EXISTING CONDITION NOTES

THE CONTRACTOR AND SUB CONTRACTOR **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**. THIS SHALL HOLD TRUE FOR FIRST GENERATION AND SECOND GENERATION SPACES. WHEN DEMOLITION IS REQUIRED. THAT WILL BE PERMITTED TO EXPOSE CONDITIONS. THESE VERIFICATIONS SHALL INCLUDE BUT NOT LIMITED TO: DIMENSIONS BOTH HORIZONTAL AND VERTICAL. ELECTRICAL SERVICE/PANELS LOCATION AND VOLTS/PHASE, LOCATION/QTY. OF ROOF MOUNTED HVAC EQUIPMENT, CONFIRM THAT INTERIOR HVAC HUNG UNITS HAVE PROPER SUPPORT CONNECTIONS FOR EXISTING STRUCTURE, FIRE SPRINKLER MAIN RUNS, TOILET ROOM DIMENSIONS, DOOR SWING FOR DOORS TO REMAINED ETC. IF NOT VERIFIED AND DISCOVERED AT A LATER TIME, THE CONTRACTOR SHALL REIMBURSE THE ARCHITECT FOR THE REDESIGN FEE. THIS DOES NOT INCLUDE HIDDEN WORK I.E. PITCH OF SANITARY LINES, ACTUAL CONDITIONS OF EXISTING HVAC EQUIPMENT, STRUCTURAL COLUMNS/BEARING WALLS OR CONDITIONS OF GREASE INTERCEPTORS AND ETC.

SCOPE OF WORK

REUSE EXISTING 4 TONS ROOFTOP UNIT WITH GAS HEAT AND PROVIDE ONE NEW 1.5 TONS GAS FURNACE AHU SPLIT SYSTEM. PROVIDE NEW DUCTWORK AND NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEM.
PROVIDE 1 NEW RESTROOM EXHAUST FAN & 2 NEW OTHER EXHAUST FANS AS SHOWN IN PLAN.
COORDINATE WITH GC ANY ADDITIONAL REFRIGERATION WORK REQUIRED AND PLUMBING CONTRACTOR PROVIDING CONDENSATE LINES FOR MECHANICAL EQUIPMENT.

MECHANICAL PLAN NOTES

A. REUSE EXISTING ROOFTOP UNIT WITH GAS HEAT AND PROVIDE ONE NEW 1.5 TON GAS FURNACE AHU SPLIT SYSTEM. PROVIDE NEW DUCTWORK AND NECESSARY ACCESSORIES. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS. INSTALL FIRE DAMPERS IN ANY FIRE WALLS AND BETWEEN FLOORS. TRANSITION TO DUCT SIZES SHOWN. PROVIDE DUCTWORK AND AIR DISTRIBUTION DEVICES AS INDICATED ON THE PLAN. REFER TO A/C UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

B. FOR SYSTEM OVER 2,000 CFM CHECK FOR DUCT MOUNTED AIR SMOKE DETECTORS AND MEET THE REQUIREMENTS OF U.L. 268A, INTERLOCKED TO SHUTDOWN A/C UNIT UPON DETECTION OF SMOKE. IF NECESSARY PROVIDE SMOKE DETECTOR WITH AN ANNUNCIATOR, ALARM AND POWER L.E.D.'S FOR VISIBLE AND AUDIBLE ALARM SIGNAL, AND VISIBLE TROUBLE SIGNAL. MOUNT ANNUNCIATOR ON ROOM SIDE OF CEILING.

C. ALL DUCTS SHALL BE MINIMUM 26 GAUGE SHEET METAL WITH EXTERNAL DUCT WRAP INSULATION FOR CONCEALED DUCTS AND ALL EXPOSED DUCTS WITH INTERNAL INSULATION. ALL DUCTS TO BE MANUFACTURED AND INSTALLED ACCORDING TO ASHRAE AND SMACNA METAL DUCT CONSTRUCTION STANDARD, LATEST EDITION. ALL MATERIALS WILL CONFORM TO NFPA 90A.

D. THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE TYPE. MOUNT THERMOSTAT 48" A.F.F. IF EXISTING THERMOSTAT AND REMOTE SENSOR ARE NOT REUSABLE THEN PROVIDE NEW THERMOSTAT WITH LOCKABLE COVER. COORDINATE LOCATION OF THERMOSTAT. PROVIDE REMOTE SENSOR LOCATED 72" ABOVE FINISHED FLOOR NEAR LOCATION INDICATED. SEAL WALL OPENINGS WITH CAULK. COORDINATE LOCATION ON SITE WITH GENERAL CONTRACTOR AND EQUIPMENT.

E. ALL AIR DUCTS WITH INSULATION SHALL HAVE A MINIMUM OF THICKNESS OF 1.5", R-5 INSULATION. OUTSIDE AIR DUCTS TO HAVE R-12 INSULATION ACCORDING TO 2020 MINNESOTA - ENERGY CONSERVATION(2018 IECC).

F. ALL SEAMS, JOINTS, ETC WILL BE SEALED TO MAKE AIR DUCT AIRTIGHT. PRESSURE SENSITIVE MATERIALS AND OTHERS APPROVED BY LATEST SMACNA. SEALING MATERIALS WILL BE USED.

G. ALL EVAPORATOR UNITS SHALL HAVE A FLOAT SWITCH TO CONTROL OVERFLOW THAT WILL AUTOMATICALLY SHUT DOWN THE RTU SYSTEM. THE DEVICE SHALL BE ATTACHED TO THE SECONDARY DRAIN OUTLET ON THE UNIT.

H. ALL NEW A/C CONDENSATE DRAINS WILL BE PVC FULL DIAMETER OF OUTLET AND WILL TERMINATE IN THE NEAREST APPROVED PLACE OF DISPOSAL AS PER LOCAL CODE.

I. ALL EQUIPMENT AND MATERIALS WILL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND ACCORDING TO THE BEST PRACTICE.

J. TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH 2020 MINNESOTA - ENERGY CONSERVATION(2018 IECC), SECTION C408.2.2, BALANCING PROCEDURES SHALL BE IN ACCORDANCE WITH THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (N.E.B.B.), THE ASSOCIATED AIR BALANCE COUNCIL (A.A.B.C) NATIONAL STANDARDS OR EQUIVALENT PROCEDURES.

K. HANGER ATTACHMENTS TO THE STEEL STRUCTURE WILL BE RATED POWDER ACTUATED FASTENERS, "C" CLAMPS, WELDED STUDS, CLAMP HANGERS, JOIST CLAMPS OR OTHER METHODS RECOMMENDED BY SMACNA'S "METAL AND FLEXIBLE STANDARDS", CHAPTER 4, AND WILL HAVE A MINIMUM SAFETY MARGIN OF 4:1. SUSPENDED FROM TOP CHORD OF JOISTS, NOTHING FROM DECK OR CROSS BRACING.

L. ALL HVAC CONTROLS AND CONTROL WIRING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

GENERAL NOTES

A. CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET. PAY SPECIAL ATTENTION TO THE RESPONSIBILITY SCHEDULE. WORK DESIGNATED ON SCHEDULE SHALL BE CONSIDERED INCLUDED IN YOUR SCOPE OF WORK AND CONTRACT AMOUNT.

B. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.

C. DRAWINGS/DETAILS ARE TO BE CONSIDERED DIAGRAMMATIC, NOT NECESSARILY SHOWING IN DETAIL OR TO SCALE ALL MINOR ITEMS. UNLESS SPECIFIC DIMENSIONS ARE SHOWN, THE STRUCTURAL, ARCHITECTURAL AND SITE CONDITIONS SHALL GOVERN EXACT LOCATIONS. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK, AND CHECK/COORDINATE DRAWINGS OF ALL TRADES.

D. COORDINATE WITH THE WORK OF OTHERS SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISES AND DRIPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.

E. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

F. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY CODE.

G. USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE PLENUM SHALL BE PLENUM RATED.

H. VERIFY LOCATION OF PERMISSIBLE NEW STRUCTURAL ROOF PENETRATIONS AND ADAPT THE REQUIRED DUCTS ACCORDINGLY. THE OPENINGS MUST BE LOCATED USING A REBAR LOCATOR, TRYING TO LEAVE A TRANSVERSE BAR WITHIN 4" FROM THE OPENING. LOCATE OPENINGS AT MID-DISTANCE BETWEEN THE STEMS OF THE DOUBLE TEE AND LONGITUDINAL REINFORCEMENT SHALL NEVER BE CUT. CALL THE ARCHITECTS OFFICE IN CASE OF UNEXPECTED DIFFICULTIES.

I. ALL A/C AND FRESH AIR ROUND EXPOSED DUCTS WILL BE SPIRAL GALVANIZED AND READY FOR PAINTING. ALL RECTANGULAR DUCTS OVER CEILINGS MAY BE SHEET METAL WITH EXTERNAL INSULATION AND ALL EXPOSED DUCTS WITH INTERNAL INSULATION.

J. G.C. SHALL CONTRACT LANDLORD-APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ALL ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY.

K. IF APPLICABLE CONTRACTOR TO PROVIDE SHOP DRAWING FOR KITCHEN VENTILATION SYSTEM INCLUDING TYPE 1 HOOD AND FOR THE WALK-IN COOLER & FREEZER.

L. REQUIRED INSURANCE SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

M. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE AND PROVIDE COPY TO LL.

N. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.

MINNESOTA BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2020 MINNESOTA BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
2. SMOKE DETECTOR SHALL MEET UL268A.
3. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. DUCT CONSTRUCTION AND INSTALLATION- 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE 603
   B. AIR INTAKES, EXHAUSTS AND RELIEF - 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE 401.5
   C. GAS FIRED EQUIPMENTS - 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE
   D. AIR FILTERS - 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE 605
4. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
5. NATURAL VENTILATION FOR ALL AREA SHALL COMPLY WITH 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE 401.
6. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE 403.3
7. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
8. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
9. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
10. VENTILATION SYSTEMS SHALL BE BALANCED TO MAINTAIN THE MINIMUM VENTILATION AIRFLOW RATE AS SHOWN IN VENTILATION REQUIREMENT TABLE. THIS SYSTEM SHALL BE BALANCED BY APPROVED METHOD. CONTRACTOR SHALL SUBMIT THE AIR BALANCE REPORT TO THE INSPECTOR.

SPLIT (GAS HEAT) SYSTEM SCHEDULE

AIR HANDLER DATA	UNIT TAG	AHU-1(N)
	UNIT TYPE	GAS HEAT
	AREA SERVED	REFER PLAN
	SUPPLY AIR (CFM)	600
	OUTSIDE AIR (CFM)	150
	STATIC PRESS. (E.S.P INCH OF W.C.)	0.6
	MANUFACTURER	TRANE (OR EQUIVALENT)
	MODEL NO.	4PXABU24BS3+S8X1B040M2PSC (OR EQUIVALENT)
	WEIGHT, LBS	200
	VOLTS/PH/HZ	120/1/60
	M.C.A. / MAX. CKT. BRKR. AMPS	6.7/15
	TOTAL COOLING CAPACITY (MBH)	18.6
	TOTAL SENSIBLE CAPACITY (MBH)	11.7
	NOM. HEATING CAPACITY IN GAS (MBH)	40
	NOM. HEATING CAPACITY OP GAS (MBH)	32
	AFUE (%)	80
CONDENSING UNIT DATA	UNIT TAG	ACCU-1(N)
	AIR HANDLER SERVED	AHU-1(N)
	CAPACITY	1.5 TR
	REFRIGERANT	R410A
	TOT. COOLING CAP. (MBH)	18.6
	COOLING SENS. CAP. (MBH)	11.7
	COMPRESSOR RLA/LRA	10.1/52
	OUTDOOR FAN FLA	0.9
	VOLTS-PH-HZ	208/230-1-60
	M.C.A. & MAX. CKT. BRKR. AMPS (208/230)	13/14 & 20/25
	MANUFACTURER	TRANE (OR EQUIVALENT)
	MODEL	4TTR4018N1 (OR EQUIVALENT)
	SEER	14.3
	WEIGHT, LBS	180

SPLIT SYSTEM NOTES:-

1. PROVIDE LOW/HIGH PRESSURE CONTROL.
2. COORDINATE FINAL LOCATION OF INDOOR AND OUTDOOR UNIT WITH ARCHITECT/OWNER/LANDLORD.
3. SUPPLY AIR CFM BASED ON HIGH SPEED.
4. REFRIGERANT R410A SHALL BE PROVIDED.
5. PROVIDE LOW AMBIENT CONTROL.
6. PROVIDE HOT GAS BYPASS.
7. ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
8. CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.
9. PROVIDE DRAIN PAN WITH WATER LEAK DETECTOR.
10. VERIFY ALL DATA WITH MANUFACTURER PRIOR TO ORDERING EQUIPMENT.
11. PROVIDE CONDENSATE DRAIN PUMP IF REQUIRED. ROUTE CONDENSATE DRAIN FROM AHU 1(N) TO THE NEAREST PLUMBING DRAIN POINT WITH APPROVED MANNER. COORDINATE WITH PLUMBING CONTRACTOR.
12. PROVIDE GAS FLUE VENTS AND COMBUSTION AIR INTAKES TO AHUS AS PER MANUFACTURER'S INSTRUCTION.

