MOUNTED HEIGHT = 8" ABOVE COUNTER, 'USB' INDICATES DUPLEX WITH USB PORTS, 'REF' INDICATES REFRIGERATOR RECEPTACLE MOUNTED 36" AFF.
	QUAD-PLEX WALL RECEPTACLE, MOUNTING HEIGHT = 1'-6". SEE DUPLEX OUTLET FOR SIMILAR SUBSCRIPT DESIGNATIONS.
	SPECIAL PURPOSE RECEPTACLE. COORDINATE WITH EQUIPMENT PROVIDER FOR CORRECT CORD AND PLUG COMBINATION.
	2-JACK DATA SYSTEM OUTLET, MOUNTING HEIGHT = 1'-6" UNLESS INDICATED OTHERWISE. PROVIDE 1" CONDUIT FROM BOX TO ABOVE ACCESSIBLE CEILING. PROVIDE TWO CAT-6 CABLES BACK TO NETWORK SWITCH. WHERE MOUNTED BESIDE COUNTER RECEPTACLE, MOUNT SAME HEIGHT AS RECEPTACLE.
AP	CEILING MOUNTED POE WIRELESS ACCESS POINT, PROVIDE CAT-6 CABLE BACK TO NETWORK SWITCH. COORDINATE EXACT LOCATIONS WITH OWNER.
TV	WALL MOUNTED TV LOCATION, M.H. = 5'-6" AFF. PROVIDE DUPLEX RECEPTACLE, 1-JACK DATA OUTLET WITH ONE CAT-6 CABLE BACK TO NETWORK SWITCH, AND COAX OUTLET WITH COAX CABLE BACK KITCHEN HR LOCATION.
F	FIRE ALARM SYSTEM MANUAL PULL STATION. MOUNTING HEIGHT = 4'-0" TO TOP. 'WP' SUBSCRIPT WHEN USED INDICATES WEATHERPROOF DEVICE.
F	FIRE ALARM SYSTEM ALARM HORN, WITH VISUAL ALARM, CEILING MOUNTED.
F	FIRE ALARM SYSTEM ALARM HORN, WITH VISUAL ALARM, WALL MOUNTED. 'WP' SUBSCRIPT WHEN USED INDICATES WEATHERPROOF DEVICE.
V	FIRE ALARM SYSTEM VISUAL ALARM, CEILING MOUNTED. UNLESS INDICATED OTHERWISE.
S	CEILING MOUNTED SMOKE DETECTOR. 'D' SUBSCRIPT INDICATES DUCT SMOKE DETECTOR. COORDINATE LOCATION OF DUCT SMOKE DETECTOR WITH MECHANICAL EQUIPMENT.

	PENDANT LIGHTING FIXTURE, TYPE 'A'.
	BAR CHANDELIER LIGHTING FIXTURE, TYPE 'B'.
	RECESSED DOWNLIGHT LIGHTING FIXTURE, TYPE 'C'.
	WALL SCONCE LIGHTING FIXTURE, TYPE 'D'.
	2X2 GRID MOUNTED LIGHTING FIXTURE WITH FLAT LENS, TYPE 'E'.
	4' WALK-IN STRIP LIGHTING FIXTURE, TYPE 'F'.
	LIGHTING TRACK KIT AND TRACK HEAD LIGHTING FIXTURES, TYPE 'G'.
	EMERGENCY BATTERY WALL PACK, TYPE 'W'.
	EXIT LIGHTING FIXTURE WITH BATTERY BACKUP, SURFACE WALL MOUNTED, DIRECTIONAL ARROWS AS INDICATED, TYPE 'X'.
	EXIT LIGHTING FIXTURE WITH BATTERY BACKUP, SURFACE CEILING MOUNTED, DIRECTIONAL ARROWS AS INDICATED, TYPE 'X'.
OS	DUAL TECHNOLOGY, OCCUPANCY SENSOR FOR LIGHTING CONTROL.
S	SINGLE-POLE SWITCH, MOUNTING HEIGHT = 4'-0" TO TOP. LOWER CASE SUBSCRIPT, WHEN USED, INDICATES FIXTURES CONTROLLED. '3' SUBSCRIPT INDICATES THREE-WAY SWITCH, '4' INDICATES FOUR-WAY SWITCH, 'M' INDICATES MOTION CONTROLLED, 'D' INDICATES DIMMER SWITCH, 'WP' INDICATES WEATHERPROOF.
A	LIGHTING FIXTURE TYPE. SEE LIGHTING FIXTURE SCHEDULE.
	POE SECURITY CAMERA BY OWNER, ROUGH IN AND DATA CABLING BY CONTRACTOR. COORDINATE EXACT LOCATIONS WITH OWNER.

LEGEND NOTES:

1. ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE UNLESS INDICATED OTHERWISE.
2. LIGHTING FIXTURE CROSSHATCH INDICATES INTEGRAL EMERGENCY BATTERY PACK, 1400 LUMENS.
3. 'NL' SUBSCRIPT BY LIGHTING FIXTURE INDICATES NIGHTLIGHT TO REMAIN UNSWITCHED.

