SCOPE OF WORK

PROVIDE ONE NEW 7.5 TON AND ONE NEW 5.0 TON GAS HEAT ROOF TOP UNITS. PROVIDE NEW DUCTWORK AND NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEM.

PROVIDE TWO NEW BATHROOM EXHAUST FANS, ONE NEW MOP SINK EXHAUST FAN AND ONE NEW ENERGY RECOVERY VENTILATOR FOR THE PET AREA.

COORDINATE WITH GC ANY ADDITIONAL REFRIGERATION WORK REQUIRED AND WITH GC AND PLUMBING CONTRACTOR PROVIDING CONDENSATE LINES FOR MECHANICAL EQUIPMENT.

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 ARCHITECT'S 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 EXPOSED DUCT ARE INTERNALLY INSULATED AND ALL DUCTS OVER CEILINGS ARE EXTERNALLY INSULATED.

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

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

L. 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.

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

MECHANICAL PLAN NOTES

A. PROVIDE ONE NEW 7.5 TON AND ONE NEW 5.0 TON GAS HEAT ROOF TOP UNITS. PROVIDE NEW DUCTWORK AND NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEM. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AIR DUCT CONNECTIONS. TRANSITION TO DUCT SIZES SHOWN. PROVIDE DUCTWORK AND AIR DISTRIBUTION DEVICES AS INDICATED ON THE PLAN. REFER TO RTU UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

B. FOR SYSTEM OVER 2,000 CFM CHECK FOR DUCT MOUNTED AIR SMOKE DETECTORS AND THAT 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. THERMOSTAT & HUMIDISTAT SHALL BE 7-DAY PROGRAMMABLE TYPE. MOUNT THERMOSTAT & H-STAT 48" A.F.F. COORDINATE LOCATION OF THERMOSTAT & H-STAT WITH ARCHITECT.

E. ALL INTERIOR AIR DUCTS WITH INSULATION SHALL HAVE A MINIMUM OF THICKNESS OF 1.5", R-6 INSULATION. EXTERIOR AIR DUCTS TO HAVE R-8 INSULATION ACCORDING TO 2015-IECC.

F. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.

G. 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.

H. 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.

I. ALL NEW RTU CONDENSATE DRAINS WILL BE PVC FULL DIAMETER OF OUTLET AND WILL TERMINATE IN THE NEAREST APPROVED PLACE OF DISPOSAL.

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

K. TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH 2015 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.

L. 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.

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

FULSHEAR , TX BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2015 IBC 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. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2015 IMC WITH AMENDMENTS:
   A. VENTILATION SYSTEM- 2015 IMC 403.1
3. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2015 IMC CHAPTER 4.
4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. STANDARDS OF HEATING - INTERNATIONAL MECHANICAL CODE 2015 - 309.1
   B. DUCT CONSTRUCTION AND INSTALLATION - INTERNATIONAL MECHANICAL CODE 2015 - 603
   C. AIR INTAKES, EXHAUSTS AND RELIEF - INTERNATIONAL MECHANICAL CODE 2015 - 401.5
   D. AIR FILTERS - INTERNATIONAL MECHANICAL CODE 2015 - 605
   E. GAS FIRED EQUIPMENT - 2015 INTERNATIONAL FUEL & GAS CODE
   F. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - 2015 INTERNATIONAL MECHANICAL CODE - 606
5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
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 2015 IMC 403.3.
7. 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 EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
8. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
9. SMOKE DETECTOR SHALL MEET UL268A.
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 TO SUBMIT THE AIR - BALANCE REPORT TO INSPECTOR OF RESPECTIVE BUILDING DEPARTMENT PRIOR TO FINAL INSPECTION.

THERMOSTATIC CONTROLS

C403.2.4.1 THERMOSTATIC CONTROLS
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, AT LEAST 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:

1. THE PERIMETER SYSTEM INCLUDES AT LEAST 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); AND
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.2.4.1.2 DEADBAND
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CAPABLE OF PROVIDING A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING 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.

C403.2.4.1.3 SETPOINT OVERLAP RESTRICTION
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 PROVIDED WITH THE CAPABILITY TO PREVENT THE HEATING SET POINT FROM EXCEEDING THE COOLING SET POINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.2.4.1.2.

C403.2.4.2 OFF-HOUR CONTROLS
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 READILY ACCESSIBLE MANUAL SHUTOFF SWITCH.
3. HVAC SYSTEMS SERVING HOTEL/MOTEL GUESTROOMS OR OTHER RESIDENTIAL UNITS COMPLYING WITH SECTION C403.2.2 REQUIREMENTS.

C403.2.4.2.1 THERMOSTATIC SETBACK CAPABILITIES
THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAINZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.2.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES
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 AT LEAST 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 CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

C403.2.4.2.3 AUTOMATIC START CAPABILITIES
AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM PROVIDED WITH SETBACK CONTROLS AND DIRECT DIGITAL CONTROL (DDC) SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

ROOF TOP UNIT SCHEDULE

UNIT TAG	RTU -1(N)	RTU -2(N)
UNIT	GAS HEAT	GAS HEAT
MANUFACTURER	CARRIER	CARRIER
MODEL	48FCDM08B2A5 (OR EQUIVALENT)	48FCEA06B2A5 (OR EQUIVALENT)
STATUS	NEW	NEW
MOUNTING	ROOF	ROOF
NOMINAL CAPACITY	7.5 TONS	5.0 TONS
TOTAL COOLING MBH	84.5	55.0
SENSIBLE COOLING MBH	63.0	43.4
EER	11.2	11.0
IEER	15.0	-
SEER	-	14.0
HEATING MBH (IN)	125.0	110.0
HEATING MBH (OUT)	103.0	88.0
THERMAL EFF. (%)	82	80
SUPPLY AIR (CFM)	3000	2000
OUTDOOR AIR (CFM)	540	490 (ONLY THROUGH ERV)
ESP (IN WG)	1.0	1.0
V/PH/HZ	208-230/3/60	208-230/3/60
MCA (A)	39.0	31.0
MOCP (A)	50.0	45.0
WEIGHT (LBS)	1100	750

NOTES :
1. PROVIDE FULL PERIMETER 14" HIGH ROOF CURB.
2. PROVIDE DUCT MOUNTED SMOKE DETECTOR FOR RTUS IN RETURN SIDE IF RETURN AIR IS MORE THAN 2000 CFM.
3. PROVIDE 2" MERV-8 FILTERS.
4. PROVIDE HINGED PANELS FOR FILTER ACCESS, FAN MOTOR ACCESS, COMPRESSOR ACCESS AND CONTROL COMPARTMENT ACCESS.
5. CONTRACTOR TO PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT FOR RTU WITH HUMIDITY CONTROL.
6. PROVIDE HAIL GUARD.
7. PROVIDE NON FUSED DISCONNECT SWITCH.
8. PROVIDE WITH TUBE & FIN COIL SYSTEM.
9. PROVIDE WITH DRAIN PAN OVERFLOW SWITCH.
10. PROVIDE WITH STANDARD CAP AND PHASE MONITOR SYSTEM.
11. PROVIDE MULTISTAGE AIR VOLUME.
12. PROVIDE WITH GFCI FLD WIRED.
13. UNIT TO BE PROVIDED WITH LOW AMBIENT OPERATION CAPABILITIES.
14. PROVIDE ULTRA LOW LEAK ENTHALPY ECONOMIZER WITH FDD AND BAROMETRIC RELIEF.
15. PROVIDED HOT GAS BYPASS SYSTEM.

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

OCCUPANCY CALCULATION PER IMC 2015, TABLE 403.3.1.1

RETAIL AREA	1467 SQ. FT.@15 PEOPLE/1000SQ.FT.	23	PEOPLE
BREAK ROOM / STORAGE	281 SQ. FT.@70 PEOPLE/1000SQ.FT.	4	PEOPLE
DOG WASH STATION/ WASHOUT/ STAGING STATION	831 SQ. FT.@10 PEOPLE/1000SQ.FT.	9	PEOPLE
LAUNDRY	82 SQ. FT.@10 PEOPLE/1000SQ.FT.	1	PEOPLE
OFFICE	41 SQ. FT.@5 PEOPLE/1000SQ.FT.	1	PEOPLE
DRYER	94 SQ. FT.@20 PEOPLE/1000SQ.FT.	3	PEOPLE
	TOTAL	41	PEOPLE

VENTILATION REQUIREMENTS PER IMC 2015, TABLE 403.3.1.1

RETAIL	1467 SQ. FT. X 0.12 CFM/SQ. FT. =	176	CFM
	23 PEOPLE. X 7.5 CFM/PEOPLE. =	173	CFM
OFFICE	41 SQ. FT. X 0.06 CFM/SQ. FT. =	3	CFM
	1 PEOPLE. X 5 CFM/PEOPLE. =	5	CFM
BREAK ROOM / STORAGE	281 SQ. FT. X 0.18 CFM/SQ. FT. =	51	CFM
	4 PEOPLE. X 7.5 CFM/PEOPLE. =	30	CFM
DOG WASH STATION/ WASHOUT/ STAGING STATION	831 SQ. FT. X 0.18 CFM/SQ. FT. =	150	CFM
	9 PEOPLE. X 7.5 CFM/PEOPLE. =	68	CFM
LAUNDRY	1 PEOPLE. X 25 CFM/PEOPLE. =	25	CFM
DRYER	3 PEOPLE. X 30 CFM/PEOPLE. =	90	CFM
OUTSIDE AIR REQUIRED		771	CFM
EXHAUST REQUIRED:			
DOG WASH STATION/ WASHOUT/ STAGING STATION	831 SQ. FT. X 0.9 CFM/SQ. FT. =	748	CFM
MEN RESTROOM	70 CFM PER FIXTURE. =	70	CFM
WOMEN RESTROOM	70 CFM PER FIXTURE. =	70	CFM
MOP SINK	70 CFM	70	CFM
AIR BALANCE			
OUTSIDE AIR THROUGH RTU-1(N)		+540	CFM
OUTSIDE AIR THROUGH RTU-2(N)		+490	CFM
EF-1 (N)		-70	CFM
EF-2 (N)		-70	CFM
EF-3 (N)		-70	CFM
ERV-1(N)		-770	CFM
BUILDING PRESSURE		+50	CFM

FAN SCHEDULE

DESIGNATION	EF-1(N)	EF-2(N)	EF-3(N)
STATUS	NEW	NEW	NEW
QUANTITY	1	1	1
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK
MODEL	SP-A50-90	SP-A50-90	SP-A50-90
CFM	70@0.3 IN. W.C ESP	70@0.3 IN. W.C ESP	70@0.3 IN. W.C ESP
FLA (AMPS)	0.29	0.29	0.29
FAN RPM	838	838	838
ACCESSORIES	BDD,LITE KIT	BDD,LITE KIT	BDD,LITE KIT
WEIGHT (LBS)	15	15	15
V/PH/HZ	115/1/60	115/1/60	115/1/60

NOTES:
1. PROVIDE DISCONNECT SWITCH.
2. PROVIDE BACK DRAFT DAMPER.
3. INTERLOCK EF-1(N) & EF-2(N) WITH OCCUPANCY SENSOR.
4. INTERLOCK EF-3(N) WITH ROOM LIGHT.