ROOF TOP UNIT SCHEDULE

UNIT TAG	RTU -1 (E)
UNIT	GAS HEAT
MANUFACTURER	RHEEM
MODEL	RKKA-A048CK10E
STATUS	EXISTING
MOUNTING	ROOF
NOMINAL CAPACITY	4 TONS
TOTAL COOLING MBH	S.A.E.
SENSIBLE MBH	S.A.E.
INPUT HEAT (MBH)	100
OUTPUT HEAT (MBH)	81
ESP (IN. OF W.C.)	S.A.E.
EER/SEER	S.A.E.
SUPPLY AIR (CFM)	1600
OUTDOOR AIR (CFM)	600
VOLTAGE/PH/Hz	208-230/3/60
MCA (A)	24 (V.I.F.)
MOCP (A)	35 (V.I.F.)
WEIGHT (lbs)	S.A.E.

NOTES FOR EXISTING RTU-1(E)
1. EXISTING RTU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
2. S.A.E : SAME AS EXISTING ; V.I.F. : VERIFY IN FIELD.
3. CONTRACTOR TO FIELD VERIFY IF ALL RTU ARE WORKING AT THEIR 100% RATED CAPACITIES / LOADS. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNIT ON SITE.
5. IF REQUIRED, PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSOR COMPATIBLE WITH EXISTING RTU. CO-ORDINATE FINAL LOCATION OF T-SENSOR WITH ARCHITECT / OWNER.
6. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING RTU TO MATCH VALUES MENTIONED IN ABOVE TABLE.
7. REPLACE FILTERS, IF REQUIRED.

CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS,WIRE SIZES, BREAKERS, DISCONNECT ETC. PRIOR TO ORDERING AND BID.

NECK SIZE TABLE - A

NECK SIZE	CFM RANGE
Ø6"	0-100
Ø8"	101-200
Ø10"	201-400
Ø12"	401-600

OCCUPANCY CALCULATION PER 2020 MINNESOTA MECHANICAL CODE,TABLE 403.3.1.1

LOBBY	290 SQ. FT. @10 PEOPLE/1000SQ.FT.	3 PEOPLE
TRIMMING	252 SQ. FT. @10 PEOPLE/1000SQ.FT.	3 PEOPLE
BATH	485 SQ. FT. @10 PEOPLE/1000SQ.FT.	5 PEOPLE
	TOTAL	11 PEOPLE

VENTILATION REQUIREMENTS PER 2020 MINNESOTA MECHANICAL CODE TABLE 403.3.1.1

LOBBY	290 SQ. FT. X 0.06 CFM/SQ. FT. =	17 CFM
	3 PEOPLE. X 5 CFM/PEOPLE. =	15 CFM
BACKROOM	197 SQ. FT. X 0.06 CFM/SQ. FT. =	12 CFM
TRIMMING	252 SQ. FT. X 0.18 CFM/SQ. FT. =	45 CFM
	3 PEOPLE. X 7.5 CFM/PEOPLE. =	23 CFM
BATH	485 SQ. FT. X 0.18 CFM/SQ. FT. =	87 CFM
	5 PEOPLE. X 7.5 CFM/PEOPLE. =	38 CFM
OUTSIDE AIR REQUIRED		237 CFM
EXHAUST AIR		
BATHING/TRIMMING	737 SQ. FT. X 0.9 CFM/SQ. FT. =	663 CFM
RESTROOM	70 CFM PER FIXTURE	70 CFM
EXHUAST AIR REQUIRED		733 CFM
OUTSIDE AIR PROVIDED		750 CFM
AIR BALANCE		
O/A PROVIDED THROUGH RTU-1(E)		+600 CFM
O/A PROVIDED THROUGH AHU-1(N)		+150 CFM
BEF-1 (N)		-70 CFM
EF-1 (N)		-440 CFM
EF-2 (N)		-230 CFM
BUILDING PRESSURE		+10 CFM

DIFFUSER SCHEDULE

MANUFACTURER	TITUS	TITUS	TITUS
DESIGNATION	A	B	R
USE	SUPPLY	SUPPLY	RETURN
MODEL	TDC-AA	250-AA(2/3 WAY)	350RL
MOUNTING	CEILING	HARD CEILING	CEILING
LOCATION	AS SHOWN	RESTROOM	AS SHOWN
FACE SIZE	24" X 24"	12"X12"	AS SHOWN
NECK SIZE	REFER TABLE-A	REFER TABLE-A	REFER TABLE-A
FRAME TYPE	LAY IN	FLANGED	LAY IN
FINISH	FIELD PAINTED	FIELD PAINTED	FIELD PAINTED
NOISE CRITERIA	<30	<30	<30
ACCESSORIES	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER

FAN SCHEDULE

DESIGNATION	BEF-1(N)	EF-1(N)	EF-2(N)
STATUS	NEW	NEW	NEW
QUANTITY	1	1	1
MANUFACTURER	PANASONIC (OR EQUIVALENT)	GREENHECK (OR EQUIVALENT)	GREENHECK (OR EQUIVALENT)
MODEL	FV-08VRE2 (OR EQUIVALENT)	SP-A510-VG (OR EQUIVALENT)	SP-A390-VG (OR EQUIVALENT)
CFM	70@0.2 IN W.C ESP	440@0.5 IN W.C ESP	230@0.5 IN W.C ESP
AMPS	0.15	2.45 (FLA)	1.5 (FLA)
ACCESSORIES	BDD,LITE KIT	BDD,LITE KIT	BDD,LITE KIT
WEIGHT (LBS)	10.4	40	30
VOLTAGE	115/1/60	115/1/60	115/1/60
NOTES	1,2,3,4	1,2,4,5	1,2,4,5

NOTES :
1. PROVIDE DISCONNECT SWITCH.
2. PROVIDE WITH VARI-GREEN MOTOR.
3. INTERLOCK WITH LIGHTS.(REFER ELEC. PLAN FOR CONTROLS).
4. PROVIDE BACK DRAFT DAMPER.
5. INTERLOCK WITH RTU-1(E)

THERMOSTATIC CONTROLS

C403.4.1 THERMOSTATIC CONTROLS (MANDATORY)

THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:

1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.4.1.2 DEADBAND (MANDATORY)

WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.

EXCEPTIONS:

1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

C403.4.1.3 SETPOINT OVERLAP RESTRICTION (MANDATORY)

WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.

C403.4.2 OFF-HOUR CONTROLS (MANDATORY)

EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

EXCEPTIONS:

1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.

C403.4.2.1 THERMOSTATIC SETBACK (MANDATORY)

THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN (MANDATORY)

AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

C403.4.2.3 AUTOMATIC START (MANDATORY)

AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

HVAC PIPING INSULATION NOTES

1. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84). (ASA A2.5-1963). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.
2. EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILINGS OR OPENING ACCESS PANELS.
3. CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.
4. OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.

MINIMUM REFRIGERANT PIPE INSULATION THICKNESS (IN.)

FLUID OPERATING TEMP. RANGE & USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (IN.)				
	CONDUCTIVITY BTU.IN./(H.FT².°F)	MEAN RATING TEMP., °F	<1	1 TO<1-1/2	1-1/2 TO <4	4 TO <8	≥8
40 — 60	0.21 — 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 — 0.26	50	0.5	1.0	1.0	1.0	1.5

MECHANICAL SYMBOLS

- EXHAUST FAN
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN OR EXHAUST AIR DUCT
- INSULATED RIGID DUCTWORK
- DUCT TRANSITION
- MANUAL VOLUME DAMPER
- FLEXIBLE DUCTWORK R-6.0
- SUPPLY DIFFUSER REFER TO DIFFUSER SCHEDULE FOR SPECIFICATIONS
- RETURN DIFFUSER REFER TO DIFFUSER SCHEDULE FOR SPECIFICATIONS
- CEILING MOUNTED EXHAUST FAN
- ROOF MOUNTED EXHAUST FAN OUTLET
- ROOFTOP UNIT
- EXHAUST FAN WITH LIGHT
- OPPOSED BLADE DAMPER
- SD — DUCT SMOKE DETECTOR
- T — PROGRAMMABLE THERMOSTAT
- RS — REMOTE SENSOR
- T_S — TEMPERATURE SENSOR
- Ø — ROUND DUCT DIAMETER
- CFM — CUBIC FEET/ MINUTE
- S/A — SUPPLY AIR
- R/A — RETURN AIR
- SG — SUPPLY GRILLE
- ——-·-·-—— CONDENSATE PIPING

NOTE: THIS PROJECT MAY NOT USE EVERY SYMBOL OR DEVICE APPEARING ON THIS LEGEND.

NY ENGINEERS
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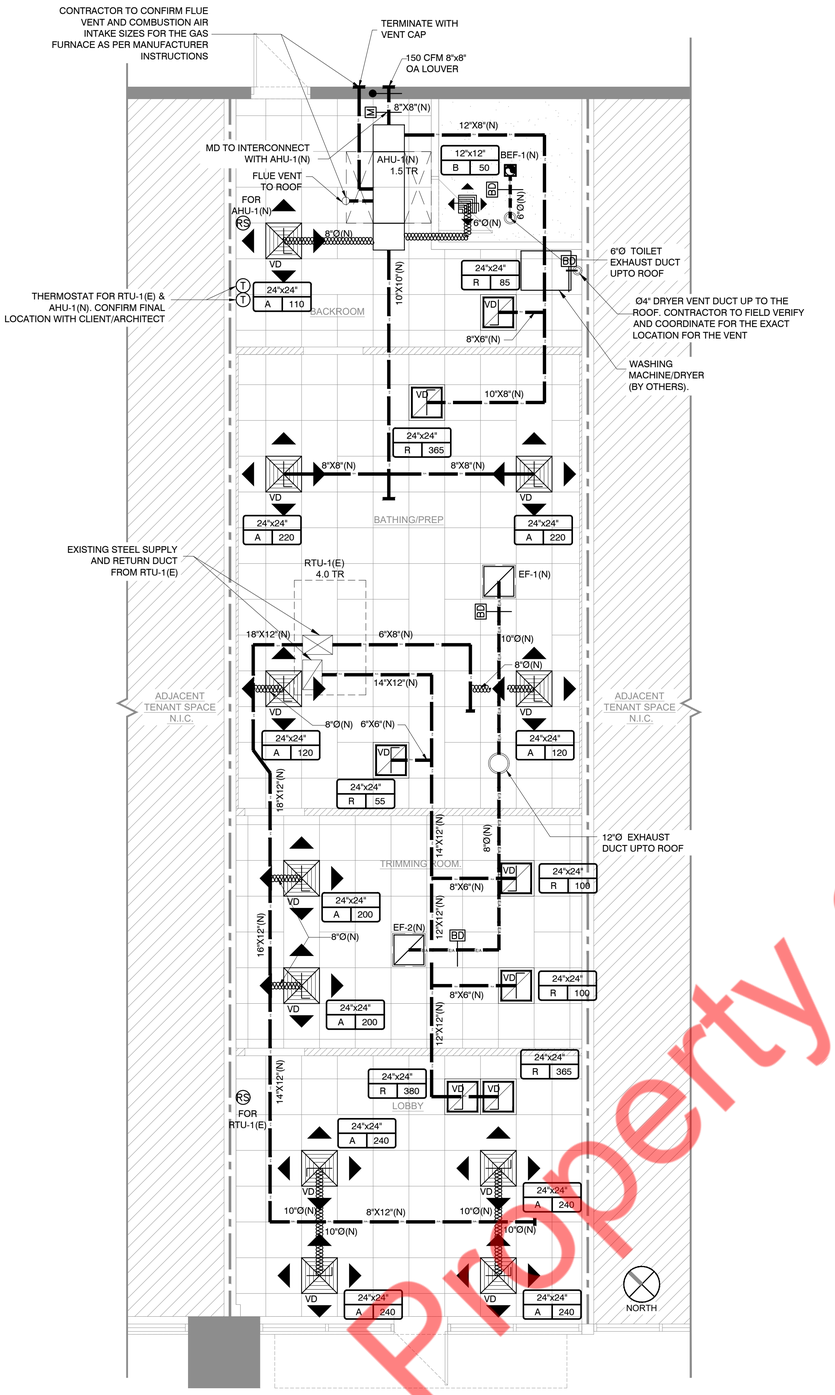
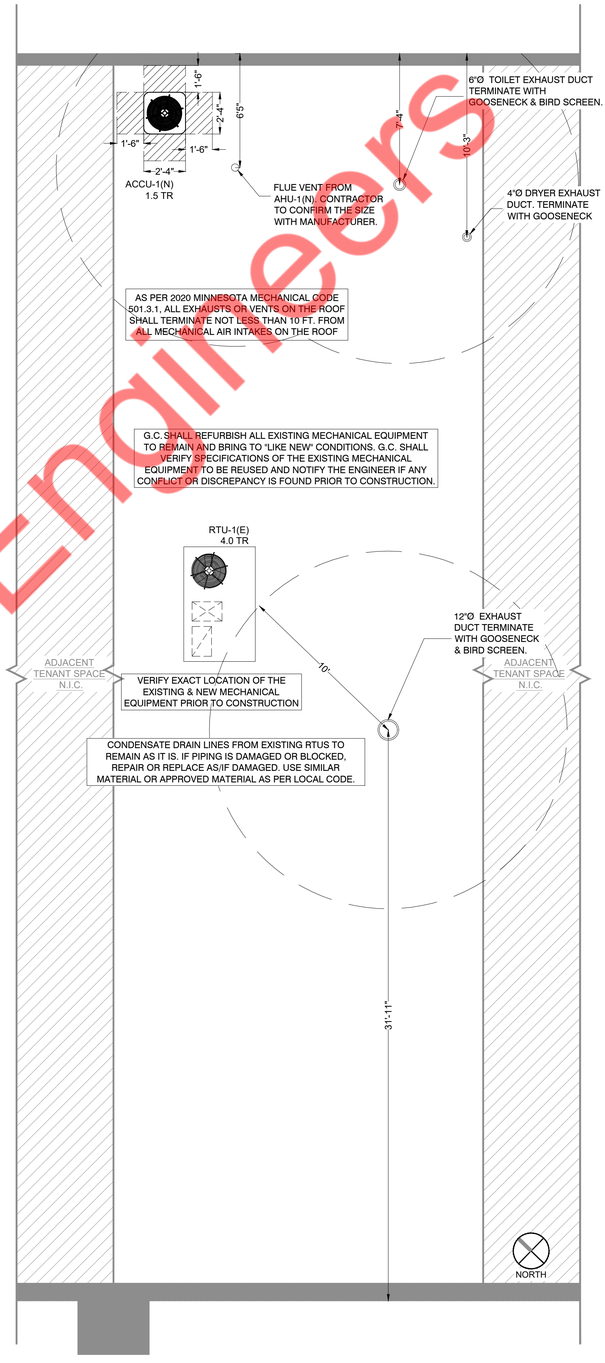
MECHANICAL NOTES & SCHEDULES