GENERAL NOTES

1. MOUNTING HEIGHT OF LIGHTING FIXTURES IS TO BOTTOM OF FIXTURE AND AWAY FROM FINISHED FLOOR OR GRADE.
2. MOUNT OUTLET BOXES SO THAT NONE OCCUR BACK TO BACK IN WALLS.
3. MECHANICAL EQUIPMENT IS SHOWN IN APPROXIMATE LOCATIONS. FOR EXACT LOCATIONS OF MECHANICAL EQUIPMENT AND PIPING, SEE MECHANICAL DRAWINGS.
4. FOR 120 VOLT, 20 AMP BRANCH CIRCUITS USE 12 AWG UP TO 60 FEET, 10 AWG FOR 61-95 FEET, AND 8 AWG FOR CIRCUITS LONGER THAN 96 FEET. WHETHER INDICATED IN PANEL SCHEDULES OR NOT. CONDUCTORS SHALL BE SAME SIZE FOR ENTIRE LENGTH OF RUN.
5. REVISE PANELBOARD SCHEDULES ON AS-BUILT-DRAWING AND PANEL DIRECTORIES TO REFLECT FINAL INSTALLATION CONDITIONS.
6. SEAL PENETRATIONS THROUGH FLOORS OR FIRE WALLS TO MAINTAIN THE INTEGRITY OF THE FIRE AND ACOUSTIC RATINGS OF THE WALLS AND FLOORS.
7. LOCATE ALL RACEWAYS TO AVOID INTERFERENCE WITH DUCTS, PIPES, MECHANICAL EQUIPMENT, WITH REMOVAL OF CEILING TILES, OR WITH ACCESS TO EQUIPMENT WHICH REQUIRES PERIODIC ADJUSTMENT OR MAINTENANCE.
8. PROVIDE NAMEPLATES ON THE EXTERIOR OF ALL ELECTRICAL PANELS, DISCONNECTS AND ENCLOSURES WITH THE DEVICE ID, RATING, POWER SOURCE AND INSTALLATION DATE AND BY WHICH SWITCH OR STARTER.
9. FIRE ALARM SYSTEM TO BE INSTALLED COMPLETE AND TO ALL APPLICABLE CODES.
10. PROVIDE 4' x 8' x 3/4" PAINTED PLYWOOD FOR BACKBOARD IN SERVER ROOM. SEE POWER & DATA PLAN FOR INDICATED LOCATIONS.
11. LIGHT FIXTURE TYPE IS SHOWN ONLY ONCE AS TYPICAL FOR THE ENTIRE ROOM UNLESS SPECIFICALLY INDICATED OTHERWISE.
12. UNLESS INDICATED OTHERWISE, SIZE CONDUITS IN ACCORDANCE WITH NFPA 70.
13. COORDINATE WITH THE MECHANICAL CONTRACTOR TO ENSURE ALL WORKING CLEARANCE AND DEDICATED WORKING SPACE OF PANELBOARDS.
14. ALL UNDERGROUND CONDUITS NEED PULL CORDS / ROPES SUITABLE FOR WIRE TO BE INSTALLED.
15. PROVIDE A LABEL ON ALL RECEPTACLE FACE PLATES INDICATING WHICH PANELBOARD AND CIRCUIT FEEDS THAT RECEPTACLE.
16. COORDINATE WITH ACCESS CONTROL SYSTEM AND PROVIDE ALL NECESSARY CONNECTIONS FOR CONDUIT AND WIRE.
17. GROUNDING CONDUCTORS ARE NOT INDICATED IN BRANCH CIRCUIT RACEWAYS. PROVIDE GROUND CONDUCTORS AS REQUIRED BY NEC.
18. ALL LIGHT FIXTURE MANUFACTURES ARE LISTED TO ESTABLISH STANDARD REQUIREMENTS FOR PERFORMANCE, MATERIAL AND APPEARANCE. PROVIDE SPECIFIED FIXTURE OR EQUAL. COORDINATE ALL FIXTURE FINISHES WITH ARCHITECT.
19. CEILING GRID MOUNTED DEVICES ARE TO BE CENTERED WITHIN CEILING GRID TILES. INCLUDING, BUT NOT LIMITED TO, RECESSED CAN LIGHTING FIXTURES, OCCUPANCY SENSORS, AND FIRE ALARM DEVICES.
20. OCCUPANCY SENSORS SHOULD CONTROL ALL LIGHTING IN ROOMS, UNLESS INDICATED OTHERWISE.
21. PROVIDE PLASTIC BUSHING ON THE END OF ALL CONDUIT.
22. NO SHARING OF NEUTRAL CONDUCTORS.
23. NEW FIRE ALARM CIRCUITS AND DEVICES ARE TO BE CONNECTED BACK TO EXISTING FIRE ALARM CONTROL PANEL AND SYSTEM. PROVIDE ALL DEVICES NECESSARY FOR EXTENDING THE EXISTING SYSTEM.
24. COORDINATE WORK SCHEDULE WITH OWNER FOR WORK TO BE COMPLETED THROUGH EXISTING OCCUPIED BUILDING SPACES.
25. EMERGENCY LIGHTING GTD OPERATION IS TO OVERRIDE LOCAL CONTROLS FOR EMERGENCY EGRESS. PROVIDE CONTROL CIRCUITING BACK TO LIFE SAFETY ATS TO DETERMINE EMERGENCY OPERATION.
26. COORDINATE WITH MECHANICAL CONTRACTOR TO PROVIDE POWER TO MOTORIZED DAMPERS OR VALVES WHERE REQUIRED. USE #12 WIRE FROM SPARE 20 AMP BREAKER IN NEAREST NORMAL POWER ELECTRICAL PANEL.
27. ALL LOW VOLTAGE WIRING IS TO BE RAN IN CONDUIT FOR ENTIRE LENGTH INCLUDING BUT NOT LIMITED TO ALL DATA, FIRE ALARM, ACCESS CONTROL, SECURITY.

ELECTRICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	G	GROUND	OS	OCCUPANCY SENSOR
C	CONDUIT	GF / GFI	GROUND FAULT INTERRUPTER	PNL	PANEL
CB	CIRCUIT BREAKER	GTD	GENERATOR TRANSFER DEVICE	REF	REFRIGERATOR
ELEC	ELECTRICAL	JB	JUNCTION BOX	SCH	SCHEDULE
EMG	EMERGENCY	LTG	LIGHTING	SWBD	SWITCHBOARD
EQUIP	EQUIPMENT	MECH	MECHANICAL	TYP	TYPICAL
EWC	ELECTRIC WATER COOLER	MCB	MAIN CIRCUIT BREAKER	WAP	WIRELESS ACCESS POINT
FA	FIRE ALARM	MLO	MAIN LUGS ONLY	WP	WEATHERPROOF
FAA	FIRE ALARM ANNUNCIATOR	NF	NON-FUSED	XFMR	TRANSFORMER
FACP	FIRE ALARM CONTROL PANEL	NL	NIGHTLIGHT		

CODES & STANDARDS

NFPA 70: NATIONAL ELECTRICAL CODE	2017
NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE	2016
VECC: VIRGINIA ENERGY CONSERVATION CODE	2018

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

GENERAL NOTES & LEGEND

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

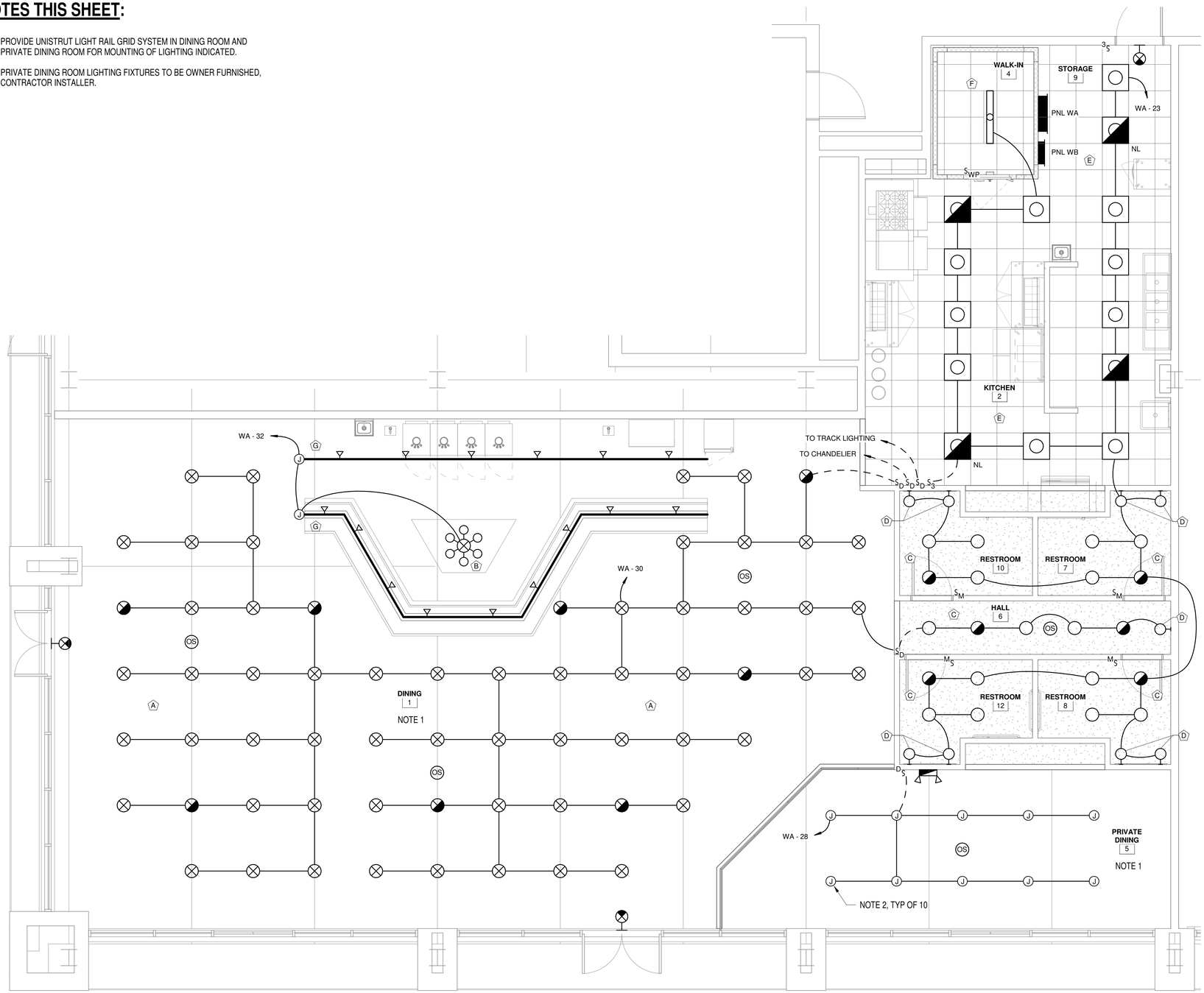
Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-001

Plotted on: 9/28/2022 5:09:56 PM

NOTES THIS SHEET:

1. PROVIDE UNISTRUT LIGHT RAIL GRID SYSTEM IN DINING ROOM AND PRIVATE DINING ROOM FOR MOUNTING OF LIGHTING INDICATED.
2. PRIVATE DINING ROOM LIGHTING FIXTURES TO BE OWNER FURNISHED, CONTRACTOR INSTALLER.