DIFFUSER SCHEDULE

MANUFACTURER	TITUS	TITUS	TITUS	TITUS
DESIGNATION	A	A1	R	E
USE	SUPPLY	SUPPLY	RETURN	EXHAUST
MODEL	TDC-AA	TDC-AA	56FL	56FL
MOUNTING	CEILING	CEILING	CEILING	CEILING
LOCATION	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN
FACE SIZE	24" X 24"	12"X12"	24" X 24"	24" X 24"
NECK SIZE	REFER TABLE - A	REFER TABLE - A	-	-
FRAME TYPE	LAY IN	LAY IN / FLANGED	LAY IN	LAY IN
ACCESSORIES	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER

NOTES :
1. MAX. NC LEVEL 30 OR LESS.
2. PROVIDE SQUARE TO ROUND NECK ADAPTOR.
3. COORDINATE WITH ARCHITECT FOR PAINT AND FINISH.
4. PROVIDE 4-WAY AIR THROW PATTERN UNLESS NOTED OR INDICATED.
5. PROVIDE INSULATED BACKS ON ALL DIFFUSERS.

ENERGY RECOVERY VENTILATOR — BASIS OF DESIGN: GREENHECK

UNIT TAG	LOCATION	FRESH AIR CAPACITY (CFM)	EXHAUST AIR CAPACITY (CFM)	SUPPLY ESP (IN. WG)	EXHAUST ESP (IN. WG)	DISCHARGE CONDITIONS						ELECTRICAL			UNIT DIMENSIONS W(IN.)X D(IN.)X H(IN.)	WEIGHT (LBS)	MODEL NO.
						HEAT EXCHANGER TYPE	SUMMER		SENSIBLE EFFECTIVE-NESS	WINTER		SENSIBLE EFFECTIVE-NESS	(V/Hz/Ph)	MCA (A)	MOCP (A)			
							DBT	WBT		DBT	WBT							
ERV-1(N)	AS SHOWN	490	770	0.8	0.8	WHEEL	98.9	76.1	87.5	67.2	51.5	88.6	208/60/1	12.5	15	46.1 X 33.7 X 28.2	260	ERV-10-20H-VG

NOTES :
1. UNIT SHALL INCLUDE A 2# MERV 13 FILTER.
2. UNIT ESP TO BE VERIFIED AS PER DUCT ROUTING BEFORE PROCUREMENT.
3. FIELD WIRED FACTORY CONTROL PANEL.
4. FIELD SUPPLIED ELECTRICAL DISCONNECT.
5. PROVIDE NECESSARY CONTROLS AND SENSORS BASED ON MANUFACTURER RECOMMENDATION.
6. PROVIDE ECONOMISER AND MICROPROCESSOR CONTROL PER MANUFACTURER RECOMMENDATION.

NECK SIZE TABLE - A

FLEX DUCT DIA	CFM RANGE
Ø6"	0-100
Ø8"	101-200
Ø10"	201-400
Ø12"	401-500

MECHANICAL SYMBOLS

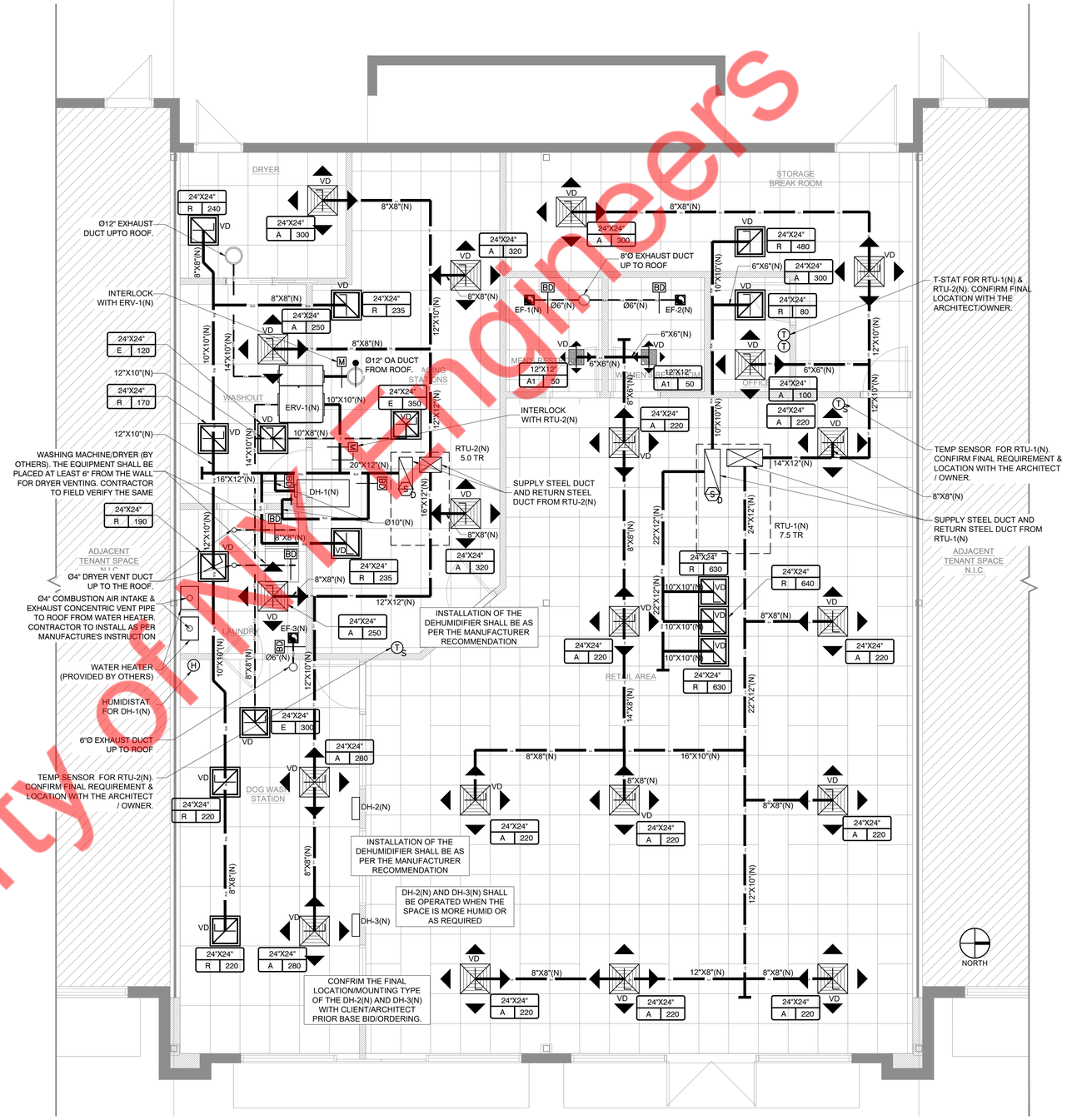
- EXHAUST FAN
- EXHAUST FAN WITH LIGHT
- SUPPLY OR OUTSIDE AIR DUCT
- OPPOSED BLADE DAMPER
- RETURN OR EXHAUST AIR DUCT
- DUCT SMOKE DETECTOR
- INSULATED RIGID DUCTWORK
- PROGRAMMABLE THERMOSTAT
- DUCT TRANSITION
- REMOTE SENSOR
- MANUAL VOLUME DAMPER
- TEMPERATURE SENSOR
- FLEXIBLE DUCTWORK R-6.0
-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

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

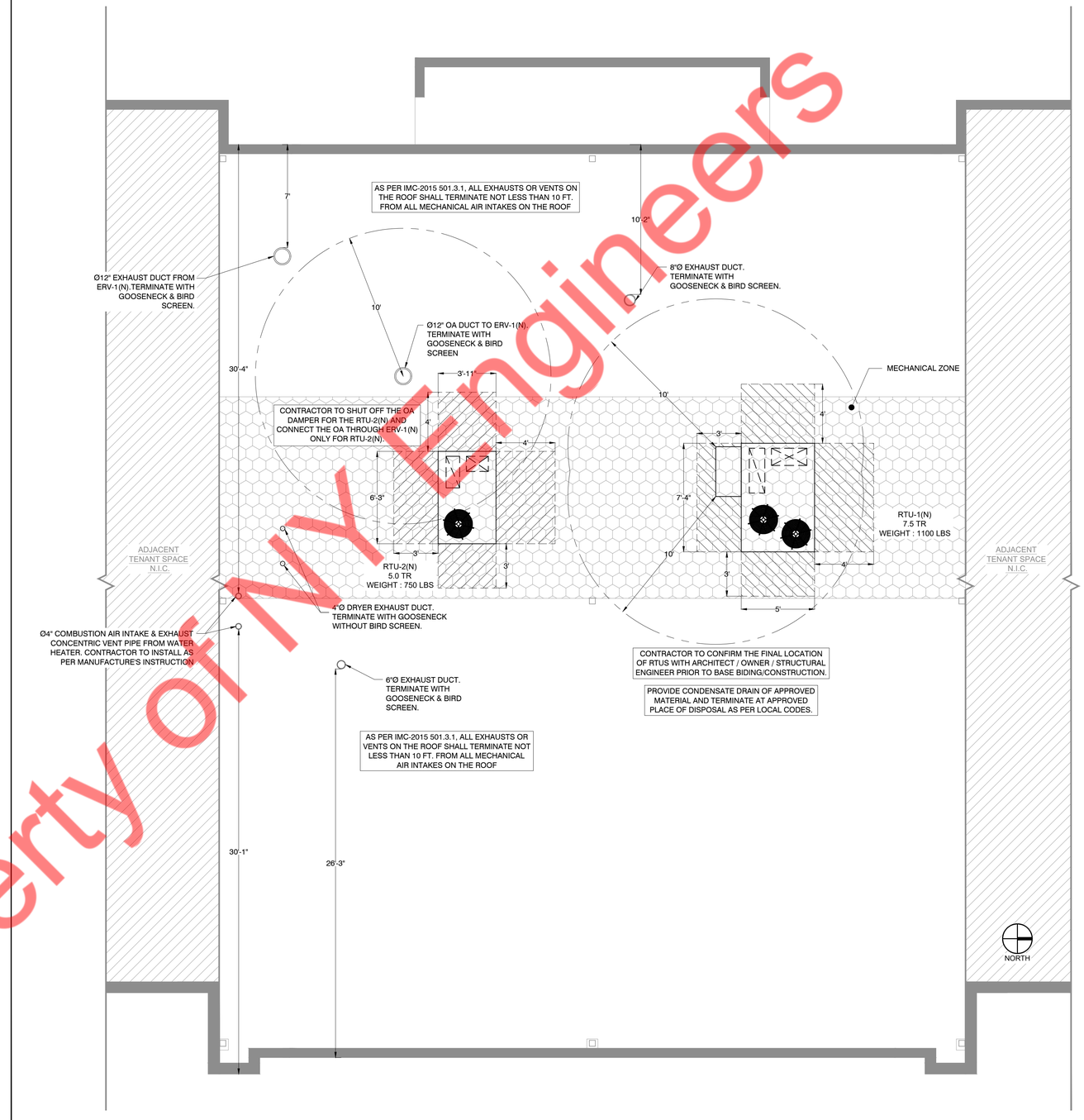
DEHUMIDIFIER SCHEDULE

MANUFACTURER	SANTA FE	SANTA FE	SANTA FE
UNIT TAG	DH-1(N)	DH-2(N)	DH-3(N)
MODEL	ULTRA 205	ULTRAMD33	ULTRAMD33
MOUNTING	CEILING	WALL	WALL
CAPACITY(GAL)	25.6	4.1	4.1
DUCT CON.	Ø10"	-	-
DRAIN CON.	Ø3/4"	Ø3/4" 0D	Ø3/4" 0D
V/PH/HZ	115/1/60	120/1/60	120/1/60
M.C.A (AMP)	13.2	2.8	2.8
M.O.C.P (AMP)	20	15	15
WEIGHT (LBS)	140	40	40

NOTES/OPTIONS :
1. PROVIDE REMOTE DIGITAL HUMIDITY CONTROL AS PER MANUFACTURER RECOMMENDATION FOR ALL THE UNITS.
2. PROVIDE SECONDARY DRAIN PAN FOR DH-1(N).
3. PROVIDE SURFACE MOUNT KIT FOR DH-2 AND 3 (N). CONFIRM THE FINAL TYPE WITH ARCHITECT/CLIENT.
4. COORDINATE WITH PLUMBING CONTRACTOR FOR DRAIN CONNECTION/TERMINATIONS AS PER LOCAL CODES FOR ALL DEHUMIDIFIERS.
5. PROVIDE MERV-13 FILTER FOR DH-1(N).
6. PROVIDE ALL NECESSARY CONTROLS AND ACCESSORIES AS PER THE MANUFACTURER REQUIREMENTS FOR THE COMPLETE FUNCTIONING OF THE UNITS.
7. COORDINATE WITH ELECTRICAL CONTRACTOR FOR THE EXACT POWER REQUIREMENT FOR THE UNITS.
8. COORDINATE FOR THE FINAL LOCATION OF THE UNITS DH-2(N) AND DH-3(N) WITH THE ARCHITECT/CLIENT PRIOR BASE BID OR STARTING ANY CONSTRUCTION.