M-1



HVAC FLOOR PLAN | SCALE 1/4" = 1'-0" | 1



HVAC ROOF PLAN | SCALE 1/4" = 1'-0" | 2

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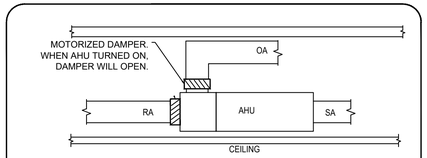
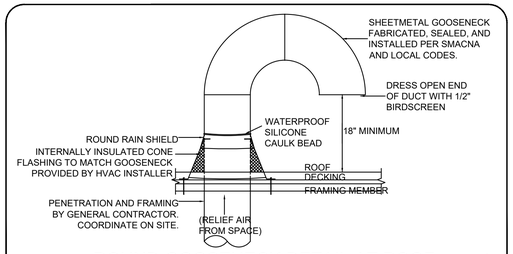
HVAC FLOOR & ROOF PLANS

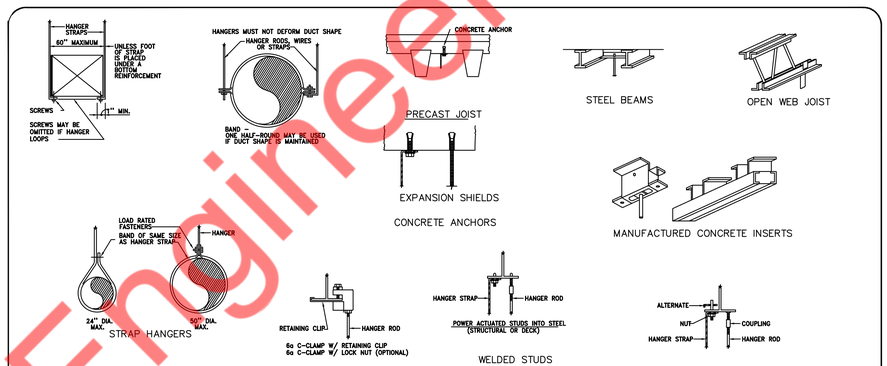
M-2



AHU DETAIL
NOT TO SCALE



ROUND GOOSENECK DETAIL AT ROOF
NOT TO SCALE

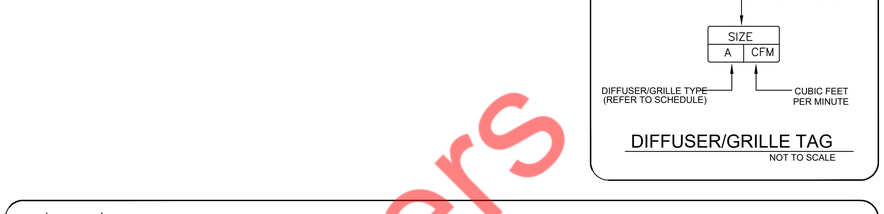


UPPER & LOWER ATTACHMENTS & DEVICES
NOT TO SCALE

CONDENSER MOUNTING DETAIL
NOT TO SCALE

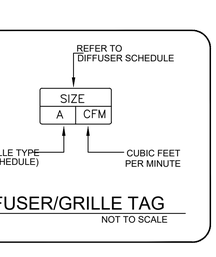
DUCT MOUNTING DETAIL
NOT TO SCALE

CHANNEL SELECTION		
DUCT WIDTH MIN.	CHANNEL GUAGE MIN.	CHANNEL PROFILE
LESS THAN 18"	22 3"x 2"	
LESS THAN 30"	18 3"x 2"	



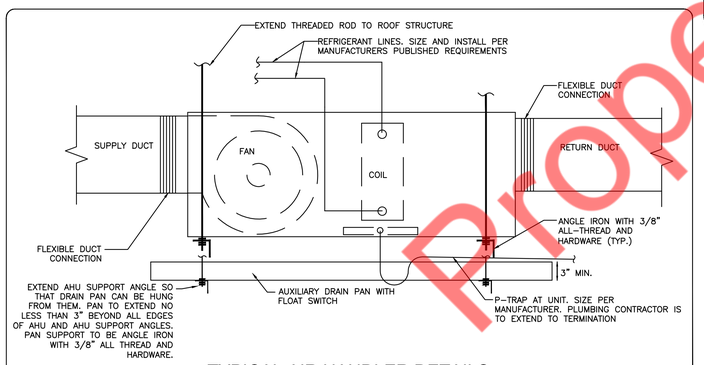
CLOSURE:
-PRESSURE SENSITIVE ALUMINUM FOIL TAPES LSITED UNDER UL 181A, PART I (P)
- HEAT ACTIVATED ALUMINUM FOIL/SCRIM TAPES LISTED UNDER UL 181A, PART II (H)
- MASTIC AND GLASS FABRIC TAPE CLOSURE SYSTEMS LISTED UNDER UL 181A, PART III (M)

DUCT SIZE,IN.	MAXIMUM HANGER SPACING
① WIDTH 48" OR GREATER	4'-0"
② LESS THEN 48"W X 12"H	6'-0"
③ WIDTH BETWEEN 24" & 48" & HEIGHT OVER 24"	6'-0"
④ WIDTH BETWEEN 24" & 48" & HEIGHT BETWEEN 12" & 24"	8'-0"
⑤ WIDTH LESS THAN 24" & HEIGHT GREATER THAN 12"	8'-0"
DUCT REINFORCING PER SMACNA REQUIRED	

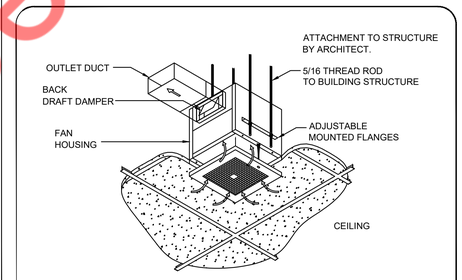


HANGER SPACING AND EXTENSION 3" WIDE CHANNELS

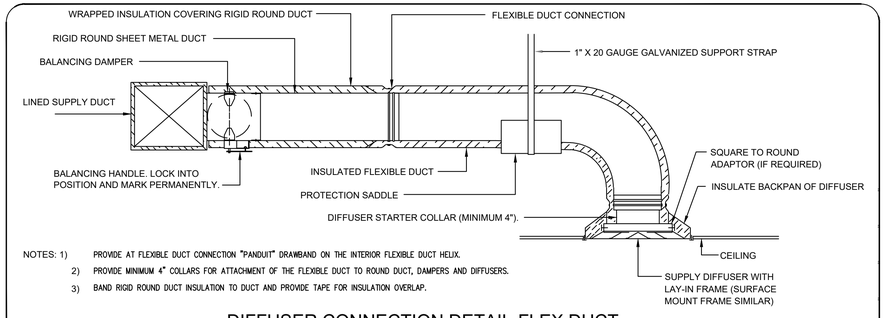
DUCT SUPPORTS
NOT TO SCALE



TYPICAL AIR HANDLER DETAILS



CEILING EXHAUST FAN DETAIL
NOT TO SCALE



NOTES: 1) PROVIDE AT FLEXIBLE DUCT CONNECTION "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX.
2) PROVIDE MINIMUM 4" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO ROUND DUCT, DAMPERS AND DIFFUSERS.
3) BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.

DIFFUSER CONNECTION DETAIL-FLEX DUCT
NOT TO SCALE

DIFFUSER/GRILLE TAG
NOT TO SCALE

NY ENGINEERS

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MECHANICAL DETAILS

M-3

SCOPE OF WORK

REUSE THE EXISTING 200A, 120/208V, 3-PHASE, 4 WIRE ELECTRICAL SERVICE FROM BASE BUILDING ELECTRICAL DISTRIBUTION SYSTEM. REUSE (1) EXISTING 200A(M.L.O.), 120/208V, 3-PHASE ELECTRICAL PANEL "17702" FOR THE PROPOSED TENANT SPACE. ALL NECESSARY EQUIPMENT, WIRING AND LIGHTING FOR THE PROJECT SPACE INCLUDING WIRING FOR VENTILATION EQUIPMENT. COORDINATE WITH G.C FOR LOW VOLTAGE WIRING.