LIGHTING NEW WORK PLAN

1/4" = 1'-0"

Plotted on: 9/28/2022 5:09:57 PM

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LIGHTING NEW WORK PLAN

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DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

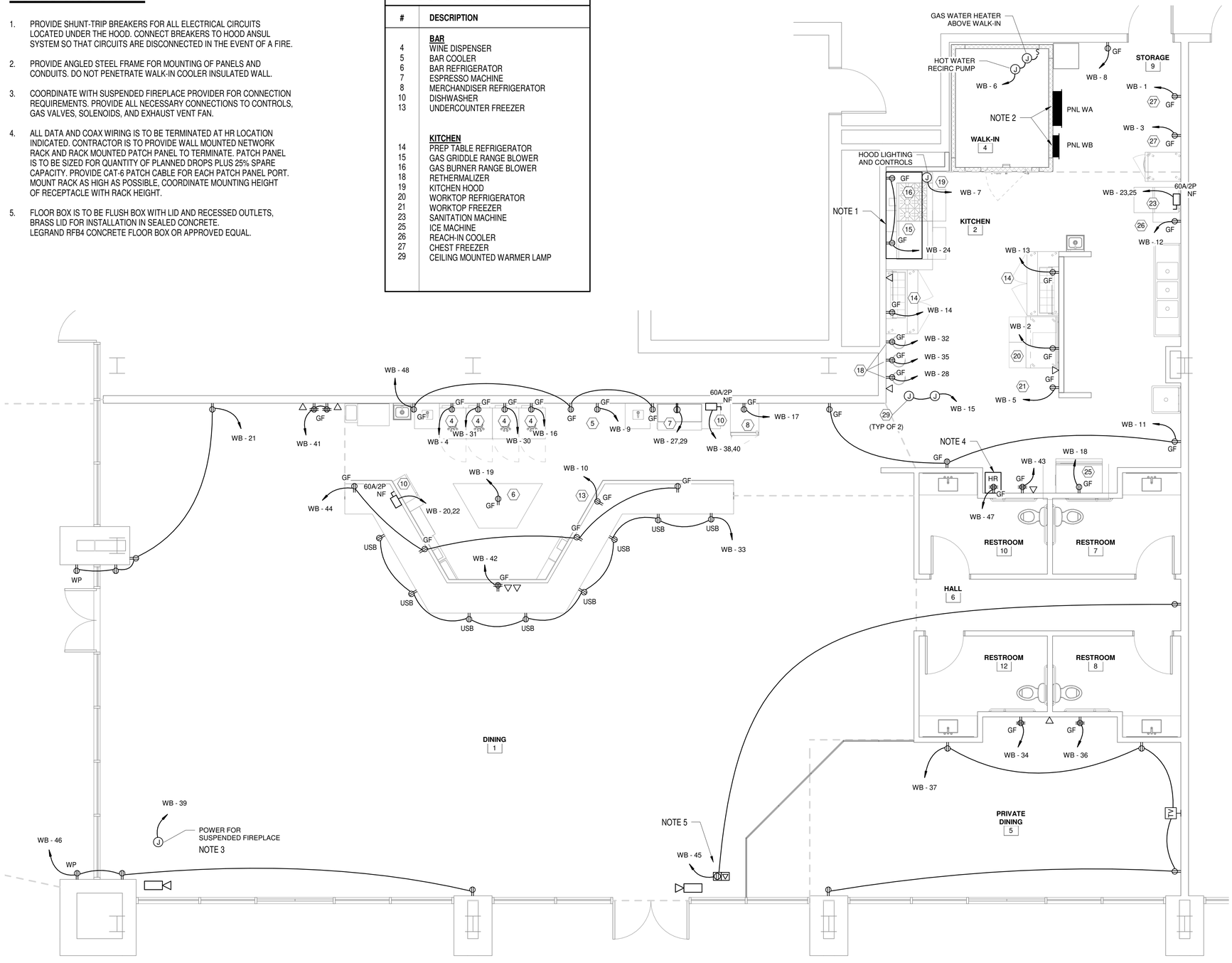
E-101

NOTES THIS SHEET:

1. PROVIDE SHUNT-TRIP BREAKERS FOR ALL ELECTRICAL CIRCUITS LOCATED UNDER THE HOOD. CONNECT BREAKERS TO HOOD ANSUL SYSTEM SO THAT CIRCUITS ARE DISCONNECTED IN THE EVENT OF A FIRE.
2. PROVIDE ANGLED STEEL FRAME FOR MOUNTING OF PANELS AND CONDUITS. DO NOT PENETRATE WALK-IN COOLER INSULATED WALL.
3. COORDINATE WITH SUSPENDED FIREPLACE PROVIDER FOR CONNECTION REQUIREMENTS. PROVIDE ALL NECESSARY CONNECTIONS TO CONTROLS, GAS VALVES, SOLENOIDS, AND EXHAUST VENT FAN.
4. ALL DATA AND COAX WIRING IS TO BE TERMINATED AT HR LOCATION INDICATED. CONTRACTOR IS TO PROVIDE WALL MOUNTED NETWORK RACK AND RACK MOUNTED PATCH PANEL TO TERMINATE. PATCH PANEL IS TO BE SIZED FOR QUANTITY OF PLANNED DROPS PLUS 25% SPARE CAPACITY. PROVIDE CAT-6 PATCH CABLE FOR EACH PATCH PANEL PORT. MOUNT RACK AS HIGH AS POSSIBLE, COORDINATE MOUNTING HEIGHT OF RECEPTACLE WITH RACK HEIGHT.
5. FLOOR BOX IS TO BE FLUSH BOX WITH LID AND RECESSED OUTLETS, BRASS LID FOR INSTALLATION IN SEALED CONCRETE. LEGRAND RFB4 CONCRETE FLOOR BOX OR APPROVED EQUAL.

EQUIPMENT SCHEDULE

#	DESCRIPTION
	BAR
4	WINE DISPENSER
5	BAR COOLER
6	BAR REFRIGERATOR
7	ESPRESSO MACHINE
8	MERCHANDISER REFRIGERATOR
10	DISHWASHER
13	UNDERCOUNTER FREEZER
	KITCHEN
14	PREP TABLE REFRIGERATOR
15	GAS GRIDDLE RANGE BLOWER
16	GAS BURNER RANGE BLOWER
18	RETHERMALIZER
19	KITCHEN HOOD
20	WORKTOP REFRIGERATOR
21	WORKTOP FREEZER
23	SANITATION MACHINE
25	ICE MACHINE
26	REACH-IN COOLER
27	CHEST FREEZER
29	CEILING MOUNTED WARMER LAMP



POWER & DATA NEW WORK PLAN

1/4" = 1'-0"