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



HVAC ROOF PLAN

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

L 2 x 2 x 3/16" OR EQUIVALENT SECTION MODULUS
UNISTRUT ANCHORED TO JOISTS BOTH ENDS

JOIST LOWER CHORD

1/4" HANGER ROD

HANGING FROM OPEN WEB JOIST(MAX 40 LBS/POINT)
AND MAX JOIST SPACING OF 10 FEET

HOLDING SCREW

OPE N WEB JOIST – DUCT
SUS PENSION WITH 1" – #22 STRAPS

CHANNEL SELECTION

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

HANGER WIRE 12 GAUGE (MIN) OR HANGER ROD

HANGER STRAP 1" (MIN) WIDE 22 GAUGE

TYPICAL CHANNEL AND STRAP DUCT HANGING DETAIL

TYPICAL CHANNEL AND STRAP DUCT HANGING DETAIL

DUCT SIZE,IN.

MAXIMUM HANGER SPACING

3"

HANGER SPACING AND EXTENSION 3" WIDE CHANNELS

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

SCOPE OF WORK

REUSE THE EXISTING (1) 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE, METER & DISCONNECT SWITCH FROM BASE BUILDING FOR THE TENANT SPACE. PROVIDE NEW (1) 200 AMP(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A" . PROVIDE NEW (1) 100 AMP(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". PROVIDE ALL NECESSARY EQUIPMENT AND ALL WIRING AND LIGHTING FOR THE PROPOSED TENANT SPACE. 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 2014 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. ELECTRICAL CONTRACTOR SHALL COORDINATE SERVICE ENTRY WITH SERVICE PROVIDER PRIOR TO DETERMINING EXACT LOCATION OF THE METER BOX IN ORDER TO AVOID DISCREPANCIES BETWEEN DRAWINGS AND JOB CONDITIONS.
49. ALL OUTDOOR EQUIPMENT SHALL BE WEATHERPROOF.
50. 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.
51. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.
52. ABSOLUTELY NO FLEXIBLE CONDUIT IS PERMITTED IN DEMISING WALLS. FLEXIBLE CONDUIT IS PERMITTED FOR SHORT FINAL CONNECTIONS ONLY (6'-0" OR LESS).
53. 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.
54. CABLE TYPES AC AND NM CABLES ARE NOT ACCEPTABLE. TYPE MC CABLE, ELECTRIC METALLIC TUBING (EMT) AND RIGID GALVANIZED CONDUIT ARE PERMITTED.
55. ALL EQUIPMENT, DEVICES AND FIXTURES SHALL BE GROUNDED IN COMPLIANCE WITH NEC AND UL REQUIREMENTS.
56. ALL PANELS TO BE UL LABELED WITH BOLT-ON TYPE CIRCUIT BREAKERS.
57. 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.
58. 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.
59. ALL ELECTRICAL PANELS TO BE MOUNTED ON PLYWOOD BACKER BOARD.
60. PANEL PHASE LOADS TO BE BALANCED WITHIN 10%.
61. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING,PATCHING AND FIRE CAULKING REQUIRED FOR HIS WORK.
62. ELECTRICAL PANELS MAY NOT BE RECESSED IN DIMINISHING PARTITIONS. SURFACE MOUNT OR FULL FUROUT WALL TO ACHIEVE FLUSH FINAL APPEARANCE.
63. COORDINATE ALL CONCRETE TRENCHING/CORING TO ENSURE THAT ANY UNDER SLAB UTILITIES, ETC. ARE NOT DAMAGED DURING FLOOR CUT. ANY DAMAGE TO BE REPAIRED AT TENANT'S EXPENSE. PRIOR APPROVAL AND COORDINATION WITH PROPERTY MANAGEMENT IS REQUIRED FOR ALL CONCRETE CUTTING.
64. CONFIRM ELECTRICAL METER REQUIREMENTS WITH BASE BUILDING OPERATIONS.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	EXHAUST FAN
	JUNCTION BOX
	BATTERY BACK UP EXIT LIGHT
	BATTERY BACK UP EMERGENCY LIGHT
$	WALL SWITCH (SINGLE)
$T	WALL SWITCH (TIMER)
$OS	OCCUPANCY SENSOR WALL SWITCH
	DUPLEX RECEPTACLE
	QUADRUPLEX RECEPTACLE
CL	CEILING MOUNTED DUPLEX RECEPTACLE
FL	FLOOR MOUNTED DUPLEX RECEPTACLE
	ELECTRICAL PANEL
TV	TELEVISION OUTLET
T	TELEPHONE/DATA OUTLET
D	DATA OUTLET
CL	CEILING MOUNTED DATA OUTLET
	230 VOLT RECEPTACLE
A	30A/240V NON FUSED DISCONNECT SWITCH
B	60A/240V NON FUSED DISCONNECT SWITCH

ABBREVIATIONS:

ABOVE FINISH FLOOR= A.F.F.
COUNTER TOP LEVEL= C
GROUND FAULT INTERRUPTER= GFCI
CONCENTRIC HOLES, A.I.C. RATINGS SHALL BE AS INDICATED ON PANEL BOARD SCHEDULES.
VERIFY PRIOR TO INSTALL= VH
WEATHER PROOF= WP
EXHAUST FAN = EF
WATER HEATER= WH
WA = WASHER
AUTHORITY HAVING JURISDICTION= A.H.J.
WSEC= WASHINGTON STATE ENERGY CODE, COMMERCIAL PROVISIONS.
BELOW COUNTER= BC
PUSH BUTTON= PB
UNDER CABINET= UC
VAPOR PROOF= VP
ELECTRICAL CONTRACTOR=E.C.
ROOF TOP UNIT= RTU
RECIRCULATION PUMP=RCP
DR = DRYER

GENERAL LIGHTING NOTES

A. UPPER CASE LETTER NEXT TO LIGHT FIXTURE DENOTES FIXTURE TYPE.

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

EXISTING CONDITIONS NOTES

STOP AND READ

THE CONTRACTOR AND SUB-CONTRACTORS **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**. THIS SHALL HOLD TRUE FOR FIRST GENERATION AND 2ND GENERATION SPACES. WHEN DEMOLITION IS REQUIRED, THAT WILL BE PERMITTED TO EXPOSE CONDITIONS. THESE VERIFICATIONS SHALL INCLUDE BUT NOT LIMITED TO: DIMENSIONS BOTH HORIZONTALLY 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 REMAIN AND 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.

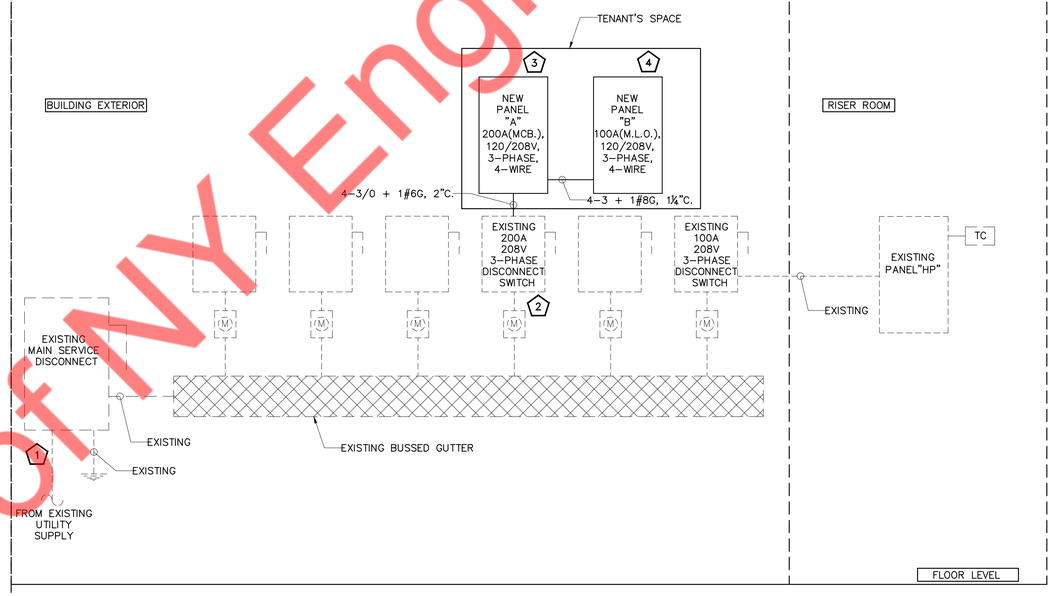
LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLT	NUMBER OF FIXTURES	LAMP TYPE	TOTAL WATTS	MOUNTING
	A	2x4 RECESSED FLAT PANEL LED	WARE LIGHT	PL-50W-128-28-TG-01-4000K(2'X4')	120	49	50 WATTS LED	2450 WATTS	RECESSED
	A1	2x2 RECESSED FLAT PANEL LED	WARE LIGHT	PL-30W-66-28-TG-01-4000K(2'X2')	120	3	30 WATTS LED	90 WATTS	RECESSED
	EX-1	EXIT SIGN WITH EMERGENCY LED LIGHT	TBD	TBD	120	3	2.8 WATTS	8.4WATTS	WALL
	EX-2	EXIT SIGNS	TBD	TBD	120	1	3 WATTS LED	3 WATTS	CEILING
	Y1	EMERGENCY LIGHT	TBD	TBD	120	5	3 WATTS LED	15 WATTS	WALL
$OS	OS	OCCUPANCY WALL SWITCH	LEVITON	ODS10	120	-	-	-	WALL
$T	T	TIMER SWITCH	LEVITON	DDS15-BDZ	120	-	-	-	WALL
$OV	OV	OVERRIDE SWITCH	LEVITON	TBD	120	-	-	-	WALL
OS	-	CEILING OCCUPANCY SENSOR	LEVITON	O2C10-UDW	120	-	-	-	CEILING

REFER TO SHEET A-2 - REFLECTED CEILING PLAN IN ARCHITECTURAL DRAWINGS FOR MORE INFORMATION ON COLORS AND TRIMS REQUIRED.