ELECTRICAL PLAN NOTES

1. ELECTRICAL CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THIS SET.
2. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT, NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.
3. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, CONTRACTOR SHALL NOTIFY THE OWNER OR HIS REPRESENTATIVE AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL OWNER HAS DIRECTED CORRECTIVE ACTION TO BE TAKEN.
4. ELECTRICAL CONTRACTOR SHALL VISIT JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATIONS INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. EXISTING CONDITIONS OF ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC... THAT ARE PART OF THE FINAL SYSTEM SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING HIS BID.
5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRIC CODE AND ALL CODES AND ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
6. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION FOR ALL EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE.
7. ALL ELECTRICAL NOT BEING REUSED MUST BE REMOVED IN ITS ENTIRETY.
8. ALL CONDUIT IN OR UNDERGROUND OR IN CONCRETE MUST BE RIGID GALVANIZED STEEL.
9. CIRCUIT BREAKERS AND PANELS TO BE BOLT ON TYPE.
10. ALL EQUIPMENT SHALL BE APPROVED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING COMPANY.
11. ALL RECEPTACLES SHALL BE GROUNDED AS REQUIRED BY NEC 250.146
12. SUBMIT SERVICE ENTRANCE EQUIPMENT FOR SEPARATE APPROVAL.
13. ALL LOW VOLTAGE MUST BE IN CONDUIT TO ABOVE THE DROP CEILING. BRIDAL RINGS OR "J" HOOKS REQUIRED.
14. SEPARATE PERMITS ARE REQUIRED FOR ALL LOW VOLTAGE SUCH AS TELEPHONE, DATA, THERMOSTAT, MUSIC, ALARMS ETC.
15. SEPARATE PERMIT REQUIRED FOR SIGNAGE.
16. PRIOR TO ANY CONSTRUCTION WORK BEGINNING AN ON-SITE MEETING WITH GENERAL CONTRACTORS IS REQUIRED.
17. ELECTRICIAN MUST BE ON SITE FOR ALL INSPECTIONS.
18. MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING. ALL CONDUCTORS SHALL BE COPPER AND UNLESS OTHERWISE NOTED THHN INSULATION.
19. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, PLASTIC AND CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS, AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
20. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
21. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE N.E.C. OR LOCAL CODES.
22. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.
23. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/ARCHITECT.
24. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
25. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE THAT CERTIFICATE OF OCCUPANCY IS ISSUED. WARRANTY SHALL BE PROVIDED IN WRITING. PROVIDE COPY TO LL.
26. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
27. ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
28. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT.
29. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES.
30. CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING.
31. ALL CIRCUIT BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE CIRCUIT BREAKERS.
32. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES, DEVICES, ETC. FOR ALL OUTLETS AS INDICATED.
33. MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UL LIST OF APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF N.E.C. NEMA, AND IECE.
34. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR CUT SHEETS OF LIGHTING FIXTURES, SWITCHES, AND OTHER ELECTRICAL ITEMS FOR APPROVAL BY ENGINEER/ARCHITECT.
35. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND FIRED CAULKING REQUIRED OF HIS WORK.
36. ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/TYPE WRITTEN DIRECTORIES.
37. ALL ELECTRICAL AND COMMUNICATIONS OUTLETS TO BE AT 24" A.F.F. UNLESS NOTED OTHERWISE, AND VERTICALLY MOUNTED.
38. ALL LIGHT SWITCHES TO BE AT 42" A.F.F.
39. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL ELECTRICAL WIRING FOR HVAC SYSTEM INCLUDING CONTROLS, THERMOSTATS, POWER, ETC. SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
40. BREAKER AND PANELS -- ALL CURRENT CARRYING BUSSES SHALL BE COPPER. ALL GROUND BUS BARS SHALL BE COPPER. PANEL BOARD ENCLOSURES SHALL BE FURNISHED WITHOUT PRE-PUNCHED CONCENTRIC HOLES. A.I.C. RATINGS SHALL BE AS INDICATED ON PANEL BOARD SCHEDULES.
41. DISCONNECT SWITCHES SHALL BE H.P. RATED, GENERAL DUTY, QUICK-MAKE, QUICK-BREAK ENCLOSURES AS REQUIRED BY EXPOSURE.
42. MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC, WITH OVERLOAD RELAYS IN EACH HOT LEG.
43. THE TERM "PROVIDE" USED IN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS INDICATES THE CONTRACT SHALL FURNISH AND INSTALL.
44. CONTRACTOR SHALL CONFIRM WITH ANY AND ALL REQUIREMENTS SUCH AS: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, TRANSFORMER SIZE, SCHEDULED DOWN TIME FOR OWNERS CONFIRMATION, ETC. ANY CONFLICTS SHALL BE BROUGHT TO ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK.
45. VOLTAGE DROP FOR ALL BRANCH CONDUCTORS SHALL NOT EXCEED 3%. WHERE VOLTAGE DROP EXCEEDS 3%, CONTRACTOR SHALL INCREASE SIZE OF CONDUCTORS.
46. CONTRACTOR SHALL PROVIDE GFI TYPE BREAKER FOR ALL EXTERIOR 120V CIRCUITS OR GFI PROTECTION -- FOR THE WHOLE CIRCUIT.
47. GAS PIPING SHALL BE BONDED.
48. ALL OUTDOOR EQUIPMENT SHALL BE WEATHERPROOF.
49. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE. PROVIDE A COPY TO LL.
50. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.
51. ABSOLUTELY NO FLEXIBLE CONDUIT IS PERMITTED IN DEMISING WALLS. FLEXIBLE CONDUIT IS PERMITTED FOR SHORT FINAL CONNECTIONS ONLY (6'-0" OR LESS).
52. EXPOSED CONDUIT SHALL BE INSTALLED IN STRAIGHT LINES, PARALLEL OR IN RIGHT ANGLES TO THE BUIDING STRUCTURE. DO NOT LOOP EXCESS FLEXIBLE CONDUIT IN CEILING SPACE OR WALL CAVITY. NO CONDUIT TO BE SUPPORTED FROM THE ROOF DECK.
53. CABLE TYPES AC AND NM CABLES ARE NOT ACCEPTABLE. TYPE MC CABLE, ELECTRIC METALLIC TUBING (EMT) AND RIGID GALVANIZED CONDUIT ARE PERMITTED.
54. ALL EQUIPMENT, DEVICES AND FIXTURES SHALL BE GROUNDED IN COMPLIANCE WITH NEC AND UL REQUIREMENTS.
55. ALL PANELS TO BE UL LABELED WITH BOLT-ON TYPE CIRCUIT BREAKERS.
56. 7-DAY 24-HOUR TIME CLOCK IS REQUIRED TO CONTROL STOREFRONT ENTRY LIGHTS, SHOW WINDOW LIGHTS, SHOW WINDOW RECEPTACLES AND STOREFRONT SIGNAGE. ILLUMINATED STOREFRONT SIGNS MUST REMAIN LIT DURING ALL MALL BUSINESS HOURS.
57. TENANT IS REQUIRED TO MAKE A FIELD SURVEY OF THE EXISTING ELECTRICAL SERVICE TO ENSURE THAT THE TOTAL CONNECTED LOAD DOES NOT EXCEED THE ELECTRIC SERVICE. ANY/ALL MODIFICATIONS OR UPGRADES NEEDED ARE SUBJECT TO LANDLORD'S PRIOR APPROVAL AND WILL BE COMPLETED BY TENANT/TENANT'S GC AT TENANT'S SOLE EXPENSE.
58. ALL ELECTRICAL PANELS TO BE MOUNTED ON PLYWOOD BACKER BOARD.
59. PANEL PHASE LOADS TO BE BALANCED WITHIN 10%.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	EXHAUST FAN
S	SPEAKERS @ CEILING
J	JUNCTION BOX
	BATTERY BACK UP EXIT LIGHT
	BATTERY BACK UP EMERGENCY LIGHT
$	WALL SWITCH (SINGLE)
$T	WALL SWITCH (TIMER) WITH WIFI COMPATIBILITY.
$D	DIMMER WALL SWITCH WITH WIFI COMPATIBILITY.
$OS	OCCUPANCY SENSOR WALL SWITCH WITH WIFI COMPATIBILITY.
OS	CEILING MOUNTED OCCUPANCY SENSOR
MD	MD MOTORIZED DAMPER
USB	DUPLEX RECEPTACLE WITH USB PROVISION.
	DUPLEX RECEPTACLE, 46" TO AFF AT KITCHEN, BATHS AND TOPS
	QUADRUPLEX RECEPTACLE
CL	CEILING MOUNTED DUPLEX RECEPTACLE
	DEDICATED DUPLEX RECEPTACLE
	ELECTRICAL PANEL
	DISCONNECT SWITCH
TV	TELEVISION OUTLET
T	TELEPHONE/DATA OUTLET
	DATA OUTLET
CL	CEILING MOUNTED DATA OUTLET
	220 VOLT RECEPTACLE
A	30A/240V NON FUSED DISCONNECT SWITCH
B	60A/240V NON FUSED DISCONNECT SWITCH
	AC INDOOR UNIT
SM	MOTOR SWITCH
	CAMERAS

ABBREVIATIONS:

ABOVE FINISH FLOOR= A.F.F.	BELOW COUNTER= BC
COUNTER TOP LEVEL= C	PUSH BUTTON= PB
GROUND FAULT INTERRUPTER= GFCI	UNDER CABINET= UC
VERIFY PRIOR TO INSTALL= VH	VAPOR PROOF= VP
WEATHER PROOF= WP	WASHER = WA
DRYER = DR	ABOVE COUNTER = AC ELECTRICAL
CONTRACTOR=E.C.	EXHAUST FAN = EF
BATHROOM EXHAUST FAN=BEF	WATER HEATER= WH
RECIRCULATION PUMP=RCP	AIR HANDLING UNIT=AHU
AUTHORITY HAVING JURISDICTION= A.H.J.	AIR COOLED CONDENSING UNIT=ACCU

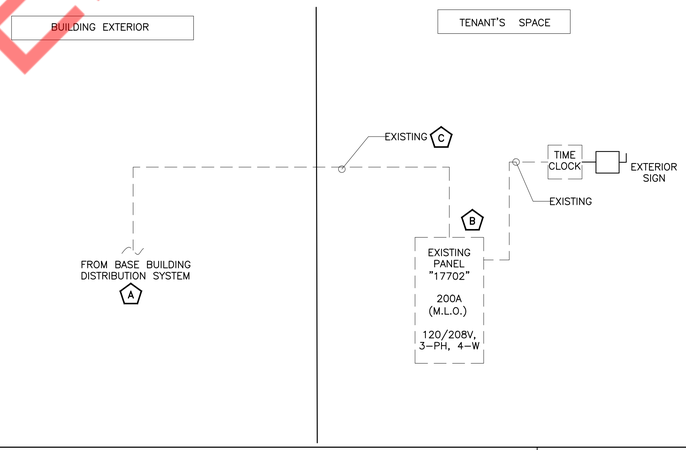
GENERAL LIGHTING NOTES

A. UPPER CASE LETTER NEXT TO LIGHT FIXTURE DENOTES FIXTURE TYPE AND LOWER CASE LETTER DENOTES SWITCHING SCHEME.

B. ALL EMERGENCY FIXTURES SHALL BE CONNECTED TO AN UNSWITCHED HOT CONDUCTOR

LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLT	NUMBER OF FIXTURES	LAMP TYPE	TOTAL WATTS	MOUNTING
	A	2x4 RECESSED LAY-IN LED	LITHONIA LIGHTING	CPX-2X4-AL08-SWW7-M2	120	21	LED	777 WATTS	RECESSED
	B	LED TRACK LIGHT	ABL-JUNO	R600L-G2-16623	120	9	LED	100 WATTS	TRACK
	C	EXIT SIGNS/EMERGENCY LIGHT COMBO	TBD	TBD	120	2	LED	20 WATTS	WALL
	D	LED RECESSED DESIGNER FAN LIGHT	PANASONIC	FV-08VRE2	120	1	LED	10 WATTS	RECESSED
	EU	EMERGENCY LIGHT	TBD	TBD	120	1	LED	3 WATTS	WALL
$OS	OS	OCCUPANCY WALL SWITCH	LEVITON	ODS10	120	-	-	-	WALL
$3OS	OS	OCCUPANCY WALL SWITCH (MULTI LOCATION CONTROL)	SCHNEIDER	SLSUWS1277N/ SLSUWS3277N	120	-	-	-	WALL
	(E)	EXISTING LIGHTING FIXTURE TO REMAIN	-	-	-	-	-	-	-



PROPOSED FLOOR

ELECTRICAL RISER KEYED WORK NOTES:

A. EXISTING 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FROM BASE BUILDING DISTRIBUTION SYSTEM TO REMAIN. E.C. SHALL COORDINATE WITH THE BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION. REPORT TO ENGINEER ON RECORD FOR ANY DISCREPANCIES.

B. EXISTING 200A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "17702" TO REMAIN. E.C. TO FIELD VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

C. EXISTING INCOMING FEEDERS TO REMAIN. E.C. TO VERIFY OPERABLE CONDITION OF THE FEEDERS IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

NOTE:

1. RISER DIAGRAM SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD.
2. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
3. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION PRIOR TO COMMENCING ANY WORK.

ELECTRICAL RISER SYMBOLS:

- NEW
- EXISTING ITEM/FEEDER TO REMAIN
- EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED

ELECTRICAL RISER | SCALE N.T.S. | 1

NY ENGINEERS

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ELECTRICAL PLAN NOTES AND RISER DIAGRAM

E-1

ELECTRICAL GENERAL NOTES:

1. FOR ALL LV REQUIREMENTS. E.C. SHALL COORDINATE WITH THE LV VENDOR/GC FOR THE EXACT OPERATION AND THE POWER PROVISION PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
2. ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT, MECHANICAL, PLUMBING AND OTHER VENDORS FOR EXACT EQUIPMENT LOCATION AND INSTALLATION REQUIREMENTS.

ELECTRICAL LIGHTING PLAN KEYED WORK NOTES:

A. CONNECT ALL EMERGENCY EGRESS LIGHTING FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.

B. PROVIDE 120V, 1P/20A NEMA 3R NON FUSED DISCONNECT FOR EF-1(N) & EF-2(N). PROVIDE 120, 1P/20A WALL SWITCH FOR FAN CONTROL. VERIFY LOCATION IN FIELD.