Plotted on: 9/28/2022 5:09:58 PM

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REVISION SCHEDULE

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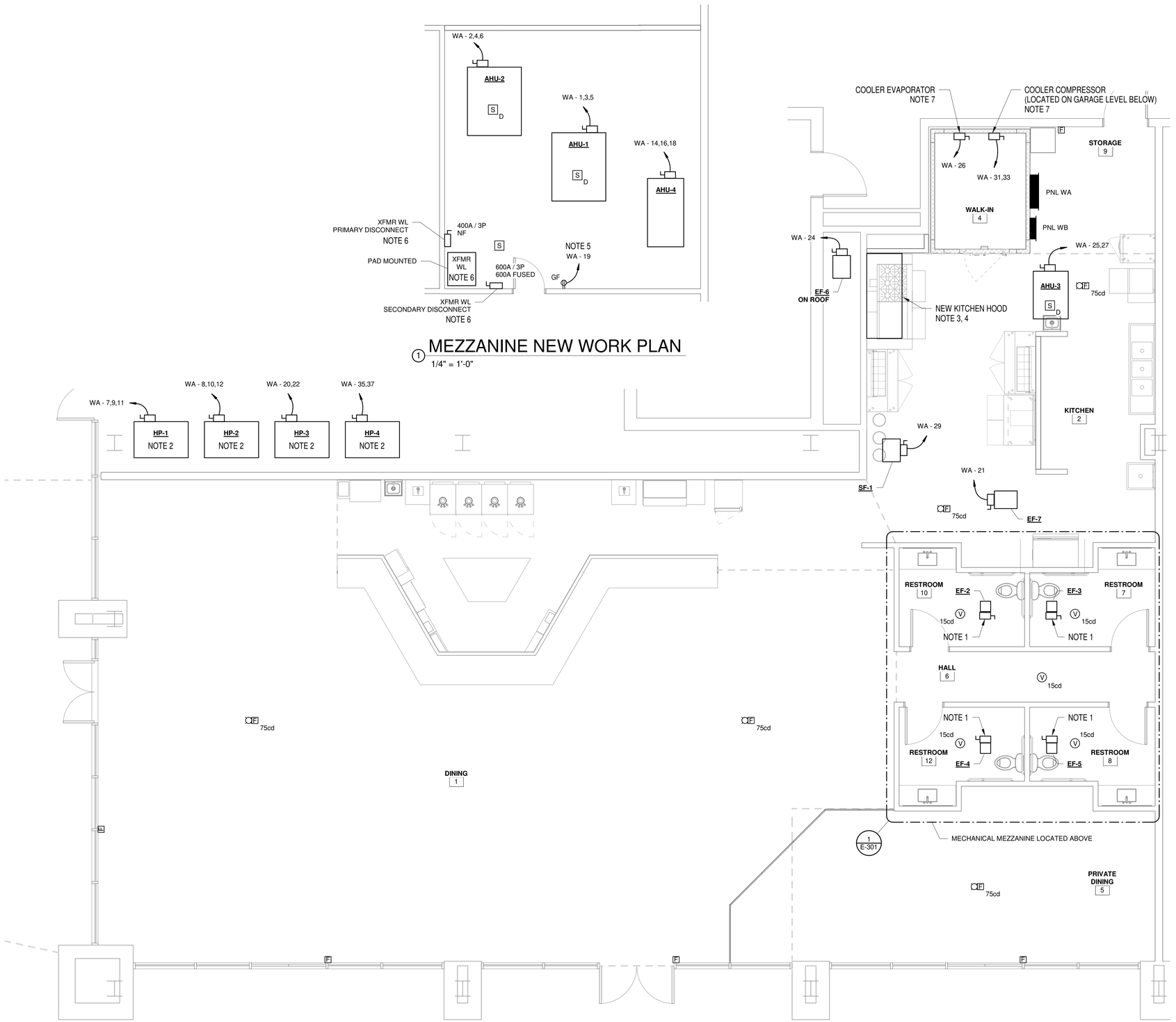
POWER & DATA NEW WORK PLAN

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-201



1 MEZZANINE NEW WORK PLAN

1/4" = 1'-0"

FIRE ALARM & MECHANICAL EQUIPMENT NEW WORK PLAN

1/4" = 1'-0"

GENERAL NOTES THIS SHEET:

1. NEW FIRE ALARM DEVICES INDICATED ARE TO BE CONNECTED TO EXISTING BUILDING FIRE ALARM SYSTEM. FIELD VERIFY NEAREST CONNECTION POINT AND SYSTEM REQUIREMENTS WITH OWNER.

NOTES THIS SHEET:

1. CONNECT NEW RESTROOM EXHAUST FAN TO ROOM LIGHTING CIRCUIT. FAN IS TO BE SWITCHED WITH RESTROOM LIGHTING.
2. NEW EXTERIOR HEAT PUMPS ARE TO BE LOCATED ON GARAGE LEVEL BELOW. HEAT PUMPS ARE SHOWN FOR CIRCUIT REFERENCE ONLY. COORDINATE EXACT LOCATIONS OF UNITS WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
3. PROVIDE CONNECTION BETWEEN BUILDING FIRE ALARM SYSTEM AND HOOD FIRE SUPPRESSION SYSTEM. IN THE EVENT OF A FIRE, THE HOOD SHALL NOTIFY THE FIRE ALARM SYSTEM AND DISCONNECT POWER AND GAS TO ALL EQUIPMENT LOCATED UNDER THE HOOD.
4. COORDINATE WITH KITCHEN HOOD MANUFACTURER INSTALLATION INSTRUCTIONS FOR ALL CONTROL CONNECTIONS TO BE FIELD WIRED BY CONTRACTOR; INCLUDING ALL CONTROL CONNECTIONS BETWEEN HOOD AND SUPPLY AND EXHAUST FANS.
5. CONNECT (3) MOTORIZED CONTROL DAMPERS OF OUTSIDE AIR DUCTS IN MEZZANINE TO CONVENIENCE RECEPTACLE CIRCUIT SHOWN. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS OF CONTROL DAMPERS AND REQUIRED CONNECTIONS.
6. E.C. IS TO FIELD COORDINATE WITH MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR TO ENSURE ALL REQUIRED CLEARANCES ARE MET FOR ELECTRICAL EQUIPMENT LOCATED IN MEZZANINE.
7. COORDINATE WALK-IN COOLER ELECTRICAL REQUIREMENTS WITH EQUIPMENT TO BE PROVIDED. PROVIDE ANY ADDITIONAL CIRCUITS, WIRING, OR DEVICES NECESSARY FOR COMPLETE OPERATION.

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REVISION SCHEDULE

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FA & MECH EQUIPMENT NEW WORK PLAN

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-301

Plotted on: 9/28/2022 5:10:00 PM

PANEL: WA

LOCATION: STORAGE 12 **VOLTS:** 120/208 Wye **BUS RATING:** 600 A
SUPPLY FROM: UTILITY - THRU XFMR WL **PHASE:** 3 **MAIN RATING:** MLO
PNL TYPE: SURFACE **WIRE:** 4 **KAIC RATING:** 42

CKT	DESCRIPTION	*	TRIP	POLES	PHASE A (kVA)		PHASE B (kVA)		PHASE C (kVA)		POLES	TRIP	*	DESCRIPTION	CKT
1					9.5	9.5									2
3	AHU-1		100 A	3			9.5	9.5			3	100 A		AHU-2	4
5									9.5	9.5					6
7					3.4	3.4									8
9	HP-1		45 A	3			3.4	3.4			3	45 A		HP-2	10
11									3.4	3.4					12
13					15.4	6									14
15	PANEL WB		225 A	3			16.6	6			3	70 A		AHU-4	16
17									15.6	6					18
19	RCPT MEZZANINE		20 A	1	0.2	2.7					2	50 A		HP-3	20
21	EF-7		20 A	1			1.2	2.7							22
23	LTG KITCHEN, RESTROOMS		20 A	1					0.8	1.7	1	20 A		EF-6 HOOD EXHAUST	24
25	AHU-3		60 A	2	4.5	0.5					1	20 A		WALK-IN EVAPORATOR	26
27							4.5	0.3			1	20 A		LTG PRIVATE DINING	28
29	SF-1 HOOD SUPPLY		20 A	1					1.7	1.4	1	20 A		LTG DINING ROOM	30
31	WALK-IN COMPRESSOR		30 A	2	1.8	0.3					1	20 A		LTG BAR	32
33							1.8	0			--	--		SPACE ONLY	34
35	HP-4		40 A	2					3	0	--	--		SPACE ONLY	36
37					3	0					--	--		SPACE ONLY	38
39	SPARE		20 A	1			0	0			--	--		SPACE ONLY	40
41	SPARE		20 A	1					0	0	--	--		SPACE ONLY	42
			TOTAL LOAD:		59998 VA		58701 VA		55790 VA						
			TOTAL AMPS:		504 A		493 A		465 A						