NOTE:

1. E.C. SHALL COORDINATE WITH ARCHITECT FOR FINAL FIXTURE COUNT AND TYPE.
2. COORDINATE EXACT CONTROL REQUIREMENTS WITH OWNER.
3. E.C SHALL PROVIDE REQUIRED POWER PACKS AND RELAYS SUITABLE FOR THE ABOVE LIGHT FIXTURES IN COORDINATION WITH THE LIGHTING VENDOR. BASE BID ACCORDINGLY.



ELECTRICAL RISER KEYED NOTES:

1. EXISTING 1200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FOR THE PROJECT SPACE SHALL REMAIN. E.C. SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION AND EXACT POWER DISTRIBUTION IN THE FIELD. BASE BID ACCORDINGLY.
2. EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL METER AND DISCONNECT SWITCH FOR THE TENANT'S SPACE SHALL REMAIN. E.C. SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION IN THE FIELD. E.C SHALL VERIFY THE OPERABLE CONDITION OF EXISTING METER & BREAKER SWITCH, REPLACE IF FOUND INOPERABLE. E.C SHALL GET INFORMATION ABOUT THE EXISTING POWER DISTRIBUTION PRIOR TO COMMENCING ANY WORK AND INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
3. NEW 200A(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A" TO REMAIN. E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.
4. NEW 100A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.

ELECTRICAL RISER GENERAL NOTES:

1. ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSES ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD AND INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.
2. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
3. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
4. E.C. TO VERIFY OPERABLE CONDITIONS OF EXISTING DEVICES IN FIELD. REPLACE/RECTIFY IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.
5. EXISTING ELECTRICAL DISTRIBUTION TO BE MAINTAINED AND UTILIZED TO SERVE PROJECT SPACE. POWER RISER DIAGRAM INDICATED FOR REFERENCE PURPOSES ONLY.

ELECTRICAL RISER SYMBOLS

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

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

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) COORDINATE EXACT LOCATION OF TIMER SWITCH BANK WITH OWNER/ARCHITECT.

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

(D) PROVIDE SHOW WINDOW RECEPTACLE AS PER NEC 210.62. VERIFY EXACT LOCATION WITH ARCHITECT/OWNER.

(E) INTERCONNECT EXHAUST FAN EF-1(N) & EF-2(N) WITH OCCUPANCY SENSOR. E.C TO COORDINATE WITH MECHANICAL DRAWINGS.

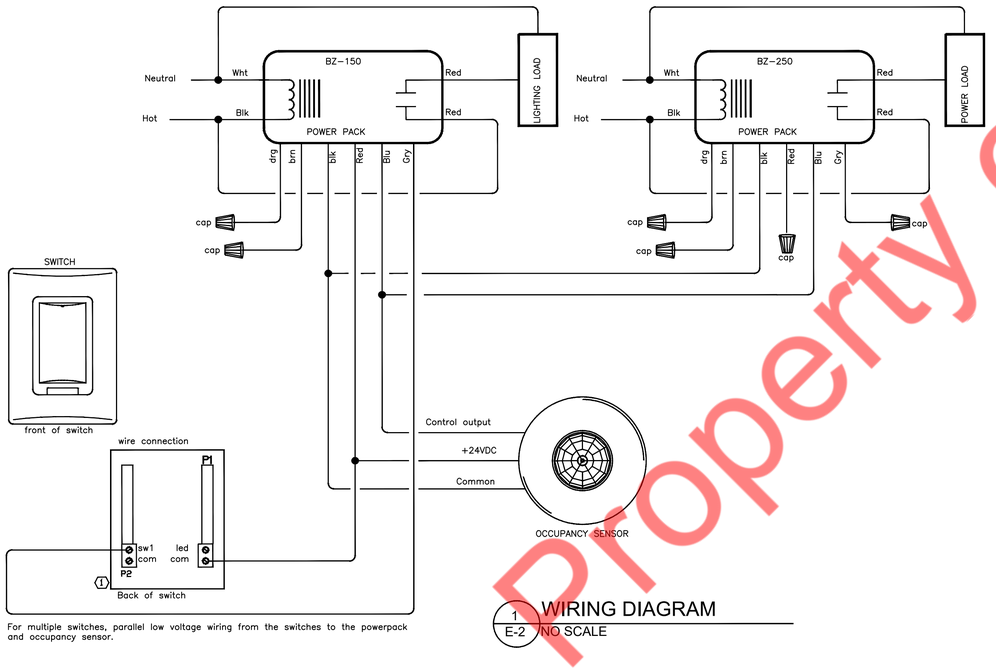
(F) EXHAUST FAN EF-3(N) SHALL BE CIRCUITED AND CONTROLLED ALONG WITH THE LIGHT FIXTURES IN THE SAME ROOM.

(G) LIGHTING NEAR ELECTRICAL PANELS SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPLIED AS PER NEC 110.26(D).

(H) ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MOTORIZED DAMPER WITH MECHANICAL DRAWINGS.

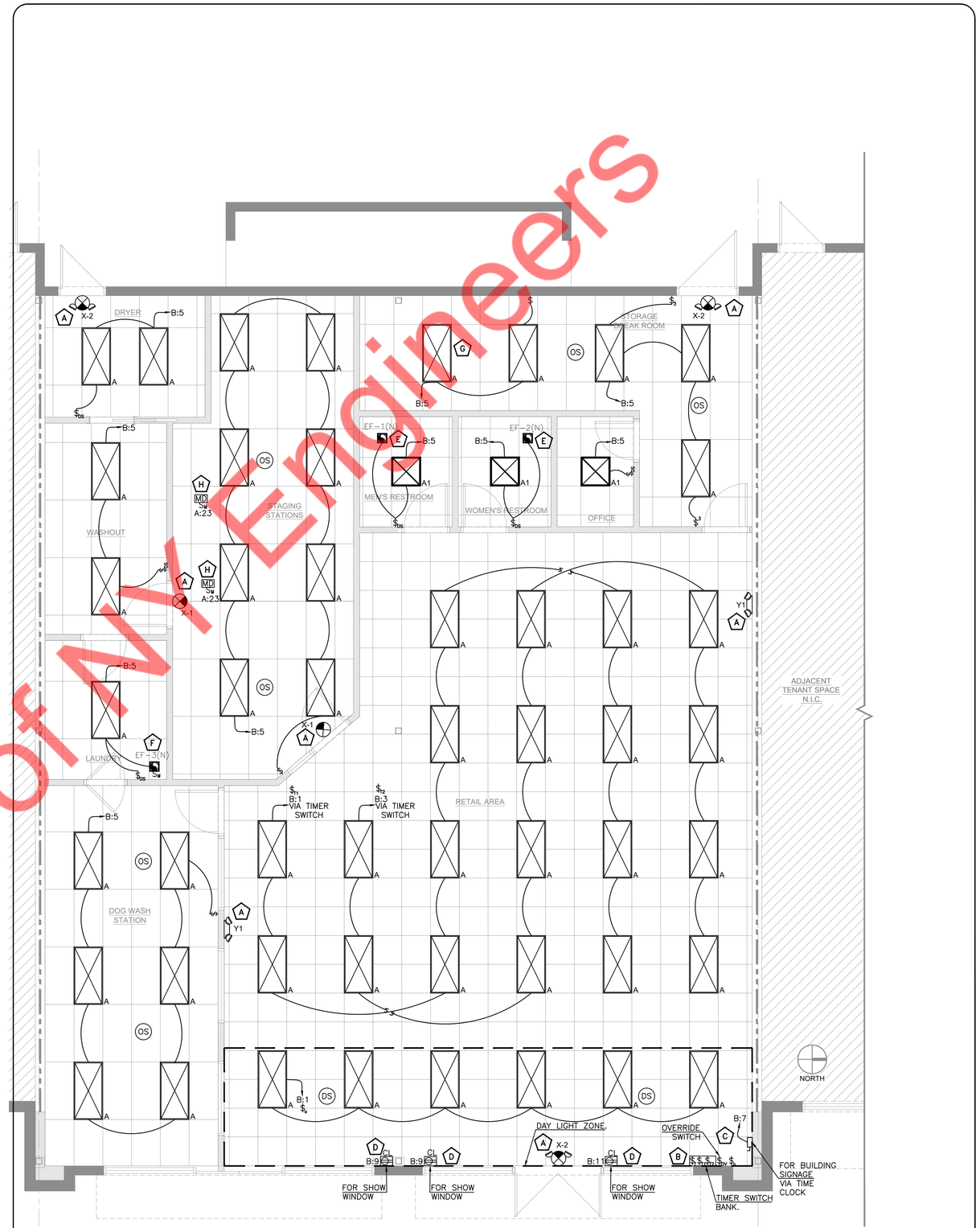
LIGHTING CONTROLS:

AREA	CONTROLS
STAGING STATIONS, DOG WASH STATION, STORAGE BREAKROOM.	LIGHTING IN THESE AREAS SHALL BE CONTROLLED VIA CEILING MOUNTED OCCUPANCY SENSOR AND MANUAL SWITCH. DESIGNATED EMERGENCY FIXTURES TO REMAIN ENERGIZED AT ALL TIMES.
DRYER, WASH OUT, LAUNDRY, OFFICE, REST ROOMS.	WALL MOUNTED OCCUPANCY SENSOR WITH MANUAL SWITCH FOR MANUAL/AUTOMATIC ON/OFF OF FIXTURES. DESIGNATED EMERGENCY FIXTURES TO REMAIN ENERGIZED AT ALL TIMES.
RETAIL AREA.	TIMER SWITCH BANK & OVER RIDE SWITCH FOR ON/OFF OF FIXTURES. DESIGNATED EMERGENCY FIXTURES TO REMAIN ENERGIZED AT ALL TIMES.



For multiple switches, parallel low voltage wiring from the switches to the powerpack and occupancy sensor.

1 E-2 WIRING DIAGRAM
NO SCALE



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

ELECTRICAL POWER PLAN KEYED WORK NOTES:

A. EXISTING 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.

B. NEW 100A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE LOCATION WITH ARCHITECT/OWNER.

C. E.C. SHALL VERIFY/PERFORM THE INSTALLATION OF ELECTRICAL PANELS IN COMPLIANCE WITH 2020 NEC ARTICLE 110.26(A) AND (B). E.C. SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.

D. 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.

E. ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT MOUNTING HEIGHT & LOCATION OF RECIRCULATION PUMP(RCP-1) WITH PLUMBING DRAWINGS.

F. ELECTRICAL SUPPLY PROVISION FOR THE WATER HEATER(WH-1). E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.

G. ELECTRICAL OUTLETS FOR THE KENNEL AT 72" AFF TO BOTTOM OF OUTLET MINIMUM. ELECTRICAL CONTRACTOR SHALL COORDINATE THE OWNER/MANUFACTURER FOR THE EXACT POWER REQUIREMENTS AND MOUNTING HEIGHT BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

H. 50% OF 15/20A RECEPTACLE INSTALLED IN OFFICE SHALL HAVE AUTOMATIC RECEPTACLE CONTROL IN ACCORDANCE WITH IECC 2021 SECTION C405.11.1. PROVIDE PERMANENT MARKING AS PER NEC 406.3(E). REFER E.2 SHEET FOR DETAILS. BASE BID ACCORDINGLY.

I. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTION OF BOTH TOP AND BOTTOM OUTLETS. PROVIDE SWITCHED DUPLEX RECEPTACLE FOR NORMAL AND AUTOMATIC SHUT OFF CONTROL. TOP RECEPTACLE SHALL BE CONTROLLED. BASE BID ACCORDINGLY.

J. ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.

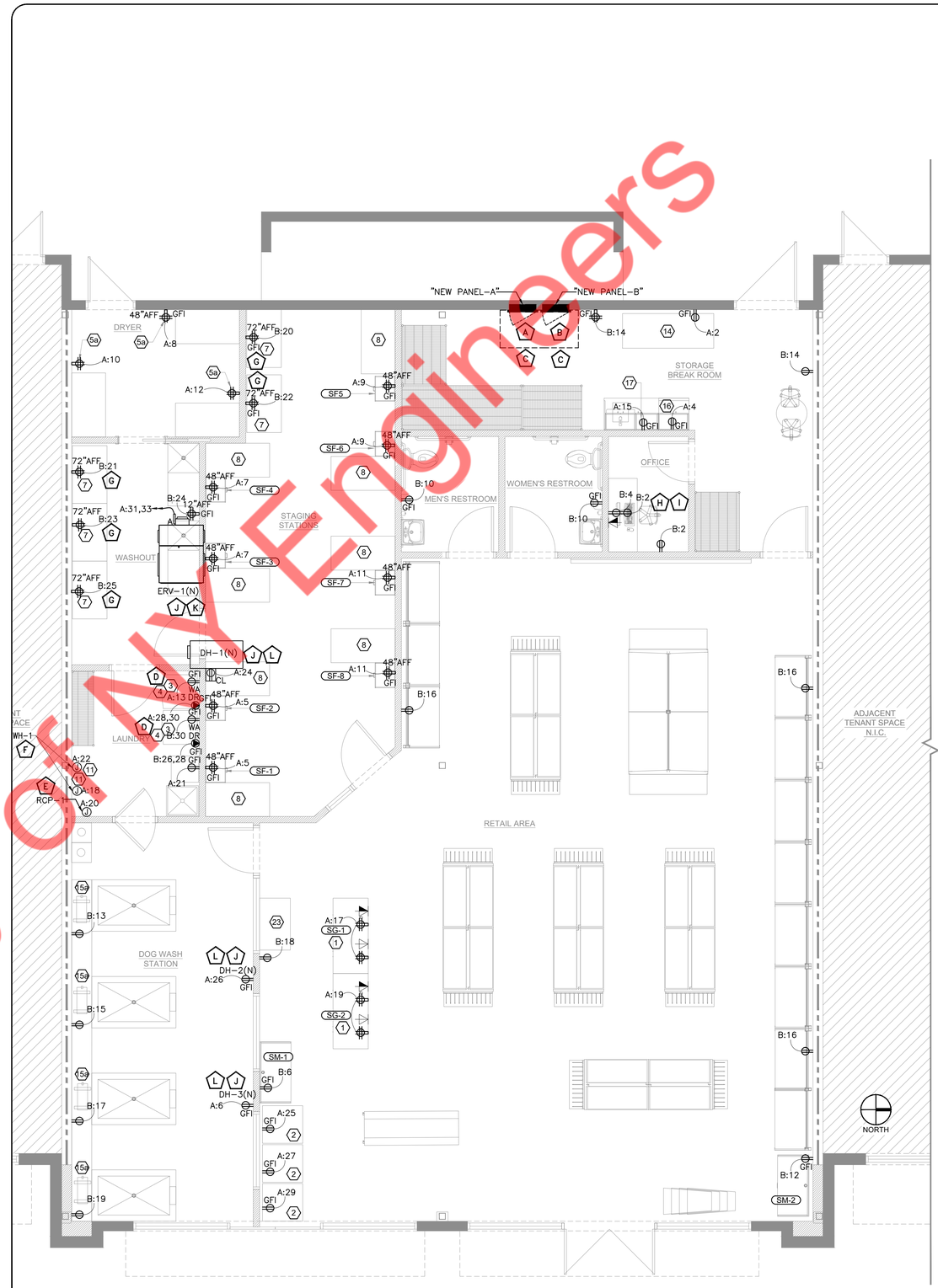
K. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.

L. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT POWER REQUIREMENT FOR DH-1,2&3 UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE POWER PROVISION AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.

ELECTRICAL POWER PLAN GENERAL NOTE:

1. EC SHALL COORDINATE WITH THE EQUIPMENT MANUFACTURER FOR ALL THE EQUIPMENT WHICH NEEDS ELECTRICAL SUPPLY AND CONFIRM THE POWER PROVISION REQUIREMENTS PRIOR TO COMMENCING ANY WORK. COORDINATE THE MOUNTING HEIGHTS AS WELL BEFORE ROUGH-INS. BASE BID ACCORDINGLY.

2. EC SHALL COORDINATE WITH OWNER FOR EXACT POWER PROVISION REQUIREMENTS TO EACH ROOM PRIOR TO COMMENCING ANY WORK. COORDINATE THE MOUNTING HEIGHTS AS WELL BEFORE ROUGH-INS. BASE BID ACCORDINGLY.



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

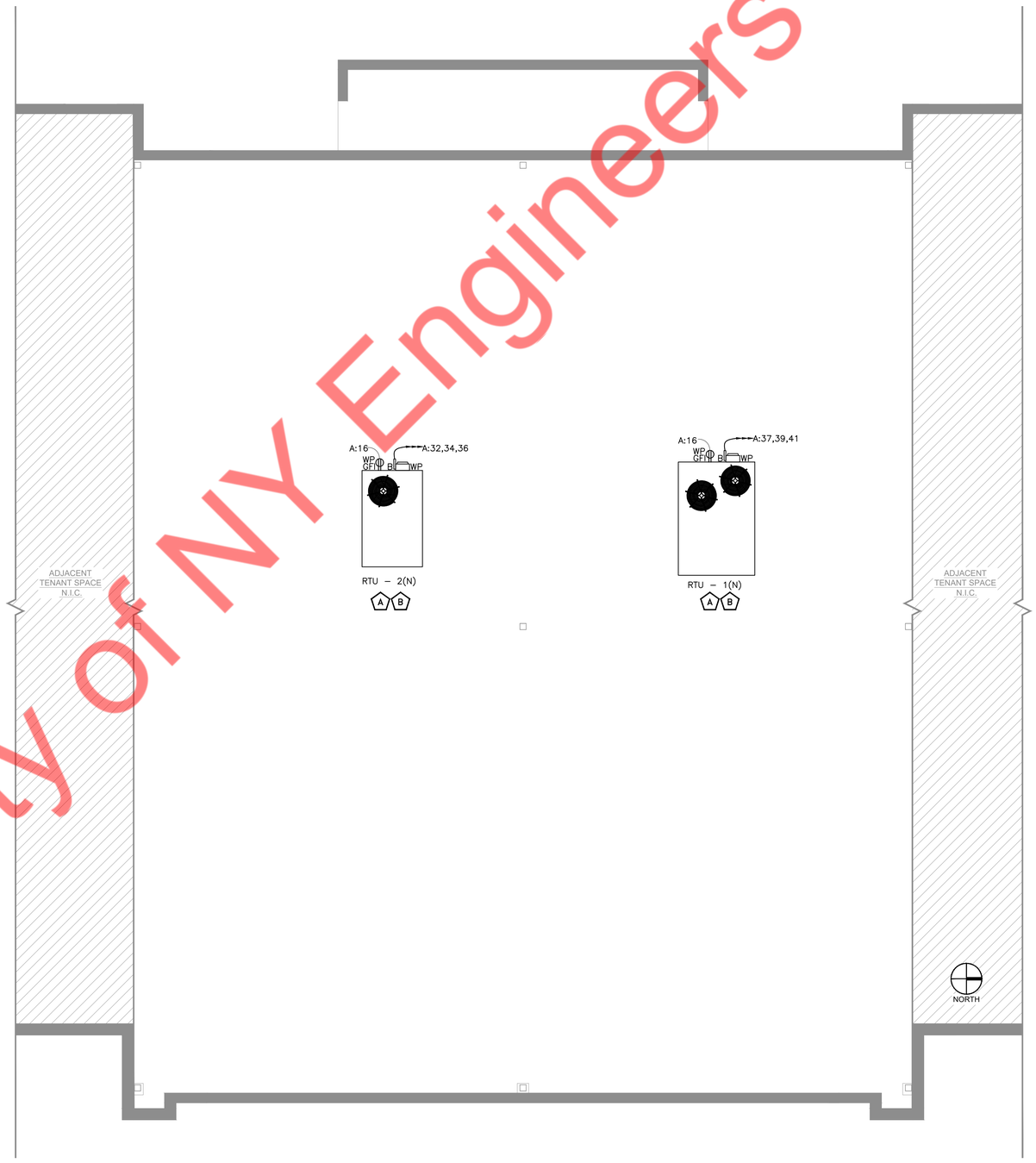
ELECTRICAL ROOF POWER PLAN KEYED WORK NOTES:

(A) ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR EXACT LOCATION AND POWER REQUIREMENT OF THE MECHANICAL UNITS IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.

(B) 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. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.

ELECTRICAL ROOF POWER PLAN GENERAL NOTE:

EC SHALL COORDINATE WITH THE ROOFER FOR THE ELECTRICAL REQUIREMENTS ON THE ROOF BEFORE COMMECNING ANY WORK. BASE BID ACCORDINGLY.



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

PANEL SCHEDULE:

PANEL:	A(N)									MOUNTING:	RECESSED		
208Y/120	VOLTS,	3	PHASE,	4	WIRE								
MAIN CB	200A	MLO:	NA	BUS:	225A	MIN,				FED FROM:	EXISTING DISCONNECT		
"NOTE: L:LIGHTING, R: RECEPTACLES, K:KITCHEN/EQUIPMENTS, C: REFRIGERATION, H: HVAC, M: MOTOR, O:OTHER/MISCILLANEOUS, *: GFCI BREAKER "													