C. EXHAUST FANS SHALL BE CIRCUITED AND CONTROLLED ALONG WITH THE LIGHT FIXTURES IN THE SAME ROOM.

D. CEILING MOUNTED SPEAKER. E.C. SHALL COORDINATE WITH THE LV VENDOR/GC FOR THE EXACT OPERATION AND THE POWER PROVISION PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.

E. E.C TO COORDINATE THE BUILDING SIGNAGE CONNECTION REQUIREMENTS WITH SIGN VENDOR. BASE BID ACCORDINGLY.

F. RECESSED DESIGNER FAN LIGHT TO BE PROVIDED BY FAN MANUFACTURER. E.C TO COORDINATE LIGHTING CONNECTION WITH FAN MANUFACTURER.

G. EXISTING LIGHT FIXTURE IN THIS AREA DENOTED BY (E) SHALL REMAIN CONNECTED TO THE RESPECTIVE EXISTING HOUSE PANEL ALONG WITH THEIR CONTROLS. E.C. SHALL VERIFY THE CONTROLS IN FIELD AND REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

H. E.C SHALL PROVIDE CAT 6 CABLING FOR IP SECURITY CAMERAS. PROVIDE AN ADDITIONAL 6 FEET OF CABLING AT EITHER SIDE END OF CONNECTION. E.C. SHALL COORDINATE WITH SECURITY DRAWINGS/SPECIALIST FOR EXACT LOCATION, POWER REQUIREMENTS AND MAKE PROVISIONS ACCORDINGLY.

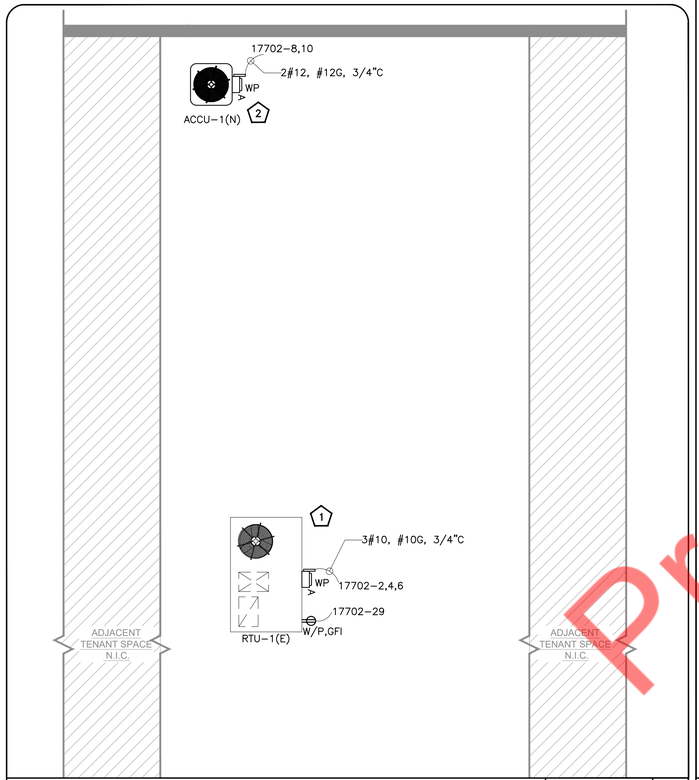
I. INTERLOCK EF-1(N) & EF-2(N) WITH RTU-1(E). E.C TO COORDINATE WITH MECHANICAL DRAWINGS.

ELECTRICAL POWER PLAN KEYED WORK NOTES:

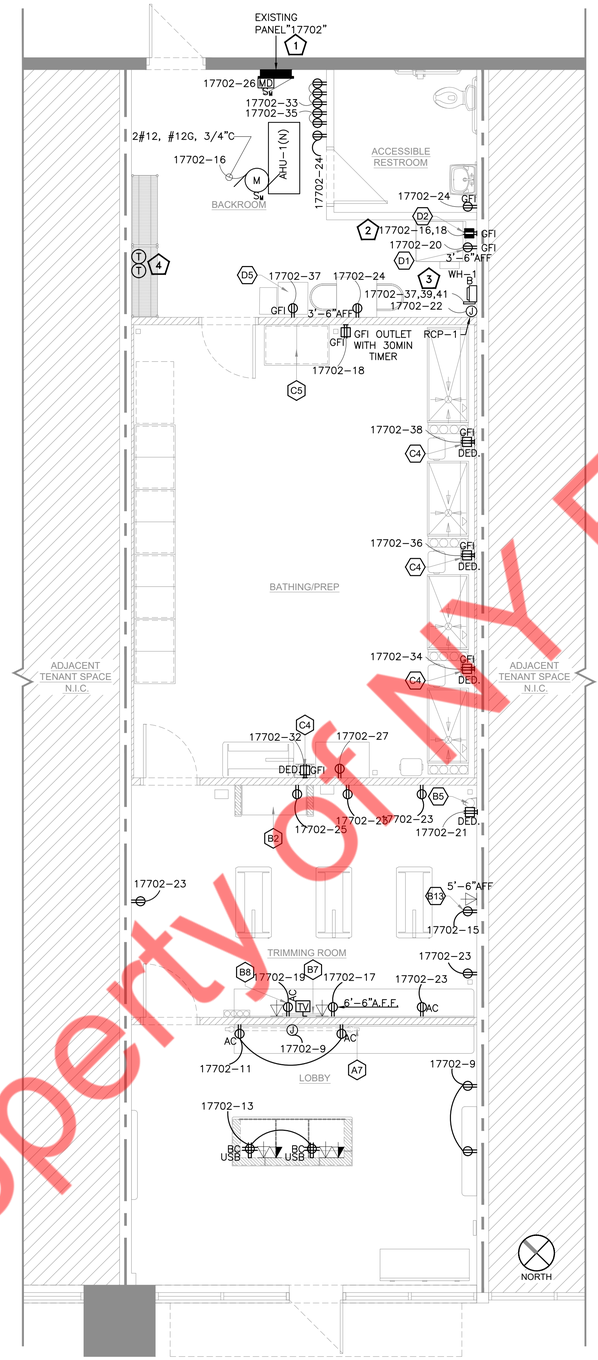
1. EXISTING 200A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "17702" TO REMAIN. E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
2. ELECTRICAL SUPPLY PROVISION FOR THE WASHER & DRYER. E.C. SHALL COORDINATE WITH THE OWNER/MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
3. NEW PROPOSED WATER HEATER WH-1. E.C. SHALL COORDINATE REQUIREMENT WITH PLUMBING CONTRACTOR. COORDINATE LOCATION WITH MANUFACTURER AND PLUMBING CONTRACTOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
4. THERMOSTAT FOR RTU-1(E) & AHU-1(N). CONFIRM FINAL LOCATION WITH CLIENT/ARCHITECT.

ELECTRICAL ROOF PLAN KEYED WORK NOTES:

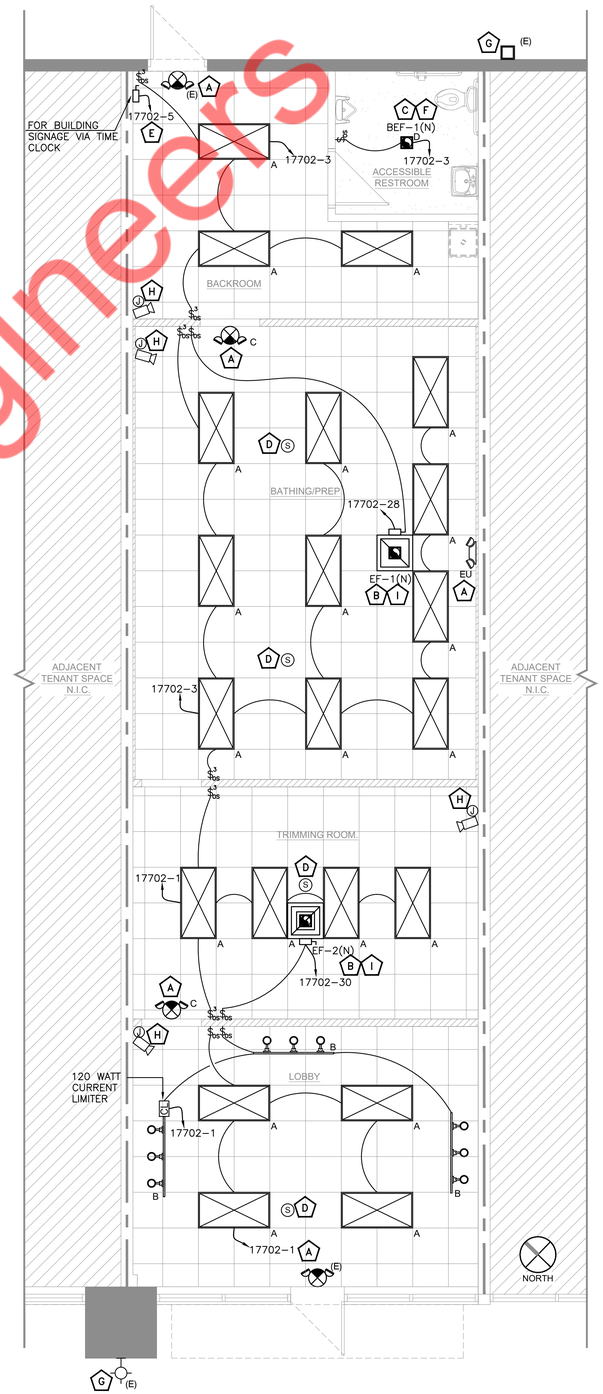
1. EXISTING RTU-1(E) UNIT SHALL REMAIN CIRCUITED TO THE EXISTING ELECTRICAL PANEL "17702". E.C. SHALL VERIFY THE EXISTING BREAKER SIZE AND MAKE SURE TO HAVE 30A BREAKER FOR PROTECTION OF THIS RTU. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY. COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH OWNER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.



ROOF PLAN | SCALE 1/4" = 1'-0" | 3



POWER PLAN | SCALE 1/4" = 1'-0" | 2



LIGHTING PLAN | SCALE 1/4" = 1'-0" | 1

NY ENGINEERS

PROJECT

SCENTHOUND

REVISIONS DATES:

SR. NO.	DETAIL	DATE

PROFESSIONAL SEAL

NOT FOR PERMIT OR BID
NOT FOR CONSTRUCTION

LIGHTING, POWER AND ROOF PLAN

E-2

PANEL SCHEDULE:

PANEL:	17702 (E)											MOUNTING:	SURFACE	
208Y/120	VOLTS,	3	PHASE,	4	WIRE							PANEL LOCATION:	BOH AREA	
MAIN CB	NA	MLO:	200A	BUS:	EXISTING	MIN,								
NOTE: L : LIGHTING, H : HVAC LOAD, M : MOTOR LOAD, R : RECEPTACLES, O : OTHER/MISC. (TYPICAL)														