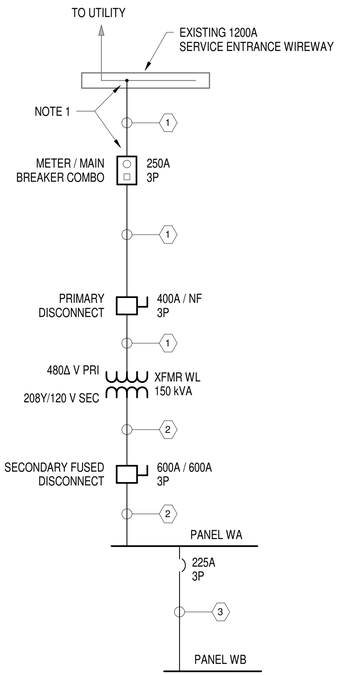
NOTES:

PANEL: WB

LOCATION: STORAGE 12 **VOLTS:** 120/208 Wye **BUS RATING:** 225 A
SUPPLY FROM: PANEL WA **PHASE:** 3 **MAIN RATING:** MLO
PNL TYPE: SURFACE **WIRE:** 4 **KAIC RATING:** 22

CKT	DESCRIPTION	*	TRIP	POLES	A		B		C		POLES	TRIP	*	DESCRIPTION	CKT
1	RCPT KIT CHEST FREEZER		20 A	1	0.1	0.3					1	20 A		RCPT KIT WORKTOP REF	2
3	RCPT KIT CHEST FREEZER		20 A	1			0.1	0.3			1	20 A		RCPT BAR WINE DISPENSER	4
5	RCPT KIT WORKTOP FREEZER		20 A	1					0.2	0.4	1	20 A		GAS WATER HEATER	6
7	HOOD LIGHTING AND CONTROLS		20 A	1	0.3	0.2					1	20 A		RCPT KIT CONVENIENCE	8
9	RCPT BAR COOLER		20 A	1			0.3	0.3			1	20 A		RCPT BAR U.C. FREEZER	10
11	RCPT KIT CONVENIENCE		20 A	1					0.5	0.6	1	20 A		RCPT KIT REACH-IN COOLER	12
13	RCPT KIT FOOD PREP REF		20 A	1	0.7	0.7					1	20 A		RCPT KIT FOOD PREP REF	14
15	KIT CEILING WARMER LAMPS		20 A	1			0.5	0.3			1	20 A		RCPT BAR WINE DISPENSER	16
17	RCPT BAR MERCH REF		20 A	1					0.6	1.3	1	20 A		RCPT KIT ICE MACHINE	18
19	RCPT BAR U.C. REF		20 A	1	0.3	3.2					2	40 A		BAR DISHWASHER	20
21	RCPT DINING		20 A	1			0.7	3.2							22
23	KIT SANITATION MACHINE		40 A	2					3.3	1	1	20 A	1	RCPT KIT RANGE BLOWER	24
25					3.3	0					--	--		<SPACE FOR SHUNT TRIP>	26
27	RCPT BAR ESPRESSO MACHINE		50 A	2			3.9	0.8			1	20 A		RCPT KIT RETHERM	28
29									3.9	0.3	1	20 A		RCPT BAR WINE DISPENSER	30
31	RCPT BAR WINE DISPENSER		20 A	1	0.3	0.8					1	20 A		RCPT KIT RETHERM	32
33	RCPT USB BAR		20 A	1			1.4	0.4			1	20 A		RCPT PRIVATE DINING	34
35	RCPT KIT RETHERM		20 A	1					0.8	0.4	1	20 A		RCPT PRIVATE DINING	36
37	RCPT PRIVATE DINING		20 A	1	0.9	3.2					2	40 A		BAR DISHWASHER	38
39	SUSPENDED FIREPLACE		20 A	1			0.3	3.2							40
41	RCPT BAR POS STATION		20 A	1					0.7	0.4	1	20 A		RCPT BAR POS STATION	42
43	RCPT KITCHEN HR		20 A	1	0.4	0.7					1	20 A		RCPT BAR GENERAL PURPOSE	44
45	RCPT DINING		20 A	1			0.4	0.5			1	20 A		RCPT DINING	46
47	RCPT NETWORK RACK		20 A	1					0.4	0.9	1	20 A		RCPT BAR GENERAL PURPOSE	48
49	SPARE		20 A	1	0	0					1	20 A		SPARE	50
51	SPARE		20 A	1			0	0			1	20 A		SPARE	52
53	SPARE		20 A	1					0	0	1	20 A		SPARE	54
55	SPARE		20 A	1	0	0					1	20 A		SPARE	56
57	SPARE		20 A	1			0	0			1	20 A		SPARE	58
59	SPARE		20 A	1					0	0	1	20 A		SPARE	60
61	SPACE ONLY		--	--	0	0					--	--		SPACE ONLY	62
63	SPACE ONLY		--	--			0	0			--	--		SPACE ONLY	64
65	SPACE ONLY		--	--					0	0	--	--		SPACE ONLY	66
67	SPACE ONLY		--	--	0	0					--	--		SPACE ONLY	68
69	SPACE ONLY		--	--			0	0			--	--		SPACE ONLY	70
71	SPACE ONLY		--	--					0	0	--	--		SPACE ONLY	72
			TOTAL LOAD:		15359 VA		16552 VA		15593 VA						
			TOTAL AMPS:		128 A		138 A		130 A						

NOTES:
1. PROVIDE SHUNT-TRIP BREAKERS FOR ALL ELECTRICAL CIRCUITS LOCATED UNDER THE KITCHEN HOOD.



ONE LINE DIAGRAM
NO SCALE

FEEDER SCHEDULE

#	FEEDER	RATING
1	3-250 MCM, 1-#4 G, 2 1/2" C	250A
2	2 SETS (4-350 MCM, 1-#1 G, 3" C)	600A
3	4-#4/0, 1-#4 G, 2 1/2" C	225A

NOTES THIS SHEET:

1. PROVIDE NEW SERVICE TAP FROM RETAIL SPACE SERVICE ENTRANCE WIREWAY LOCATED IN BASEMENT ELECTRICAL ROOM. FIELD COORDINATE EXACT LOCATION WITH OWNER. PROVIDE NEW 250A MAIN BREAKER / METER CENTER COMBO IN ELECTRICAL ROOM.

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER	MODEL	LAMP TYPE	LUMENS	WATTS	VOLTS	MOUNTING	DESCRIPTION
A			LED		20	120	PENDANT	DINING ROOM PENDANT. TO BE SELECTED BY ARCHITECT.
B			LED		100	120	PENDANT	BAR CHANDELIER. TO BE SELECTED BY ARCHITECT.
C	JUNO	JSF 5IN	LED	700	10	120	SURFACE	SHALLOW PUCK DOWNLIGHT FIXTURE. PROVIDE EMPTY BACK BOX FOR NON-EMG FIXTURES.
D			LED		10	120	WALL	ARCHITECTURAL WALL SCONCE. TO BE SELECTED BY ARCHITECT.
E	LITHONIA	2GTL2 - 40	LED	4000	34	120	GRID	2X2 FLAT PANEL KITCHEN FIXTURE.
F	LITHONIA	FEM - L48 - 4000LM - LPAFL - WD	LED	4000	24	120	SURFACE	WALK-IN COOLER UTILITY STRIP LIGHT.
G			LED		10	120	TRACK	TRACK AND TRACK MOUNTED LIGHT HEADS. TO BE SELECTED BY ARCHITECT.
W	LITHONIA	EU2L - B	LED	N/A	1	120	WALL	EMERGENCY BATTERY WALL PACK. BLACK HOUSING.
X	LITHONIA	LHQM - B - R	LED	N/A	5	120	SURFACE	EMERGENCY EXIT SIGN WITH BATTERY BACKUP. BLACK HOUSING, RED LETTERS.