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	PER PHASE (KVA) B	PER PHASE (KVA) C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	SPARE				1.15			2#12, #12G, 3/4"C	1.15	E	CHEST FREEZER(#14)	20	2
3	20	SPARE					0.36		2#12, #12G, 3/4"C	0.36	E	COUNTER REFRIGERATOR(#16)	20	4
5	20	GROOMING STATION RECEPTACLES(#SF1), (#SF2),	R	0.72	2#12, #12G, 3/4"C			1.08	2#12, #12G, 3/4"C	0.36	H	DH-3(N)	20	6
7	20	GROOMING STATION RECEPTACLES(#SF3), (#SF4),	R	0.72	2#12, #12G, 3/4"C	2.94			2#12, #12G, 3/4"C	2.22	E	WALL MOUNTED DRYER(#5a)	20	8
9	20	GROOMING STATION RECEPTACLES(#SF5), (#SF6)	R	0.72	2#12, #12G, 3/4"C		2.94		2#12, #12G, 3/4"C	2.22	E	WALL MOUNTED DRYER(#5a)	20	10
11	20	GROOMING STATION RECEPTACLES(#SF7) (#SF8)	R	0.72	2#12, #12G, 3/4"C			2.94	2#12, #12G, 3/4"C	2.22	E	WALL MOUNTED DRYER(#5a)	20	12
13	20	WASHER(#3)	E	1.20	2#12, #12G, 3/4"C	1.56			2#12, #12G, 3/4"C	0.36	R	RECEPTACLE- FOR DATA RACK	20	14
15	20	MICROWAVE(#17)	E	1.00	2#12, #12G, 3/4"C		1.36		2#12, #12G, 3/4"C	0.36	R	ROOF RECEPTACLE	20	16
17	20	POS SYSTEM(#1)	R	0.72	2#12, #12G, 3/4"C			1.18	2#12, #12G, 3/4"C	0.46	O	WATER HEATER(WH-1)	20	18
19	20	POS SYSTEM(#1)	R	0.72	2#12, #12G, 3/4"C	0.81			2#12, #12G, 3/4"C	0.09	M	RECIRCULATION PUMP(RCP-1)	20	20
21	20	RECEPTACLE- LAUNDRY	R	0.36	2#12, #12G, 3/4"C		0.82		2#12, #12G, 3/4"C	0.46	O	WATER HEATER(WH-1)	20	22
23	20	MOTORISD DAMPER	M	0.02	2#12, #12G, 3/4"C			1.70	2#12, #12G, 3/4"C	1.68	H	DH-1(N)	20	24
25	20	MERCHANDISER REFRIGERATOR(#2)	E	0.55	2#12, #12G, 3/4"C	0.91			2#12, #12G, 3/4"C	0.36	H	DH-2(N)	20	26
27	20	MERCHANDISER REFRIGERATOR(#2)	E	0.55	2#12, #12G, 3/4"C		3.67		2#10, #10G, 3/4"C	3.12	E	DRYER(#4)	30/2P*	28
29	20	MERCHANDISER REFRIGERATOR(#2)	E	0.55	2#12, #12G, 3/4"C			3.67		3.12	E			30
31	20/2P	ERV-1(N)	H	1.29	2#12, #12G, 3/4"C	5.01			3#8, #10G, 3/4"C	3.72	H	RTU-2(N)	50/3P	32
33			H	1.29			5.01			3.72	H			34
35	20	SPARE						3.72		3.72	H			36
37	50/3P	RTU-1(N)	H	4.68	3#8, #10G, 3/4"C	13.33			4#3, #8G, 1 1/4"C	8.65	O	NEW PANEL "B"	100/3P	38
39			H	4.68			13.33			8.65	O			40
41			H	4.68				13.33		8.65	O			42
TOTAL CONNECTED LOAD (KVA)						25.71	27.49	27.62						

PANEL:	B(N)									MOUNTING:	RECESSED		
208Y/120	VOLTS,	3	PHASE,	4	WIRE								
MAIN CB	NA	MLO:	100A	BUS:	125A	MIN,				FED FROM:	PANEL "A(N)"		
"NOTE: L:LIGHTING, R: RECEPTACLES, K:KITCHEN/EQUIPMENTS, C: REFRIGERATION, H: HVAC, M: MOTOR, O:OTHER/MISCILLANEOUS, *: GFCI BREAKER "													

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA) A	PER PHASE (KVA) B	PER PHASE (KVA) C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	LIGHTING-RETAIL AREA	L	0.80	2#12, #12G, 3/4"C	1.16			2#12, #12G, 3/4"C	0.36	R	RECEPTACLE-OFFICE	20	2
3	20	LIGHTING-RETAIL AREA	L	0.50	2#12, #12G, 3/4"C		0.68		2#12, #12G, 3/4"C	0.18	R	RECEPTACLE-OFFICE	20	4
5	20	LIGHTING-DOG WASH STATION,REST ROOMS,OFFICE,STAGING STATIONS,DRYER, WASHOUT,LAUNDRY,STORAGE BREAKROOM, EF-3(N)	L	1.33	2#12, #12G, 3/4"C			1.83	2#12, #12G, 3/4"C	0.50	R	RECEPTACLE-COFFEE STATION	20	6
7	20	EXTERIOR BUILDING SIGNAGE/TIMECLOCK	L	1.20	2#12, #12G, 3/4"C	2.10			2#12, #12G, 3/4"C	0.90	R	RECEPTACLE-CONVENIENCE	20	8
9	20	SHOW WINDOW RECEPTACLE	L	1.80	2#12, #12G, 3/4"C		2.16		2#12, #12G, 3/4"C	0.36	R	RECEPTACLE-RESTROOMS	20	10
11	20	SHOW WINDOW RECEPTACLE	L	1.80	2#12, #12G, 3/4"C			2.30	2#12, #12G, 3/4"C	0.50	R	RECEPTACLE-COFFEE STATION	20	12
13	20	DOG DRYER (#15a)	E	2.22	2#10, #10G, 3/4"C	2.58			2#12, #12G, 3/4"C	0.36	R	RECEPTACLE-STORAGE BREAK ROOM	20	14
15	20	DOG DRYER (#15a)	E	2.22	2#10, #10G, 3/4"C		2.76		2#12, #12G, 3/4"C	0.54	R	RECEPTACLE-RETAIL AREA	20	16
17	20	DOG DRYER (#15a)	E	2.22	2#10, #10G, 3/4"C			2.40	2#12, #12G, 3/4"C	0.18	R	RECEPTACLE-SCALE	20	18
19	20	DOG DRYER (#15a)	E	2.22	2#10, #10G, 3/4"C	2.58			2#12, #12G, 3/4"C	0.36	R	RECEPTACLE FOR KENNEL (7)	20	20
21	20	RECEPTACLE FOR KENNEL (7)	R	0.36	2#12, #12G, 3/4"C		0.72		2#12, #12G, 3/4"C	0.36	R	RECEPTACLE FOR KENNEL (7)	20	22
23	20	RECEPTACLE FOR KENNEL (7)	R	0.36	2#12, #12G, 3/4"C			0.72	2#12, #12G, 3/4"C	0.36	R	RECEPTACLE FOR TUBS (6)	20	24
25	30	RECEPTACLE FOR KENNEL (7)	R	0.36	2#12, #12G, 3/4"C	3.48			2#10, #10G, 3/4"C	3.12	E	DRYER(#4)	30/2P*	26
27	30	SPARE					3.12			3.12	E			28
29	20	SPARE						1.20	2#12, #12G, 3/4"C	1.20	E	WASHER(#3)	20	30
TOTAL CONNECTED LOAD (KVA)						11.90	9.44	8.45						

* INDICATES GFCI BREAKER

PANEL SCHEDULE GENERAL NOTES:

A. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.

EQUIPMENT SCHEDULE:

ITEM NO.	DESCRIPTION	VOLTAGE	PHASE	AMPS	kW
1	POS	120	1	3.00	0.36
2	MERCHANDISER REFRIGERATOR	115	1	4.60	0.53
3	WASHER	120	1	10.00	1.20
4	DRYER	208	1	30.00	6.24
5a	WALL MOUNTED DRYER	115	1	18.5	2.13
11	WATER HEATER	110	1	7.5	0.83
14	CHEST FREEZER	115	1	10	1.15
15a	DOG DRYER	115	1	18.5	2.13
16	COUNTER REFRIGERATOR	120	1	3	0.36
17	MICROWAVE	120	1	8.30	1.00
23	SCALE	120	1	1.50	0.18

GENERAL NOTE:

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

LIGHTING CONTROL SCHEDULE:

PANEL #	CKT #	RELAY	DESCRIPTION	LOCAL SWITCH
B	1	1	RETAIL AREA-LIGHT TYPE-A	TIMER SWITCH
B	3	2	RETAIL AREA-LIGHT TYPE-A	TIMER SWITCH

PLUMBING 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 SCH 40 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 2015 INTERNATIONAL PLUMBING CODE.
29. WATER HAMMER ARRESTORS AS PER 2015 INTERNATIONAL PLUMBING CODE.
30. PLUMBING CONTRACTOR TO PROVIDE ANTI-SCALDING VALVE FOR TUBS AND SHOWERS.
31. PLUMBING CONTRACTOR SHALL REVIEW ALL BID DOCUMENTATION.
32. PLUMBING CONTRACTOR SHALL REVIEW WALL FINISHES @ LOCATION REQUIRING BARRIER-FREE COMPLIANCE (EXAMPLE: CENTER LINE TO TOILET).
33. 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.
34. OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER. PROVIDE A COPY TO LL.

PLUMBING LEGEND

SAN	SANITARY SEWER PIPING
V	VENT PIPING
EX.SAN	EXISTING SANITARY PIPING
	DOMESTIC COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
G	GAS PIPING
	PIPE RISE
	PIPE DROP
	CAPPED END OF PIPE
	FLOOR CLEAN OUT
	P-TRAP
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
WCO	WALL CLEAN OUT
	GATE VALVE
	GAS SHUT - OFF VALVE
FD	FLOOR DRAIN
	BALANCING VALVE
	POINT OF CONNECTION
	THERMOSTATIC MIXING VALVE

FIXTURE BRANCH SCHEDULES

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
WATER CLOSET (TANK)(N)	1/2"	--	4"	2"
LAVATORY (N)	1/2"	1/2"	2"	1-1/2"
MOP SINK (N)	1/2"	1/2"	3"	2"
FLOOR DRAIN	--	--	3"/4"	2"
TUBS (SHOWER)	3/4"	3/4"	2"	2"
SINK	1/2"	1/2"	2"	2"

SCOPE OF WORK

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

COORDINATE WITH GC AND MECHANICAL CONTRACTOR FOR ANY REQUIRED CONDENSATE LINES AND GAS FLUE FOR WATER HEATER.

ENERGY CONSERVATION NOTES

1. AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS C403.11.3

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
141-200	0.25-0.29	125	1.5	1.5	2.0
105-140	0.21-0.28	100	1.0	1.0	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0

2. HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.5.1. THE HOT WATER VOLUME 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 2015 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.6.1, AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RECIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.
4. AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE 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).

EXISTING CONTIDITONS NOTES

STOP AND READ

THE CONTRACTOR AND SUB-CONTRACTORS **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**. THIS SHALL HOLD TRUE FOR 1ST GENERATION AND 2ND GENERATION SPACES. WHEN DEMOLITION IS REQUIRED, THAT WILL BE PERMITTED TO EXPOSE CONDITIONS. THESE VERIFICATIONS SHALL INCLUDE BUT NOT LIMITED TO: DIMENSIONS BOTH HORIZONTALLY 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 REMAIN AND 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 AND ETC.