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	LIGHTIING - LOBBY,TRIMMING ROOM (1)	L	0.40	2#12, #12G, 3/4"C	3.28				2.88	H			2
3	20	LIGHTIING - BATHING/PREP,BACK ROOM,RR, BEF-1(N) (1)	L	0.50	2#12, #12G, 3/4"C		3.38		3#10, #10G, 3/4"C	2.88	H	RTU-1(E)	3P-30A	4
5	20	SIGN/TIMECLOCK (1)	L	1.20	2#12, #12G, 3/4"C			4.08		2.88	H			6
7	20	SPARE				1.35			2#12, #12G, 3/4"C	1.35	H	ACCU-1(N)	2P-20	8
9	20	RECEPTACLE LOBBY (2)	R	0.54	2#12, #12G, 3/4"C		1.89			1.35	H			10
11	20	RECEPTACLE MENU FRAME(#A7) (2)	R	0.36	2#12, #12G, 3/4"C			2.86	2#10, #10G, 3/4"C	2.50	E	STACKED WASHER-DRYER(DRYER)(#D2) (3)	2P-30	12
13	20	RECEPTACLE FRONT DESK (1)	R	0.72	2#12, #12G, 3/4"C	3.22				2.50	E			14
15	20	RECEPTACLE WHITE BOARD(#B13) (1)	R	0.60	2#12, #12G, 3/4"C		1.40		2#12, #12G, 3/4"C	0.80	H	AHU-1(N)	20	16
17	20	RECEPTACLE-TV MONITOR(#B7) (1)	R	0.18	2#12, #12G, 3/4"C			1.04	2#12, #12G, 3/4"C	0.86	E	CAGE DRYER(#C5)	20	18
19	20	RECEPTACLE COMPUTER MONITOR(#B8)	R	0.18	2#12, #12G, 3/4"C	1.68			2#12, #12G, 3/4"C	1.50	R	STACKED WASHER-DRYER(WASHER)(#D1)	20	20
21	20	FLUFFER DRYER (#B5)	E	2.10	2#12, #12G, 3/4"C		2.19		2#12, #12G, 3/4"C	0.09	M	RCP-1	20	22
23	20	RECEPTACLE TRIMMING ROOM	R	0.90	2#12, #12G, 3/4"C			1.44	2#12, #12G, 3/4"C	0.54	R	RECEPTACLE REST ROOM, BOH AREA	20	24
25	20	SCALE(#B2)	E	0.36	2#12, #12G, 3/4"C	0.40			2#12, #12G, 3/4"C	0.04	M	MOTORISED DAMPER	20	26
27	20	RECEPTACLE BATHING/PREP ROOM	R	0.18	2#12, #12G, 3/4"C		0.46		2#12, #12G, 3/4"C	0.28	M	EF-1(N)	20	28
29	20	RECEPTACLE - TERRACE	R	0.18	2#12, #12G, 3/4"C			0.35	2#12, #12G, 3/4"C	0.17	M	EF-2(N)	20	30
31	20	LOW VOLTAGE PANEL RECEPTACLE	R	0.54	2#12, #12G, 3/4"C	2.64			2#12, #12G, 3/4"C	2.10	E	BLOW DRYER(#C4)	20	32
33	20	LOW VOLTAGE PANEL RECEPTACLE	R	0.36	2#12, #12G, 3/4"C		2.46		2#12, #12G, 3/4"C	2.10	E	BLOW DRYER(#C4)	20	34
35	20	MINI FRIDGE + MICROWAVE(#D5)	E	1.50	2#12, #12G, 3/4"C			3.60	2#12, #12G, 3/4"C	2.10	E	BLOW DRYER(#C4)	20	36
37	3P-60A	WH-1 (4)	O	5.00	3#6, #10G, 3/4"C	7.10			2#12, #12G, 3/4"C	2.10	E	BLOW DRYER(#C4)	20	38
39			O	5.00			5.00					SPARE	20	40
41			O	5.00				5.00				SPARE	20	42
TOTAL CONNECTED LOAD (KVA)						19.67	16.79	18.38						

LOAD CLASSIFICATION		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	L	2.10	125%	2.63
TOTAL RECEPTACLE	R	6.78	100%	6.78
TOTAL HVAC	H	12.15	100%	12.15
TOTAL MOTOR	M	0.58	100%	0.58
TOTAL EQUIPMENTS	E	18.22	65%	11.84
TOTAL OTHER/MISCILLANEOUS	O	15.00	100%	15.00

PANEL TOTAL LOAD		
TOTAL CONNECTED LOAD	54.83	KVA
TOTAL DEMAND LOAD	48.98	KVA
TOTAL CONNECTED CURRENT	152.37	AMP
TOTAL DEMAND CURRENT	136.11	AMP
SYSTEM VOLTAGE	120/208 Wye	

PANEL SCHEDULE KEY NOTE:

(1) E.C. TO PROVIDE 3 NOS OF 20A/1P BREAKERS IN PLACE OF EXISTING 1 NOS OF 20A/3P BREAKER. BASE BID ACCORDINGLY.

(2) E.C. TO PROVIDE 2 NOS OF 20A/1P BREAKERS IN PLACE OF EXISTING 1 NOS OF 20A/2P BREAKER. BASE BID ACCORDINGLY.

(3) E.C. TO PROVIDE 1 NOS OF 30A/2P BREAKER IN PLACE OF EXISTING 1 NOS OF 20A/2P BREAKER. BASE BID ACCORDINGLY.

(4) E.C. TO PROVIDE 1 NOS OF 60A/3P BREAKER IN PLACE OF EXISTING 2 NOS OF 20A/1P BREAKER AND WITH 1 SPACE FEEDER. BASE BID ACCORDINGLY.

PANEL SCHEDULE GENERAL NOTE:

A. ALL THE CIRCUITING FOR THE EXISTING ELECTRICAL PANEL "17702" IS SHOWN FOR THE REFERENCE PURPOSE ONLY. E.C. SHALL ADJUST/MODIFY THE CIRCUITS IF REQUIRED.
B. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
C. E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE.ALL THE NEWLY ADDED BREAKERS SHALL BE COMPATIBLE WITH THE EXISTING PANEL TYPE. BASE BID ACCORDINGLY.
D. E.C. SHALL VERIFY THE EXISTING EQUIPMENT LOAD & RATINGS IN FIELD AND ACCORDINGLY CONSIDER THE ELECTRICAL LOAD IN PANEL BOARD SCHEDULE.

EQUIPMENT SCHEDULE:

ITEM NO.	DESCRIPTION	VOLTAGE	PHASE	AMPS	kW
A7	MENU FRAME	120	1	3.00	0.360
B2	SCALE	120	1	3	0.360
B5	FLUFFER DRYER	120	1	17.5	2.100
B7	TV MONITOR	120	1	1.50	0.180
B8	COMPUTER MONITOR	120	1	1.50	0.180
B13	WHITE BOARD	120	1	5	0.600
C4	BLOW DRYER	120	1	17.5	2.100
C5	CAGE DRYER	120	1	7.191	0.863
D1	STACKED WASHER-DRYER(WASHER)	120	1	12.5	1.500
D2	STACKED WASHER-DRYER(DRYER)	208	1	24.04	5.000
D5	MINI FRIDGE+MICROWAVE	120	1	10.83	1.300

GENERAL NOTE:

1. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER AND CONNECTION REQUIREMENTS WITH THE MANUFACTURER PRIOR TO ROUGH–IN. BASE BID ACCORDINGLY.

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REVISIONS DATES:

SR. NO.	DETAIL	DATE

PROFESSIONAL SEAL

ELECTRICAL PANEL SCHEDULES & EQUIPMENT LIST

E-3

SCOPE OF WORK

PROVIDE ALL PLUMBING FOR NEW DOG GROOMING SERVICES INCLUDING ALL WATER, SANITARY & GAS LINES AND CONNECT TO EXISTING UTILITIES. PROVIDE NEW ELECTRIC STORAGE TYPE WATER HEATER.

COORDINATE WITH GC AND MECHANICAL CONTRACTOR FOR ANY REQUIRED CONDENSATE LINES.

PLUMBING GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE LOCAL CODES, RULES AND ORDINANCES.
2. PLUMBING CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THIS SET. CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING OR PRECEDING WITH WORK.
3. ALL EQUIPMENT WHICH IS TO REMAIN MUST BE REFURBISHED TO A LIKE NEW CONDITION.
4. PLUMBING CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS.
5. ALL MATERIALS SHALL BE NEW.
6. ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE. ALL EXCAVATION AND BACKFILL AS REQUIRED FOR THIS PHASE OF CONSTRUCTION SHALL BE A PART OF THIS CONTRACT.
7. REQUIRED INSURANCE SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
8. PLUMBING CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTION AND TESTS. PLUMBING CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT. PLUMBING CONTRACTOR MUST BE PRESENT FOR ALL INSPECTIONS OF HIS WORK BY REGULATORY AUTHORITIES.
9. DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE FOR THE EXACT LOCATION OF FIXTURES, PIPING, EQUIPMENT, ETC.
10. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION. REPORT ANY DISCREPANCY TO ENGINEER/ARCHITECT PRIOR TO BEGINNING CONSTRUCTION.
11. VERIFY LOCATION, SIZE, DIRECTION OF FLOW AND INVERTS OF ALL EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. ADVISE ENGINEER OF ANY DISCREPANCIES.
12. EXPOSED WATER PIPING SHALL BE TYPE "L" COPPER FOR 2" AND UNDER. WATER PIPING IN WALLS AND UNDERGROUND MAY BE "PEX" TYPE PIPING THAT MEETS ANSI/NSF STANDARD 61.
13. SOIL, WASTE, VENT AND RAINWATER PIPING SHALL BE PVC BUT MAY NOT RUN THRU RATED ASSEMBLIES OR IN PLENUMS.
14. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE STOPS AND APPROPRIATELY MARKED ACCESS PANELS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION.
15. FURNISH AND INSTALL APPROVED AIR CHAMBERS AT EACH PLUMBING FIXTURE GROUP AS PER CODE AND WITH GOOD ENGINEERING PRACTICE.
16. DIELECTRIC COUPLINGS ARE REQUIRED BETWEEN ALL DISSIMILAR METAL IN PIPING AND EQUIPMENT CONNECTIONS; EXCEPT AT WATER HEATER AS PER CODE.
17. ISOLATE COPPER PIPE FROM HANGER OR SUPPORTS WITH ISOLATOR PAD.
18. ALL FIRE RATED FLOOR AND WALL PENETRATIONS SHALL BE PROPERLY PROTECTED FROM FIRE, SMOKE AND WATER PENETRATION BY FILLING VOIDS BETWEEN PIPE AND WALL/FLOOR SLEEVES WITH FIRE RATED FOAM, TO ACHIEVE THE SAME RATING AS WALLS OR FLOORS AS PART OF THE PLUMBER'S WORK.
19. PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF CERTIFICATE OF OCCUPANCY. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE WITHIN 72 HOURS OF NOTIFICATION AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED. PROVIDE COPY TO LL.
20. STUDOR MINI/MAXI AIR ADMITTANCE VALVES MAY NOT BE USED AS AN ALTERNATE TO VENT PIPING THRU ROOF.
21. PROVIDE CHROME PLATED COMBINATION COVER PLATE AND CLEAN OUT PLUG OR ACCESS PANEL FOR ALL CLEANOUTS.
22. NO COMBUSTIBLE MATERIAL TO BE USED IN MECHANICAL ROOMS OR IN CEILING SPACES WHERE USED AS RETURN AIR PLENUMS.
23. NO WATER, SANITARY OR DRAINAGE PIPING PERMITTED IN ELECTRICAL OR ELEVATOR EQUIPMENT ROOMS.
24. WATER PIPING INSULATION SHALL BE 1" THICK ARMAFLEX INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR ALL HOT WATER PIPING. WHERE DOMESTIC WATER TEMPERATURES CAN CAUSE SWEATING, ALL COLD WATER PIPING SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX INSULATION.
25. CONDENSATE DRAIN LINES TO BE RUN UNDER SLAB IN PVC SCH40 PIPE AND STUBBED OUT OF WALL TO UNIT. TIE-IN OF A/C TO BE BY OTHERS. PVC PIPING WITH 1/2" THICK ARMAFLEX INSULATION MAY BE USED IN LOCATIONS WHERE ALLOWED BY LOCAL CODES. SEE PLUMBING DRAWINGS FOR SIZE AND LOCATION OF PIPING. PVC WILL BE MIN. SCHEDULE 40 FOR SIZE AND LOCATION OF PIPING. PVC WILL BE MIN. SCHEDULE 40.
26. PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.
27. NO JOINTS UNDERGROUND FOR COPPER.
28. PLUMBING FIXTURES SHALL COMPLY WITH 2020 MINNESOTA PLUMBING CODE.
29. WATER HAMMER ARRESTORS AS PER 2020 MINNESOTA PLUMBING CODE.
30. PLUMBING CONTRACTOR SHALL REVIEW ALL BID DOCUMENTATION.
31. PLUMBING CONTRACTOR SHALL REVIEW WALL FINISHES @ LOCATION REQUIRING BARRIER-FREE COMPLIANCE (EXAMPLE: CENTER LINE TO TOILET)
32. CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF ACCEPTANCE. PROVIDE A COPY TO LL.
33. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER. PROVIDE A COPY TO LL.
34. PLUMBING CONTRACTOR TO PROVIDE ANTI-SCALDING VALVE FOR TUBS AND SHOWERS.