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

ELECTRICAL DETAILS

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-401

SECTION 16000

ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide new lighting, power, and low voltage systems as indicated on the plans. Project is a new two-story dental office.

1.2 QUALITY ASSURANCE

A. General

a. Comply with IEEE C2, "National Electrical Safety Code".

b. IEEE Compliance: Comply with applicable Institute of Electrical and Electronics Engineers, Inc. standards pertaining to generator construction.

c. NEC Compliance: Comply with NFPA 70, "National Electrical Code" as applicable to construction and installation of products required in this specification.

d. UL and NEMA Compliance and Labeling: Provide products which have been labeled by Underwriters Laboratories and have been certified to comply with UL requirements.

e. IEEE Compliance: Comply with STD 241, "IEEE Recommended Practice for Electrical Power Systems in Commercial Buildings" pertaining to communication systems.

B. MOTOR CONTROLLERS

a. UL and NEMA Compliance and Labeling: Provide products which have been labeled by Underwriters' Laboratories and have been certified to comply with UL and NEMA.

C. LIGHTING

a. NEMA Compliance: Comply with applicable requirements of NEMA Stds. Pub/No.'s LE 1 and LE 2 pertaining to lighting equipment.

b. UL Compliance: Comply with UL standards, including UL 486A and B, pertaining to lighting fixtures. Provide lighting fixtures and components which are UL-listed and labeled. Provide exterior fixtures with "Suitable for Wet Location" label.

c. CBM Labels: Provide fluorescent lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.

1.3 COORDINATION OF ELECTRICAL WORK

A. General: Refer to the division sections for general coordination requirements applicable to the entire work. It is recognized that the contract documents are diagrammatic in showing certain physical relationships which must be established within the electrical work and in its interface with other work including utilities and mechanical work and that such establishment is the exclusive responsibility of the Contractor.

a. Arrange electrical work in a neat, well organized manner with conduit and similar services running parallel with primary lines of the building construction and with the maximum headroom possible, but a minimum 7'-0" overhead clearance.

b. Locate operating and control equipment properly to provide easy access and arrange entire electrical work with adequate access for operation and maintenance.

c. Advise other trades of openings required in their work for the subsequent move-in of large units of electrical equipment.

d. Coordinate all work, including power outages, with Owner's Schedule of Operation.

B. Product Handling: Space at the project for storage of materials and products is limited. Coordinate the deliveries of electrical materials and products with the scheduling and sequencing of the work so that storage requirements at the project are minimized. In general, do not deliver individual items of electrical equipment to the project substantially ahead of the time of installation.

1.3 ELECTRICAL SYSTEM IDENTIFICATION

A. Conduit Systems: Provide adequate marking of primary conduits which are exposed or concealed in accessible spaces. to distinguish each run as either a power or signal/communication conduit. Except as otherwise indicated, use orange banding with black lettering. Provide self-adhesive or snap-on type plastic markers. Indicate voltage ratings of conductors where above 240 V. Locate markers at ends of conduit runs, near switches and other control devices and near items of equipment served by the conductors. Switch-leg conduit and short branches for power connections need not be marked, except where conduit is larger than 1 inch. Label all junction boxes with branch circuit numbers terminated within.

B. Identification Labels and Warning Signs: Provide engraved plastic-laminate or baked enamel labels on major units of electrical equipment including switchboards, panelboards, motor controllers, disconnect switches, signal and similar systems. Label shall include equipment identification mark and voltage characteristics and shall be melamine plastic, 0.125-inch thick, white with black center core. Provide warning signs where there is hazardous exposure or danger associated with access to or operation of electrical facilities. Provide text of sufficient clarity and lettering of sufficient size, minimum 0.25 inch nominal block style, to convey adequate information at each location; mount permanently in an appropriate and effective location.

1.4 PAINTING ELECTRICAL WORK

A. General: Except as otherwise indicated, comply with the applicable provisions of Division 9 for electrical-work painting. Electrical equipment shall have factory-applied painting systems which shall meet the requirements of NEMA ICS6. The work of this article shall include general field painting of electrical work.
a. Coordinate the painting with the painting of other work of a similar nature and comply with indicated color and color matching requirements. Except as otherwise indicated, paint surfaces of electrical work which would normally be painted in the application and exposure indicated.

B. Do not paint over nameplates on equipment, sliding/rotating shaft surfaces, non-ferrous hardware/accessories/trim and similar items where painting would normally be omitted.

1.5 ELECTRICAL SYSTEM PERFORMANCE

A. General: The overall system performances of electrical work are of even greater importance than the specified individual unit-of-work performances. Each unit of electrical work has been designed and specified to perform at minimum levels of output and efficiency and is intended to contribute to and be compatible with the entire system. Compatibility of actual performances by electrical system performances is the Contractor's responsibility.

B. Adjustments: Where it has been determined that electrical systems do not or will not perform in compliance with the specified performances, adjustments or corrections shall be made to the work as necessary to achieve required performances.

1.6 ELECTRICAL WORK CLOSEOUT

A. Additional Service: Perform services within the above 12-month period not classified as routine maintenance or as warranty work as described in Division 1 Section "Warranties and Bonds" when authorized in writing. Compensation for additional services must be agreed upon in writing prior to performing services.

B. Closeout Coordination: Coordinate closeout operations with closeout of mechanical systems and other power consuming equipment.

C. Record Drawings: Maintain a blue-line set of electrical contract drawings and/or shop drawings in clean, undamaged condition, for indication of major electrical equipment or concealed lines located in position other than that shown on the contract drawings. Mark-up whatever drawings are most capable of showing installed conditions accurately. In general, record every substantive installation of electrical work which previously is either not shown or shown inaccurately, specifically record the following:
a. Work concealed behind or within other work, in a nonaccessible location.
b. Main feeders with switchgear, panelboards, and control devices located, identified and numbered. This information shall be displayed in a glazed, hardwood frame, minimum two (2) feet square, near the main service disconnect.
c. Maintenance procedures and schedules.
d. Testing procedures and acceptable parameters.

G. Cleaning and Lubrication: After final testing of each electrical system, clean system both externally and internally. Comply with manufacturer's instructions for lubrication of both power and hand operated equipment. Touch-up minor damage to factory-painted finishes and provide one pint of touch-up paint for each color of major equipment installed.

1.10 SUBMITTALS

A. LIGHTING

1. Product Data: Submit manufacturer's product data and installation instructions on each type building lighting fixture photocell, contactor and component.
2. Shop Drawings: Submit fixture shop drawings where specifically indicated in booklet form with separate sheet for each fixture, assembled in "luminaire type" alphabetical or numerical order, with proposed fixture and accessories clearly indicated on each sheet.
3. Maintenance Data: Submit maintenance data and parts list for each lighting fixture and accessory; including "trouble-shooting" maintenance guide. Include that data, product data, and shop drawings in a maintenance manual.

PART 2 - PRODUCTS

2.1 CABLE AND WIRE

A. Provide factory-fabricated wire or cable of the size, rating, material and type as indicated for each service in compliance with NECA - Standard of Installation. Where not indicated, provide proper selection as determined by the work requiring the installation to comply with NEC standards. Conductors shall be rated 600 volt of insulation type THW, THWN, THHN, or USE installed in compliance with National Electrical Code requirements.

B. Provide bonding conductors for sizes No. 8 AWG and smaller of solid bare copper per ASTM B 1, and for sizes No. 6 AWG and larger stranded bare copper per ASTM B 8.