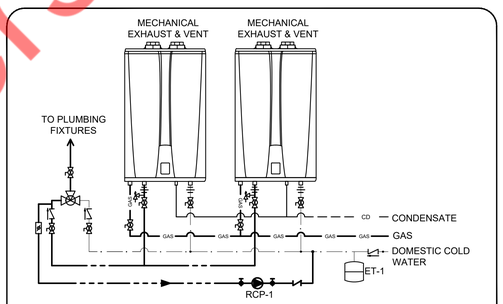
RESTROOM FIXTURE SCHEDULE

Item No.	Qty.	Description	Manufacturer	Model	WATER Hot	WATER Cold	WASTE Waste	Usage	Spec
C1	2	LAVATORY	KOHLER	K-2084			2"		
C1a	2	LAVATORY FAUCET	KOHLER	K-97283-4-CP	1/2"	1/2"			
	2	THERMAL MIXING VALVE	WATTS	LFMMV	1/2"	1/2"			
	2	INSULATED PLUMBING COVER	PLUMBEREX	HANDI SHIELD					
C2	2	WATER CLOSET	KOHLER	K-31621-0		1/2"	4"	1.28	
	2	ELONGATED SEAT	AMERICAN STANDARD	EXTRA HD COMMERCIAL TOILET SEAT					

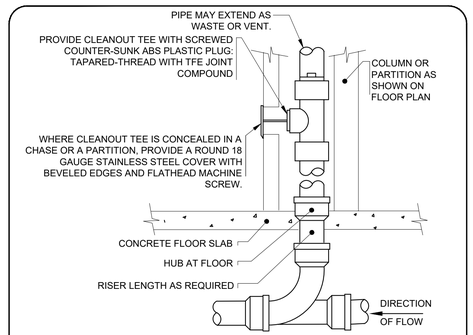
PLUMBING FIXTURE SCHEDULE

Item No.	Qty.	Description	Manufacturer	Model	WATER Hot	WATER Cold	WASTE Waste	Usage	Spec
3	2	WASHER	LG	WM4200HWA - OR SIMILAR	1/2"	1/2"	2"		
4	2	DRYER	LG	DLGX4201W - OR SIMILAR			2"		
6	1	STAINLESS STEEL TUB	WAGGZ	WZ-231E/-BLK			2"		
9	1	MOP SINK	MUSTEE	63M OR EQUAL			3"		
9a	1	MOP SINK FAUCET	CHICAGO FAUCETS	897-CRCF-OR EQUAL	1/2"	1/2"			
10	1	1 COMPARTMENT SINK	GRIDMANN	9SIA9T73N20378 - OR EQUAL	1/2"	1/2"	2"		
11	1	WATER HEATER	SEE SCHEDULE	SEE SCHEDULE					
15	4	TUB	NEW BREED	LT101	3/4"	3/4"	2"		
19	1	SINGLE BOWL SINK & FAUCET	REGENCY	600DI110145	1/2"	1/2"	2"		
	12	THERMAL MIXING VALVE	WATTS	LFMMV	1/2"	1/2"			
FD	6	FLOOR DRAINS*	ZURN	ZS415 W/ TYPE BS STRAINER			3"/4"		

*PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS



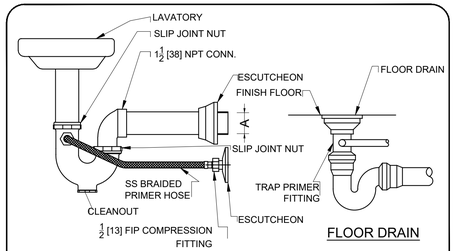
HIGH TEMP WATER HEATER
NOT TO SCALE



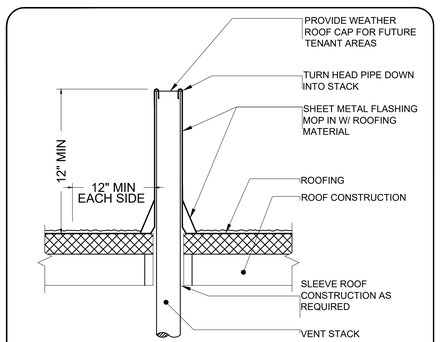
WALL CLEANOUT
NOT TO SCALE

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.



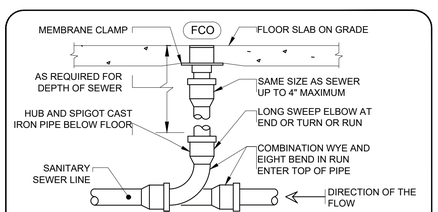
TRAP RESEAL DETAIL
NOT TO SCALE



VENT THRU ROOF DETAIL
NOT TO SCALE

VENT THRU ROOF DETAIL NOTE

ANY VENT WITHIN 10'-0" OF ANY DOOR, WINDOW, OR EXHAUST OPENING SHALL EXTEND NOT LESS THAN 3'-0" ABOVE SUCH OPENING



FLOOR CLEANOUT
NOT TO SCALE

FLOOR CLEANOUT DETAIL NOTES

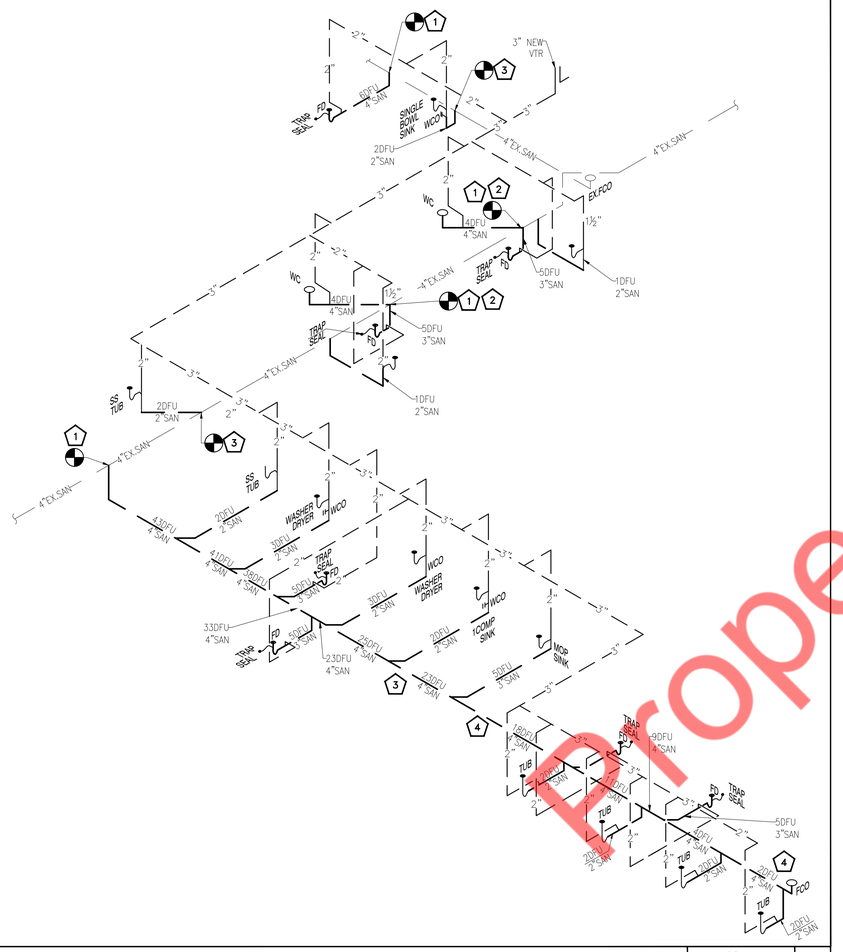
1) LOCATE CLEANOUT AT THIS LOCATIONS:
   A) BUILDING EXIT
   B) AT TURNS OF PIPES GREATER THAN 45 DEGREES
   C) AT 90' INTERVALS ON STRAIGHT RUNS
   D) WHERE IS SHOWN ON PLANS
   E) WHERE IS 18" CLEAR AROUND

SANITARY KEYED NOTES

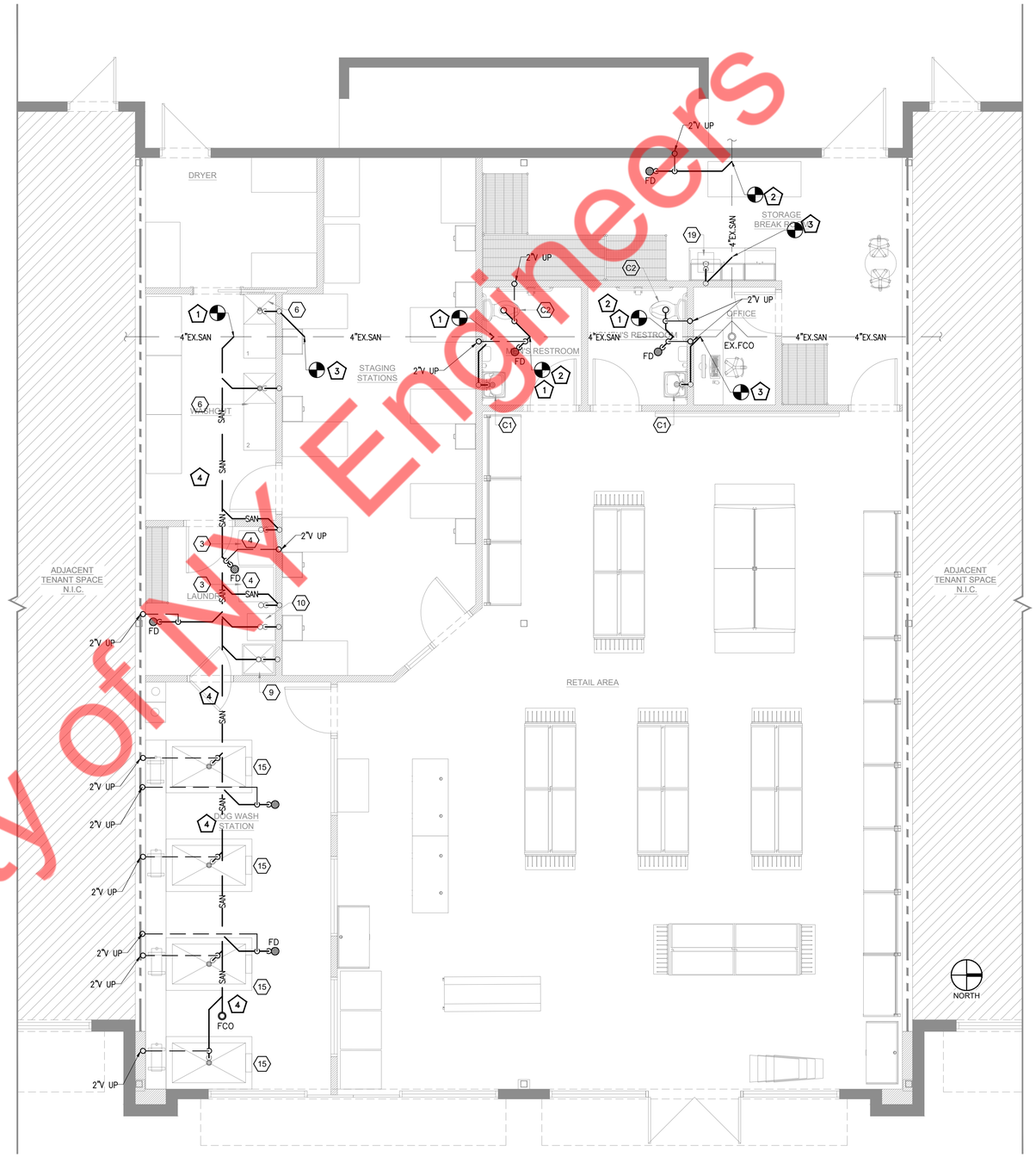
1. CCONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING 4" SANITARY WASTE LINE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING SANITARY WASTE LINE.
2. CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING 4" SANITARY WASTE LINE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING SANITARY WASTE LINE.
3. CONNECT NEW 2" SANITARY WASTE PIPING TO EXISTING 4" SANITARY WASTE LINE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING SANITARY WASTE LINE.
4. SANITARY PIPING RUNNING UNDERGROUND SHOWN FOR REFERENCE. CONTRACTOR TO COORDINATE WITH STRUCTURAL AND REROUTE AS REQUIRED TO AVOID ANY CONFLICTS AS PER FILED CONDITIONS.

GENERAL NOTES

1. SLOPE OF DRAINAGE PIPING SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" TO 6" AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2" AND SMALLER. VENT PIPING SHALL BE PITCHED TO DRAIN.
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.
5. REFER SANITARY RISER DIAGRAM FOR ALL PIPE SIZES.