FIXTURE BRANCH SCHEDULES

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
WATER CLOSET (TANK)	E	--	E	E
LAVATORY	E	E	E	E
FLOOR DRAIN	--	--	3"	2"

PLUMBING LEGEND

—SAN—	SANITARY PIPING (BELOW GROUND)
—V—	VENT PIPING
SAN	SANITARY PIPING (ABOVE GROUND)
	DOMESTIC COLD WATER PIPING
EX.CW	EXISTING COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
EX.HW	EXISTING HOT WATER PIPING
G	GAS PIPING
	PIPE RISE
	PIPE DROP
	CAPPED END OF PIPE
FCO	FLOOR CLEAN OUT
CO	CLEAN OUT
	P-TRAP
	GAS SHUT OFF VALVE
	GAS PRESSURE REGULATOR
AAV	AIR ADMITTANCE VALVE
S.O.V.	SHUT-OFF VALVE
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
	GATE VALVE
	CHECK VALVE
	BALANCING VALVE
	WATER HAMMER ARRESTER
FD	FLOOR DRAIN
	POINT OF CONNECTION
	THERMOSTATIC MIXING VALVE

ENERGY CONSERVATION NOTES

1. AS PER 2020 MINNESOTA ENERGY CODE (ADOPTS IECC 2018) C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE C403.11.3 OF MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS							
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)				
	CONDUCTIVITY BTU· IN./ (H· FT2· °F)	MEAN RATING TEMPERATURE, °F	<1	1 TO <1½	1½ TO <4	4 TO <8	≥8
141-200	0.25-0.29	125	1.5	1.5	2	2	2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0	1.0

2. HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2020 MINNESOTA ENERGY CODE (ADOPTS IECC 2018) C404.5.1. THE MAXIMUM ALLOWABLE PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
⅜"	3'	50'
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

3. AS PER 2020 MINNESOTA ENERGY CODE (ADOPTS IECC 2018) C404.6.1, AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RE-CIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.
4. AS PER 2020 MINNESOTA ENERGY CODE (ADOPTS IECC 2018) C404.7, PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:

A. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.

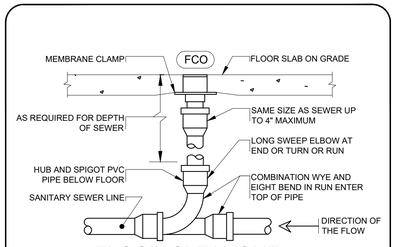
B. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

RESTROOM FIXTURE SCHEDULE

Item No.	Qty.	Description	Manufacturer	Model	WATER Hot	WATER Cold	WASTE Waste	Usage	Spec
F1.1	1	WATER CLOSET	EXISTING TO REMAIN	EXISTING TO REMAIN		E	E		
	1	ELONGATED SEAT	EXISTING TO REMAIN	EXISTING TO REMAIN					
F2.1	1	LAVATORY	EXISTING TO REMAIN	EXISTING TO REMAIN			E		
F3.1	1	LAVATORY FAUCET	EXISTING TO REMAIN	EXISTING TO REMAIN	E	E			
	1	THERMAL MIXING VALVE	EXISTING TO REMAIN	EXISTING TO REMAIN					
	1	INSULATED PLUMBING COVER	EXISTING TO REMAIN	EXISTING TO REMAIN					

KITCHEN EQUIPMENT PLUMBING SCHEDULE

Item No.	Qty.	Description	Manufacturer	Model	WATER Hot	WATER Cold	WASTE Waste	Usage	Spec
C1	3	48" BATHING TUB	DURA DOG	GTU50S			4"		
C2	1	62" BATHING TUB	DURA DOG	GTU60S			4"		
C3	4	COMPLETE FAUCET PACKAGE	PETLIFT	PL2575	1/2"	1/2"			
D1	1	STACKED WASHER-DRYER (WASHER)	SAMSUNG	WF50A8500AV	1/2"	1/2"	2"		
D1.1	1	STACKED WASHER LINT FILTER	FILTROL	F160-1					
D2	1	STACKED WASHER-DRYER (DRYER)	SAMSUNG	DVE50A8500V			2"		
D4	1	WATER HEATER	SEE SCHEDULE	SEE SCHEDULE	3/4"	3/4"			



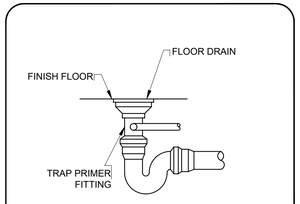
FLOOR CLEANOUT

NOT TO SCALE

*NOTE- COORDINATE WITH ARCHITECT FOR PATCHING/TRENCHING THE SLAB.

FLOOR CLEANOUT DETAIL NOTES

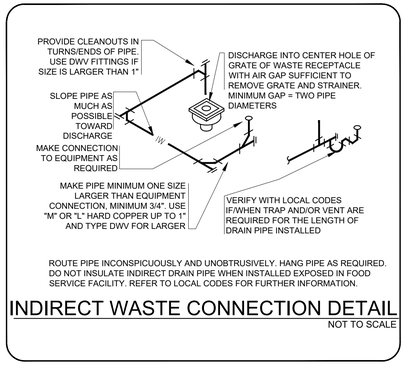
1) LOCATE CLEANOUT AT THIS LOCATIONS:
   A) BUILDING EXIT
   B) AT TURNS OF PIPES GREATER THAN 45 DEGREES
   C) AT 90' INTERVALS ON STRAIGHT RUNS
   D) WHERE IS SHOWN ON PLANS
   E) WHERE IS 18" CLEAR AROUND



FLOOR DRAIN

TRAP RESEAL DETAIL

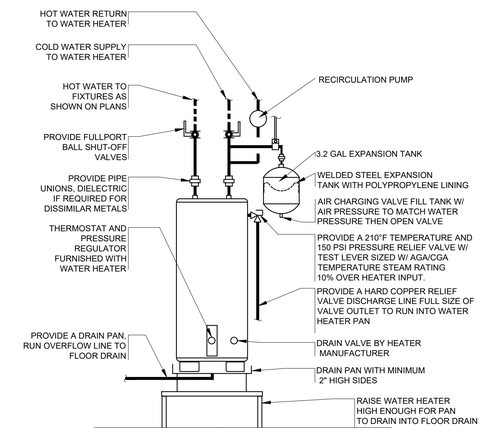
NOT TO SCALE



ROUTE PIPE INCONSPICUOUSLY AND UNOBTRUSIVELY. HANG PIPE AS REQUIRED. DO NOT INSULATE INDIRECT DRAIN PIPE WHEN INSTALLED EXPOSED IN FOOD SERVICE FACILITY. REFER TO LOCAL CODES FOR FURTHER INFORMATION.

INDIRECT WASTE CONNECTION DETAIL

NOT TO SCALE

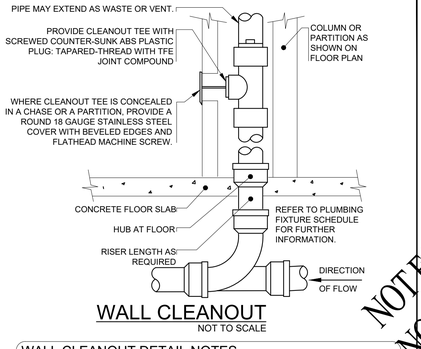


WATER HEATER DETAIL

NOT TO SCALE

WATER HEATER DETAIL NOTES

1) PIPING ARRANGEMENT SHOWN IS SCHEMATIC
2) ADJUST TO SUIT FIELD CONDITIONS.
3) REFER ISOMETRIC RISER FOR PIPES SIZES
4) SET HEATER THERMOSTAT AT 140° F



WALL CLEANOUT

NOT TO SCALE

WALL CLEANOUT DETAIL NOTES

1) PROVIDE WCO WHERE SHOWN ON PLANE, AND ON SANITARY WASTE BRANCHES NOT SERVED WITH A FLOOR CLEANOUT
2) LOCATE ABOVE FIXTURE FLOOR RIM WITHIN 4" OF FLOOR.
3) CONSULT LOCAL CODES FOR OTHER WCO REQUIREMENTS.
4) LONG SWEEP AT END OF LINE OR COMBINATION WYE AND EIGHT BEND IN RUN OF LINE
5) CLEAN OUT FACE SHALL BE WITHIN 4" OF WALL SURFACE. PROVIDE A PIPE EXTENSION IF REQUIRED

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PLUMBING NOTES & DETAILS

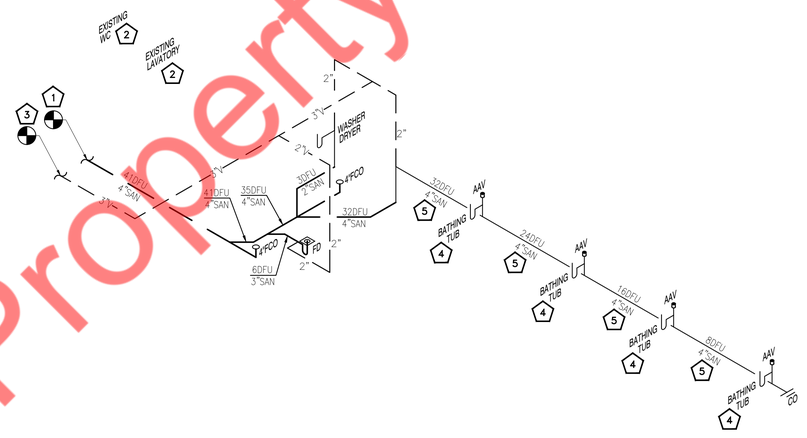
P-1

SANITARY PLAN & RISER KEY NOTES

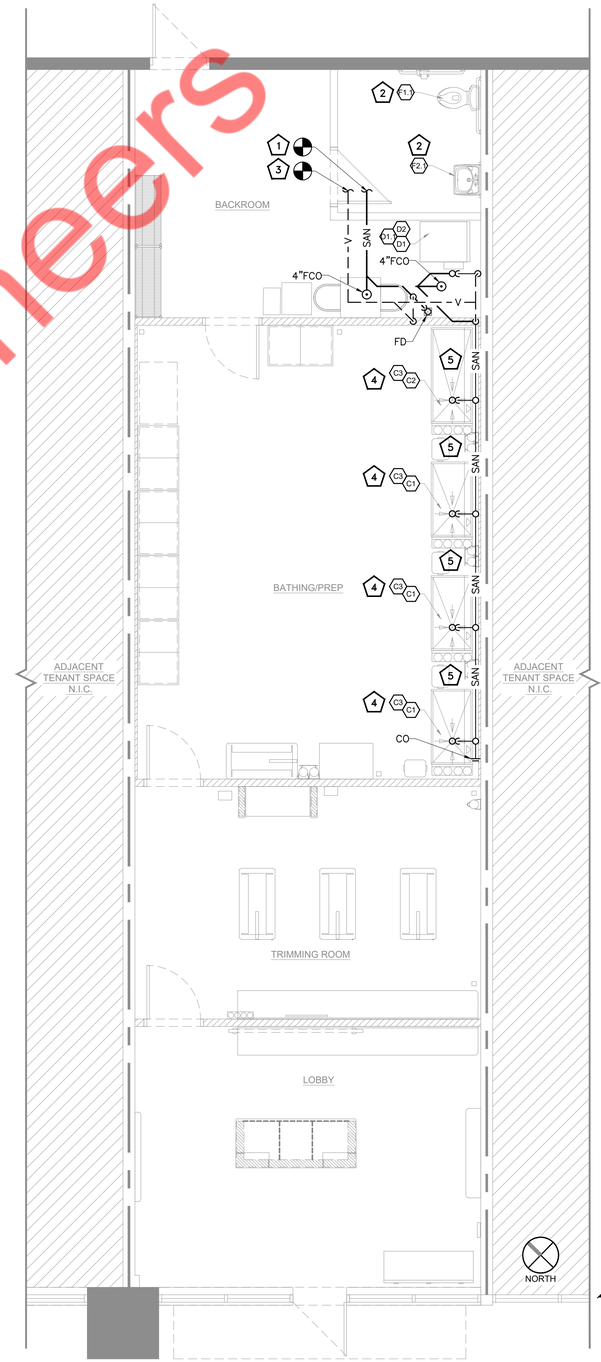
1. CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY WASTE LINE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, ROUTING AND INVERT OF EXISTING SANITARY LINE.
2. EXISTING PLUMBING FIXTURE WITH EXISTING SANITARY & VENT CONNECTIONS TO REMAIN. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED.
3. CONNECT NEW 3" VENT LINE TO EXISTING VENT PIPE IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION AND ROUTING OF EXISTING VENT LINE.
4. PROVIDE HAIR INTERCEPTOR PETLIFT MODEL PL625 UNDER BATHING TUB. VERIFY IN FIELD.
5. IN BATHING/PREP AREA SANITARY LINE IS RUNNING ABOVE SLAB BELOW TUBS OUTSIDE DEMISING WALL.

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM TO BE 1/8" PER FOOT OF RUN FOR PIPE 4" AND OVER, 1/4" PER FOOT FOR PIPE 3" AND SMALLER.
2. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
3. ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
4. PROVIDE ACCESS PANELS FOR CLEANOUTS AS REQUIRED.