C. No. 10 AWG and smaller diameter shall be solid copper; No. 8 AWG and larger diameter shall be stranded copper.

D. Provide color coding for service, feeder, branch, control, and signaling circuit conductors. Color shall be green for grounding conductors and white for neutrals; except where neutrals of more than one system are installed in same raceway or box, other neutral shall be white with colored (not green) stripe. Color of ungrounded conductors in different voltage systems shall be as follows:
a. 120/208 volt, 3-phase:
i. Phase A - black.
ii. Phase B - red.
iii. Phase C - blue.

E. Provide the following types of cables in NEC approved locations and applications where indicated. Provide cable UL listed for its intended use.
a. Metal clad cable: Type MC.

F. Provide UL 486A, factory-fabricated, solderless, metal connectors of the size, ampacity, rating, material, type and class as indicated for each service. Where not indicated, provide proper selection as determined by the work requiring the installation to comply with NEC standards. Provide insulating tape in compliance with UL 510.

2.2 ELECTRICAL RACEWAYS

A. Metal Conduit, Tubing and Fittings: Provide metal conduit, tubing and fittings of type, grade, size and weight indicated for each service. Where type and grade are not indicated, provide proper selection as determined by the work requiring the installation to comply with NEC standards for wiring requirements.

a. Rigid Steel Conduit: ANSI C80.1, UL 6.
b. Intermediate Steel Conduit (Zinc Coated Steel): UL 1242.
c. Rigid Metal Conduit Fittings: UL 514B, cadmium- or zinc- coated threaded type.
d. Electrical Metal Tubing (EMT): ANSI C80.3, UL 797.
e. EMT Fittings: UL 514B, compression or set-screw type
f. Flexible Metal Conduit: Cadmium- or zinc-coated steel.
g. Flexible Metal Conduit Fittings: UL 514B, cadmium- or zinc-coated.
h. Liquid-Tight Flexible Metal Conduit: UL 360, provide liquid-tight flexible metal conduit comprised of single strip, continuous, flexible, interlocked, double-wrapped steel, galvanized inside and outside; forming smooth internal wiring channel; with liquid-tight jacket of flexible polyvinyl chloride.
i. Liquid-Tight Flexible Metal Conduit Fittings: FS W-F-406.

B. Wireways: Electrical wireways shall be of types, sizes, and number of channels as indicated. Fittings and accessories including but not limited to couplings, offsets, elbows, expansion joints, adapters, hold-down straps, and end caps shall match and mate with wireway as required for complete system. Where features are not indicated, select to fulfill wiring requirements and comply with applicable provisions of NEC. Wireway covers shall be hinged type.

2.3 ELECTRICAL OUTLET BOXES AND FITTINGS

A. Interior Outlet Boxes: UL 514A, provide galvanized flat rolled sheet steel interior outlet wiring boxes, flush mounted of type, shapes and sizes, including box depths, to suit each respective location and installation; construct with stamped knockouts in back and sides, and with threaded screw holes with corrosion-resistant screws for securing box covers and wiring devices. Provide feraloy cast outlet boxes where surface mounted with threaded conduit hubs to suit each respective location and installation.

B. Weatherproof Outlet Boxes: Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, of types, shapes and sizes, with threaded conduit ends, cast metal face plates with spring-hinged waterproof caps suitably configured for each application, including faceplate gaskets and corrosion-resistant fasteners. Weatherproof while in operation.

2.4 WIRING DEVICES

A. General: Provide factory-fabricated wiring devices, in types, colors and electrical ratings for applications indicated and complying with NEMA Standards Publication No. WD 1. Where types and grades are not indicated, provide proper selection as determined by installer to fulfill wiring requirements, and comply with NEC and NEMA standards for wiring devices. Provide receptacles with isolated ground and/or surge protection where indicated.

B. Receptacles:
a. Duplex Convenience Receptacles: 125 V, 20 A. Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R unless otherwise indicated, and UL 498. Side wiring.
b. Ground Fault Receptacle: Provide ground fault protected duplex receptacle
i. Provide with cast aluminum weatherproof cover where indicated to be WP while in operation.

C. Switches:
a. Snap: UL 20, provide general duty flush single-pole toggle switches, 20-amperes, 120-277 volts AC only, with mounting yoke insulated from mechanism, equip with plaster ears, ivory switch handle and side wired screw terminals. Single pole, Three-way and Four-way as indicated on drawings.
b. Motion Sensing, Ceiling Mounted: Provide dual technology ultrasonic and passive infrared or microphonic and passive infrared motion detector, manual off switch, 0 to 4800 watt fluorescent switching capacity, 120 volts AC, 360 sensing coverage, six to 15 minute off time delay, LED walk test indicator, bypass switch, 5-year warranty, UL listed, Universal Energy Control (UNENCO) Switchomatic. Coordinate with connected wattage and type of room light fixtures.

D. Wiring Device Accessories:
a. Wall Plates: Provide UL listed, one-piece device plates for outlets and fittings to fit the device installed. For flush-mounted outlets on finished walls, provide white switch and outlet plates of types, sizes and with ganging and cutouts as indicated. Install with metal screws for securing plates to devices; screw heads colored to match finish of plate.
b. For surface mounted boxes, provide feraloy cast outlet plates on all outlet boxes, type suitable for wiring device installed in box.
c. Provide plate with engraved legend where indicated.

2.5 SAFETY AND DISCONNECT SWITCHES

A. General: UL 98, NEMA KS1, provide surface-mounted, sheet-steel enclosed switches, of types, sizes and electrical characteristics indicated; 3-blades, 4-wire with amperage rating as required, 60 hertz and visible blades with door in open position. Provide with safety handle which is easily recognizable and is capable of being padlocked in the open position and operating mechanism for quick-make and quick-break. Current carrying parts of high-conductivity copper, with silver-tungsten type switch contacts. Provide NEMA 1 type enclosures indoors and NEMA 3R type enclosures with raintight hubs outdoors.
B. Provide General Duty Type: 240 volts AC, Type GD. Heavy Duty Type: 600 volts AC.

C. Switches used as motor disconnect means shall be horsepower rated. Fused switches shall utilize Class R fuseholder and fuses unless indicated otherwise or recommended by equipment manufacturer.

2.6 ELECTRICAL GROUNDING AND BONDING EQUIPMENT

A. General: UL 467. Provide grounding products of types indicated and of sizes and ratings as required by NEC. Provide all material required including but not necessarily limited to, cable/wire, connectors, terminals (solderless lugs), grounding rods/electrodes, bonding jumper braid and other items and accessories needed for a complete installation. Where more than one type meets indicated requirements, selection is installer's option. Where materials or components are not otherwise indicated, provide products complying with NEC, and established industry standards.
B. Electrical Grounding Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding connections matching power supply wiring materials except bare or green insulation and sized according to NEC. Equipment grounding conductors shall have green insulation. Solid conductors shall comply with ASTM B-3, stranded conductors with ASTM B-8.
C. Grounding Connectors: Provide listed and labeled grounding connectors for the required materials. Provide high-conductivity plated pressure connector units or exothermic welded connections.

2.7 COMBINATION MOTOR CONTROLLERS

A. General: Motor circuit protector; molded-case circuit-type breaker type with magnetic-only trip element calibrated to coordinate with the actual locked-rotor current of the connected motor and the controller overload relays. Provide breakers that are factory assembled with the controller, interlocked with unit cover or door, and arranged to disconnect the controller. Provide motor circuit-protectors with field-adjustable trip elements.

2.8 LIGHTING FIXTURES

A. Provide lighting fixtures of sizes, types, and ratings indicated in lighting fixture schedule

B. Wiring: Provide electrical wiring within fixture suitable for connecting to branch circuit.
a. NEC Type AF for 120 volt, minimum No. 18 AWG.

2.9 TIME CONTROLLED SWITCHES

A. Provide electrically operated time controlled maintained contact switches with 24-hour dials capable of periodically and automatically switching mechanically held or electrically held contactors ON and OFF. Select switches which permit selection of from 1 to 7 ON-OFF operations each day; with coil ratings of 120 volts, 60 Hz, and with DPDT switch. Provide flush mount enclosure, NEMA Type 1, with side hinged door and lock, mounting holes and knockouts. Provide timing switch with manual circuit by-pass switch, 10 hour reserve power, and separate grounding terminal. Finish enclosure with manufacturer's standard gray finish.

2.10 LIGHTING MOTION DETECTORS

A. Indoor Motion Detectors: Provide passive infrared motion sensor to operate lights on detection of occupancy, 120/277 volts, field adjustable.

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

ELECTRICAL SPECIFICATIONS

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-501

Plotted on: 9/28/2022 5:10:02 PM

INSTALLATION
PART 3 - INSTALLATION

3.1 General

A. Verify final locations for rough-in with field measurements and with the requirements of the actual equipment to be connected.

B. Rough-in for owner furnished equipment to make equipment operate as intended, including providing miscellaneous wiring items.

C. Adjust operating mechanisms for free mechanical movement. Clean interior and exterior using manufacturer's approved methods and materials.

D. Touch-up scratched or marred surfaces to match original finish.

E. In general, perform cutting and patching as necessary. Exercise care where cutting, channeling, chasing or drilling floors, walls, partitions, ceilings or other surfaces for installation of electrical work.

F. Patch finished surfaces and building components using new materials specified for the original installation and experienced installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

3.2 CABLE, WIRE AND CONNECTORS

A. Provide insulated conductors installed in conduit, except where specifically indicated or specified otherwise or required by NEC to be installed otherwise. Provide insulated equipment grounding conductor in feeder and branch circuits, including lighting circuits. Grounding conductor shall be separate from electrical system neutral conductor.

B. Coordinate cable and wire installation with electrical raceway and equipment installation. Conductor sizes indicated are copper. Pull conductors together where more than one is being installed. Use pulling means and lubricant that will not damage conductor or raceway. Use splice and tap connectors which are compatible with conductor material, and only in accessible junction, pull or outlet boxes.

C. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A.

3.2 ELECTRICAL RACEWAYS

A. Provide with complete electrical raceway system before installing conductors within raceways. Provide support as required by NEC but within 1 foot of a change in direction or connection to an enclosure, cover ends of empty conduit to prevent entry of debris during rough-in, provide bonding type locknuts at boxes. Conceal conduit, unless indicated otherwise within finished walls, ceilings and floors. Run exposed conduits parallel or perpendicular to the building structure, close to the ceiling or beams. Keep raceways at least 6 inches away from parallel runs of flues, steam, and hot water pipes.

B. Use the following wiring methods:
   a. Outdoors:
      i. Intermediate metal conduit
      ii. Rigid metal conduit
      iii. Liquid-tight flexible metal conduit
   b. Indoors:
      i. Electrical metallic tubing
      ii. Flexible metal conduit
      iii. Rigid metal conduit (where exposed and subject to damage)

C. Use raceway fittings that are of types compatible with the associated raceway and suitable for the use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings except as otherwise indicated.

D. Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in banked runs only where they can be installed parallel. This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provide field bends for parallel raceways.

E. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb. tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.

F. Flexible Connections: Use short length (maximum of 6 ft.) of flexible conduit for recessed and semi-recessed lighting fixtures, for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquid-tight flexible conduit in wet locations. Install separate ground conductor across flexible connections.

G. Surface Metal Raceway: Install to walls, cabinets, and ceilings as recommended by equipment manufacturer with fasteners suitable for the material to which the surface metal raceway is being attached. Install a separate green ground conductor in raceway from the junction box supplying the raceway to receptacle or fixture ground terminals. Provide as an integral part or install wiring devices as indicated. Make cuts and other modifications with factory cuts and other modifications with factory furnished tools specifically designed for the purpose.

3.3 ELECTRICAL BOXES AND FITTINGS

A. Provide weatherproof outlet boxes for interior and exterior locations exposed to moisture, flush mounted boxes for connection to concealed conduit and pull boxes as required for installation of conductors. Sizes shall be adequate to meet NEC volume requirements, but not smaller than sizes indicated. Remove knockouts only as required and plug unused openings.

B. Fasten boxes rigidly to substrate or structural surfaces to which they are to be mounted, or solidly embed electrical boxes in concrete or masonry.

3.4 WIRING DEVICES

A. Install wiring devices in clean outlets after wiring has been installed. Do not install plates and cover installed wiring devices until painting is complete.

B. Ground all wiring devices unless indicated otherwise. Test wiring devices for correct polarity, proper ground and electrical continuity.

C. Install covers and device plates with edges in continuous contact with finished wall surfaces without use of mats or similar devices. Plaster or caulking used as a filling to repair openings around outlets shall not be applied without removing the cover or device plate. Plates installed in wet areas shall be gasketed.

3.5 SAFETY AND DISCONNECT SWITCHES

A. Install disconnect switches used for motor-driven equipment within sight of the controller and motor and not more than 50 feet from the controller and motor unless indicated otherwise.

B. Provide an electrical ground for all disconnect switches.

C. Test all switches for proper operation by operating them energized, but without load for six opening/closing cycles. Inspect switch and correct deficiencies, then retest to demonstrate compliance.

3.6 ELECTRICAL GROUNDING EQUIPMENT

A. Install electrical grounding systems where shown, in accordance with applicable portions of National Electrical Code, recognized industry practices to ensure that products comply with requirements and serve intended functions.

B. Provide separate grounding conductor with wiring in all raceways.

C. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing where indicated.

D. Install clamp-on connectors only on thoroughly cleaned metal contact surfaces, to ensure electrical conductivity and circuit integrity.

3.7 LIGHTING FIXTURES

A. General: Install lighting fixtures of types indicated, where shown and at indicated heights, in accordance with lighting fixture manufacturer's written instructions and with recognized industry practices. Comply with NEMA standards and requirements of National Electrical Code pertaining to installation of lighting fixtures and with applicable portions of NECA's "Standards of Installation".

B. Fasten surfaced fixtures to suspended ceiling system near corner of each unit. Bolt fixture to main ceiling supports with stud-clips minimum 1/2-20. Support fixtures weighing in excess of 56 pounds directly from the building structure. Recessed and semi-recessed fixtures may be supported from suspended ceiling support system ceiling tees if the ceiling system support wires are provided at a minimum of four wires per fixture and located not more than 6 inches from each corner of each fixture. In addition, provide support clips securely fastened to ceiling grid members at or near corner of each recessed fixture.

C. Secure pendant mounted fixtures via outlet box directly to building structure with approved bolting and clamps. Provide each stem or hanger with an approved swivel joint to ensure a continued plumb installation.

D. Mounting heights indicated are to bottom of ceiling-mounted fixtures and to center of wall mounted fixtures.

E. Install all exit lighting units plumb, square and level with walls and ceilings and secure in accordance with manufacturer's written instructions Mounting heights shall be to bottom of unit.

F. Clean lighting fixtures of dirt and debris upon completion of installation. Protect installed fixtures from damage during remainder of construction period.

G. Do not install interior fixture lens until construction is complete or protect lens from accumulation of dust and debris.

H. Adjust all fixtures with adjustable aiming to meet the Architect/Engineer's approval.

I. Test all lighting fixtures for compliance with intended purpose. Correct malfunctioning or noisy units, then retest to demonstrate compliance.

J. At date of substantial completion, replace all lamps which are observed to be noticeably dimmed as judged by the Architect/Engineer.

K. Provide tight equipment grounding connections to comply with tightening torques specified in UL 486A for each lighting fixture.

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REVISION SCHEDULE

#	DESCRIPTION	DATE	INITIALS

ELECTRICAL SPECIFICATIONS

COMMONWEALTH OF VIRGINIA
DANIEL W. GIBSON
Lic. No. 44271
09/23/22
PROFESSIONAL ENGINEER

Date: 09/23/22
Drawn: TFK Checked: DWG
Project: 221049

E-502

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