SANITARY RISER | SCALE N.T.S. | 2



SANITARY PLAN | SCALE 1/4" = 1'-0" | 1

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SANITARY PLAN & RISER

P-2

RECIRCULATION PUMP SCHEDULE	
MANUFACTURER & MODEL	GRUNDFOS UP 15-18 B5
EQUIPMENT TAG	RCP-1
STATUS	NEW
GPM	2
WATER TEMP.(°F)	140
PUMP TYPE	INLINE
MHP	86 WATTS
V/PH/HZ	115/1/60
RPM	2280
SERVICE FACTOR	1.0

NOTE:

PROVIDE AQUA STAT WITH AUTOMATIC TIMER KIT FOR THE TEMPERATURE CONTROL OF HOT WATER SYSTEM. COORDINATE ELECTRICAL REQUIREMENTS FOR TIMER WITH ELECTRICAL CONTRACTOR.

WATER HEATER SCHEDULE	
MANUFACTURER	A.O.SMITH
MODEL	DSE-100A
NO. ELEMENTS	3
EQUIPMENT TAG	WH-1
STATUS	NEW
CAPACITY	100 GALLON
TYPE	ELECTRICAL
KW	15
RECOVERY CAPACITY	61 GPH*
STAND BY LOSSES	0.57
VOLTS / PH / HZ	208/3/60
AMPERAGE	41.6
WEIGHT (EMPTY)	419 LBS.

* @ 100° F TEMPERATURE RISE
INSTALL NEW EXPANSION TANK (ET-1) AMTROL MODEL THERM-X-TROL ST-12C-DD, 3.2 GAL PER LOCAL CODE REQUIREMENTS.

WATER PLAN & RISER KEY NOTES

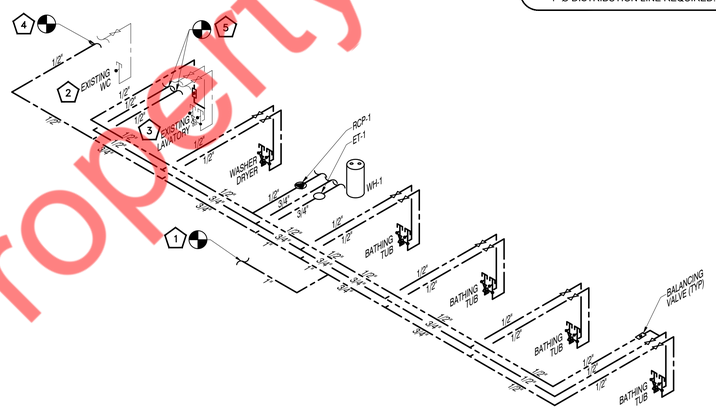
1. CONNECT NEW 1" CW LINE TO EXISTING WATER LINE WITH EXISTING SHUT-OFF VALVE. CONTRACTOR TO FIELD VERIFY SIZE & LOCATION OF EXISTING WATER LINE AND UPGRADE IF REQUIRED. CONTRACTOR TO VERIFY WATER SUBMETER AND BACKFLOW PREVENTER REQUIREMENT WITH LANDLORD/OWNER PRIOR TO BID AND PLACE BID ACCORDINGLY.
2. EXISTING WATER CLOSET WITH EXISTING COLD WATER CONNECTION TO REMAIN. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED.
3. EXISTING LAVATORY AND EXISTING FAUCET WITH COLD & HOT WATER CONNECTIONS TO REMAIN. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED. CONNECT NEW HOT WATER RETURN LINE WITH BALANCING VALVE TO EXISTING HOT WATER LINE AS SHOWN.
4. EXTEND TO CONNECT NEW ½" CW PIPING TO EXISTING CW LINE FOR THE EXISTING WATER CLOSET CONNECTION.
5. EXTEND TO CONNECT NEW ½" CW & HW PIPING TO EXISTING CW & HW LINE FOR THE EXISTING LAVATORY CONNECTION.

GENERAL NOTES

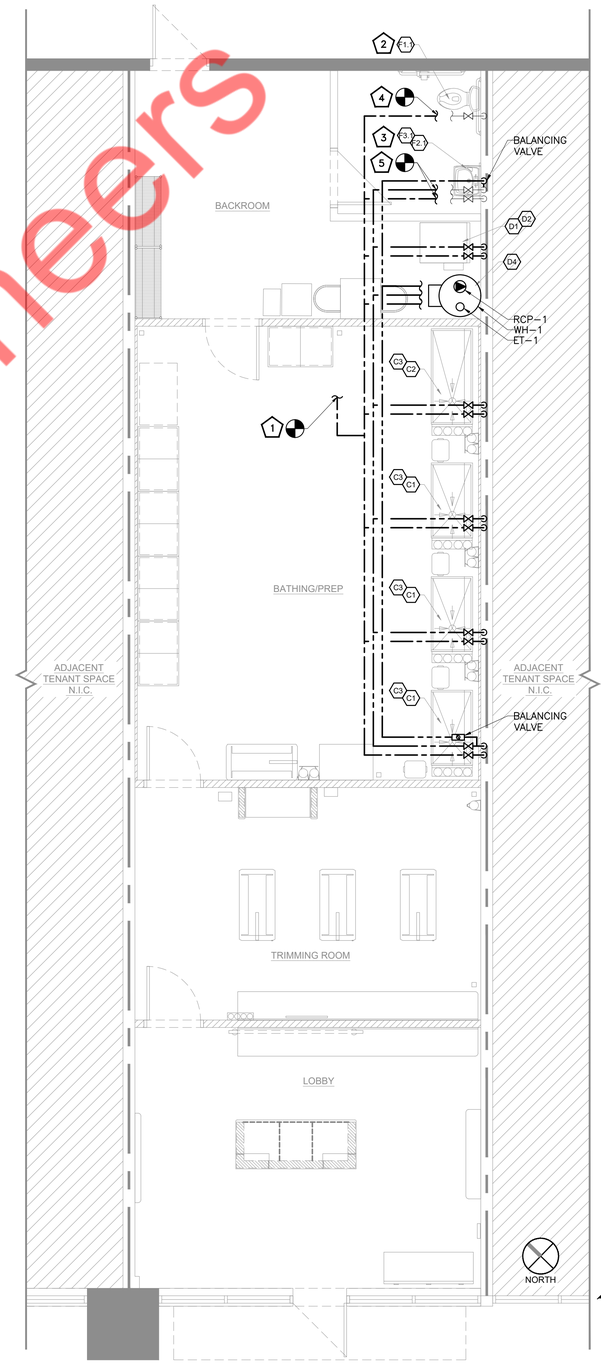
1. CW/HW/HWR PIPING TO BE PROVIDED WITH INSULATION AS PER 2018 INTERNATIONAL ENERGY CONSERVATION NOTES (REFER SHEET P-1)
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
4. WATER HEATERS DRAIN SPILLS TO FLOOR DRAIN.

FIXTURE FACTOR VALUE *		
1 WATER CLOSETS (E) @ 5.5	=	5.5
1 LAVATORY (E) @ 1	=	1
1 WASHER DRYER (N) @ 4	=	4
4 BATHING TUB (N) @ 4	=	16
TOTAL	=	26.5

* AS PER 2020 MINNESOTA PLUMBING CODE TABLE A 103.1
1" Ø DISTRIBUTION LINE REQUIRED.



WATER RISER | SCALE N.T.S. | 2



WATER PLAN | SCALE 1/4" = 1'-0" | 1

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WATER PLAN & RISER

P-3

GAS PLAN & RISER KEY NOTES

1. CONNECT NEW 1-1/4" NEW GAS LINE TO EXISTING GAS LINE FOR OUR SPACE IN ROOF WITH EXISTING 250 MBH GAS METER. CONTRACTOR TO FIELD VERIFY SIZE, PRESSURE & LOCATION OF EXISTING GAS PIPE LINE AND METER AND UPGRADE IF NOT ADEQUATE.
2. EXISTING RTU-1(E) TO REMAIN WITH EXISTING BRANCH 1" GAS PIPING & ASSOCIATED ACCESSORIES AND CONNECT EXISTING BRANCH PIPING TO NEW 1-1/4" MAIN PIPE. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING & ACCESSORIES AND REPLACE IF REQUIRED. UPGRADE THE EXISTING PIPE SIZE IF NOT ADEQUATE.
3. PROVIDE GAS PRESSURE REGULATOR AS REQUIRED. CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR MECHANICAL EQUIPMENTS.
4. GAS PIPE RUNNING IN THE ROOF AREA.

NATURAL GAS PIPING SYSTEM

PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, SHUT-OFF VALVES, PRESSURE REGULATORS AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

NOTES:

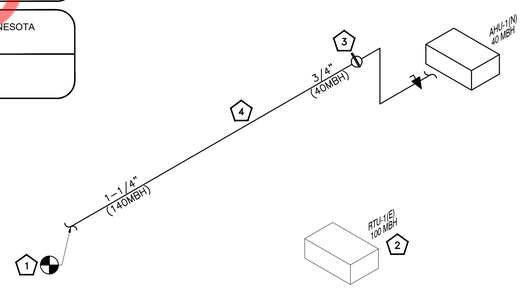
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W(125 CAST IRON SCREWD FITTINGS
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
3. VERIFY EQUIPMENT BTU PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TO 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE TABLE 402.4(2).

GAS PIPE SIZING PER TABLE 402.4(2) 2020 MINNESOTA MECHANICAL AND FUEL GAS CODE

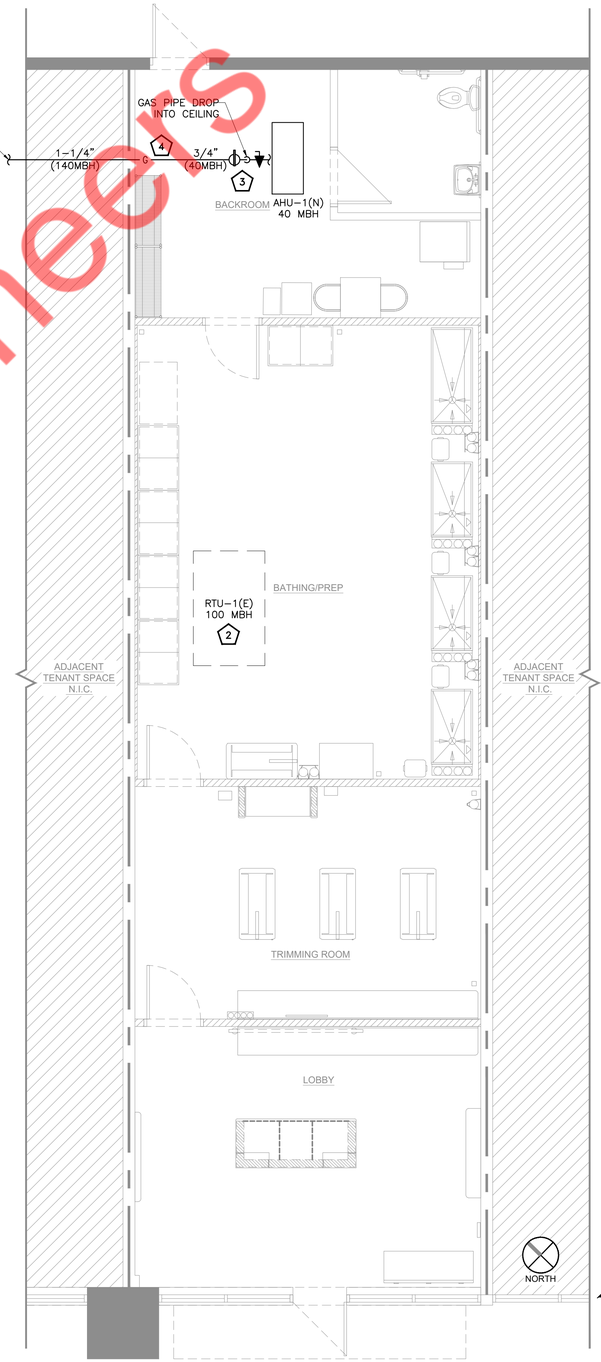
EQUIVALENT LENGTH OF PIPE =
175+20= 195 FEET
+ FITTINGS (+40%) = 273 FEET

GAS SCHEDULE

ITEM NO.	QTY.	DESCRIPTION	MANUFACTURER	MODEL	SIZE	BTU/HR.
AHU-1(N)	1	SPLIT SYSTEM	REFER MECHANICAL SCHEDULE	REFER MECHANICAL SCHEDULE	3/4"	40,000
RTU-1(E)	1	ROOF TOP UNIT	REFER MECHANICAL SCHEDULE	REFER MECHANICAL SCHEDULE	1"	100,000
				TOTAL LOAD		140,000



GAS RISER | SCALE N.T.S. | 2



GAS PLAN | SCALE 1/4" = 1'-0" | 1

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GAS PLAN & RISER

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