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



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

WATER HEATER SCHEDULE	
MANUFACTURER	NORITZ
MODEL	NCC300DV
EQUIPMENT TAG	WH-1
STATUS	NEW
QUANTITY	2
CAPACITY	TANKLESS
FUEL	GAS
BTU/HR	300,000 @Each
TOTAL FLOW RATE	8.3 GPM* @ EACH
THERMAL EFFICIENCY	97%
AIR INTAKE / EXHAUSTVENT	4"Ø / 4"Ø
VOLTAGE	120/1/60
AMPERAGE	4
WEIGHT (EMPTY)	110 LBS

NOTES:
1. 170°F TEMPERATURE RISE.
2. INSTALL NEW EXPANSION TANK (ET-1) AMTROL MODEL THERM-X-TROL ST-1 AS PER LOCAL CODE REQUIREMENTS.

RECIRCULATION PUMP SCHEDULE	
MANUFACTURER & MODEL	GRUNDFOS UP 15-18 B5/TLC
EQUIPMENT TAG	RCP-1
STATUS	NEW
GPM	2
HEAD	13'
WATER TEMP.(°F)	140
PUMP TYPE	INLINE
MHP	85 WATTS
V/PH/HZ	115/1/60
RPM	2280
SERVICE FACTOR	1.0

NOTE:
1. PROVIDE AQUA STAT WITH AUTOMATIC TIMER KIT FOR THE TEMPERATURE CONTROL OF HOT WATER SYSTEM.

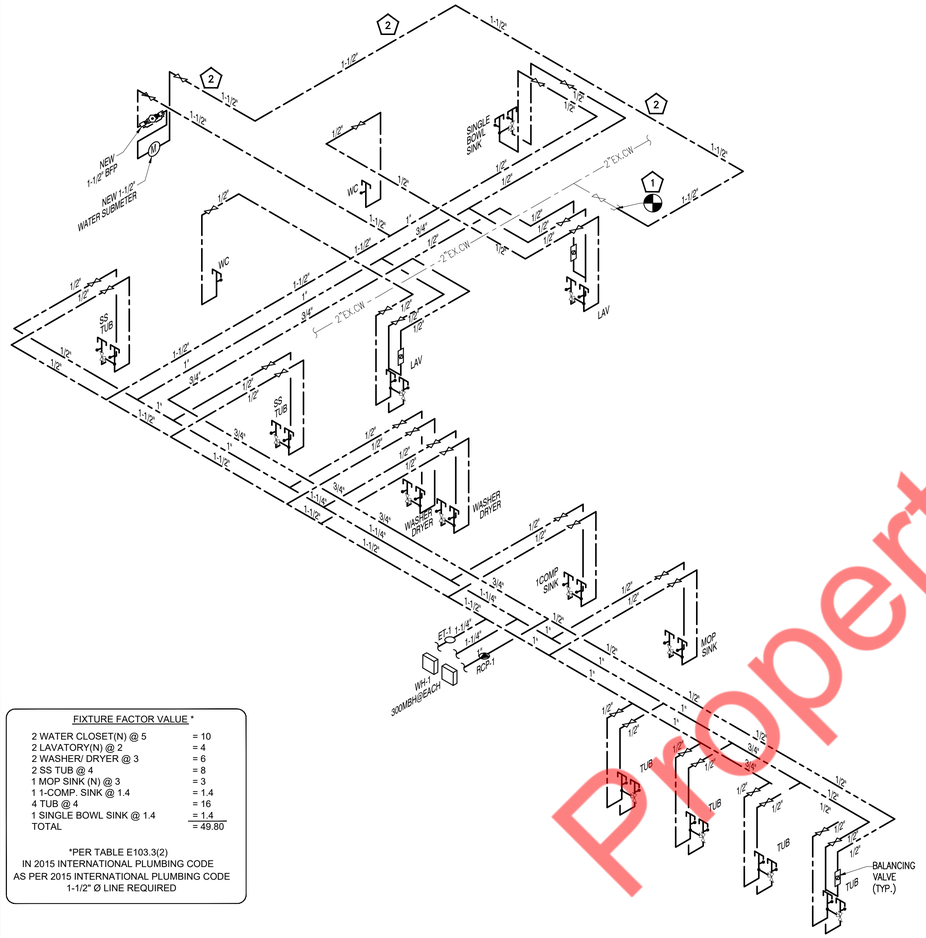
2. COORDINATE ELECTRICAL REQUIREMENTS FOR TIMER WITH ELECTRICAL CONTRACTOR.

WATER KEYED NOTES

1. CONNECT NEW 1-1/2" CW LINE TO EXISTING COLD WATER LINE WITH NEW WATER SUB METER AND BACK FLOW PREVENTOR. CONTRACTOR TO VERIFY SIZE OF EXISTING COLD WATER LINE AND BASE BID ACCORDINGLY.
2. NO TAP OFF SHOULD BE TAKEN BEFORE BFP.

GENERAL NOTES

1. CW/HW/HWR PIPING TO BE PROVIDED WITH INSULATION AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE (REFER SHEET P-1).
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. PROVIDE ACCESS PANELS FOR SHUT-OFF VALVES AS REQUIRED.
4. REFER RISER DIAGRAM FOR ALL PIPE SIZES.
5. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
6. WATER HEATER DRAIN SPILLS TO THE FLOOR DRAIN.

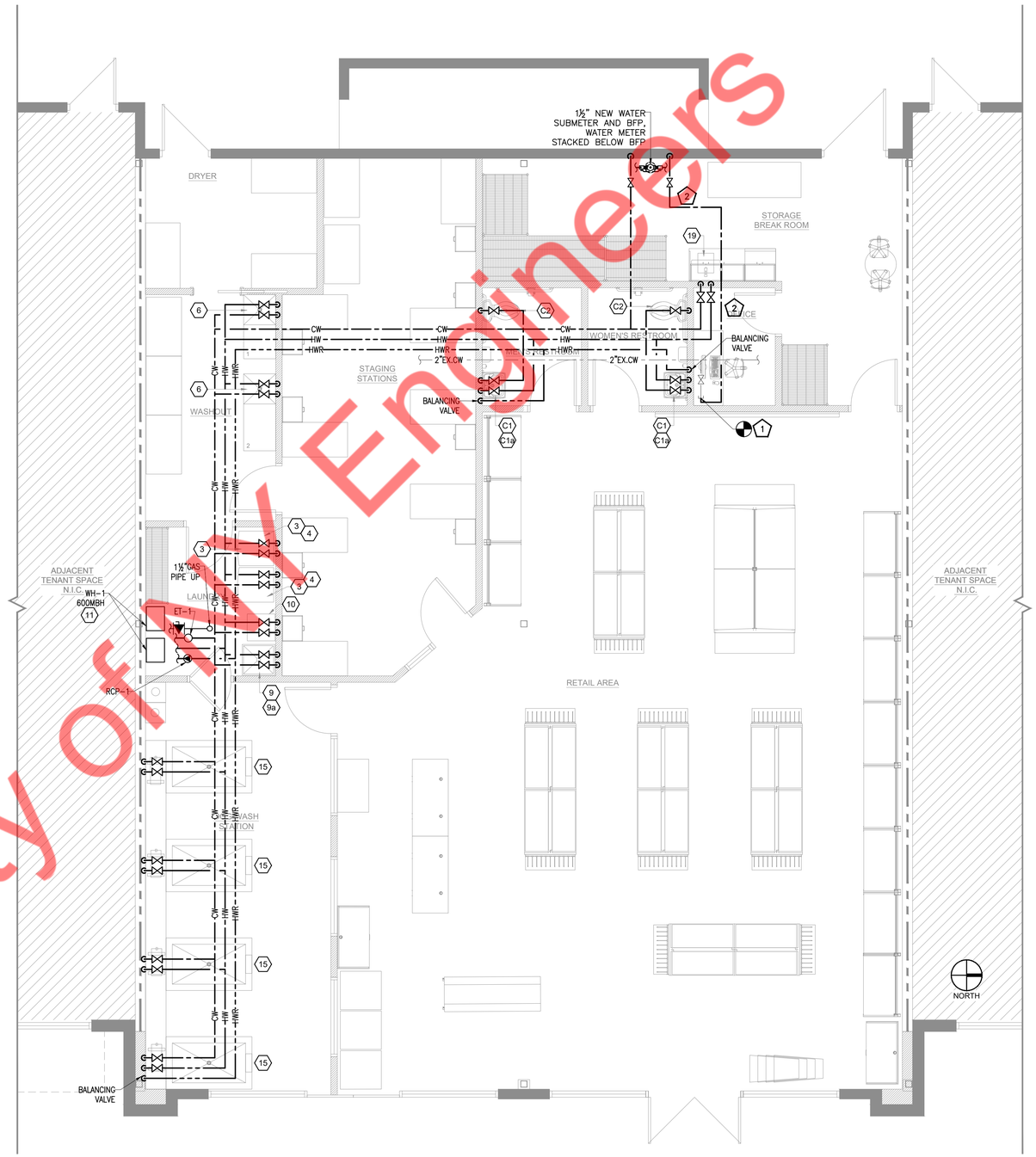


FIXTURE FACTOR VALUE *

2 WATER CLOSET(N) @ 5	= 10
2 LAVATORY(N) @ 2	= 4
2 WASHER/ DRYER @ 3	= 6
2 SS TUB @ 4	= 8
1 MOP SINK (N) @ 3	= 3
1 1-COMP. SINK @ 1.4	= 1.4
4 TUB @ 4	= 16
1 SINGLE BOWL SINK @ 1.4	= 1.4
TOTAL	= 49.80

*PER TABLE E103.3(2)
IN 2015 INTERNATIONAL PLUMBING CODE
AS PER 2015 INTERNATIONAL PLUMBING CODE
1-1/2" Ø LINE REQUIRED

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



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

GAS PLAN & RISER KEY NOTES

1. PROVIDE NEW GAS METER OF MINIMUM 835 MBH CAPACITY. CONTRACTOR TO FIELD VERIFY PRESSURE AND LOCATION OF GAS METER WITH LANDLORD.
2. CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR ALL MECHANICAL EQUIPMENTS AND GAS FIRED WATER HEATER.

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 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.

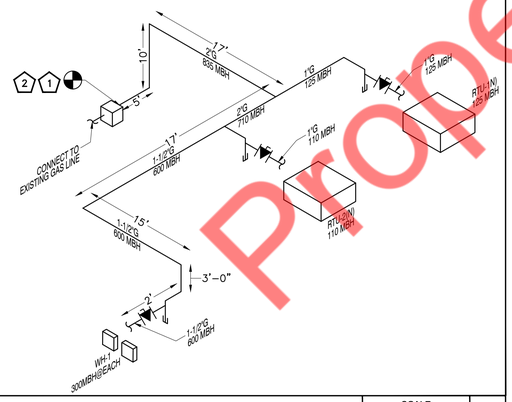
NOTES:
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWD FITTINGS
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
3. VERIFY EQUIPMENT BTU PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TO 2015 INTERNATIONAL FUEL GAS CODE TABLE 402.4(2).
4. CONTRACTOR TO VERIFY THE PRESSURE REQUIREMENT OF ALL GAS EQUIPMENTS AND MAKE SURE TO PROVIDE THE ADEQUATE INLET PRESSURE TO ALL THE EQUIPMENTS FOR EFFICIENT WORKING. COORDINATE WITH GAS COMPANY AND OWNER/LANDLORD TO SUPPLY THE SUFFICIENT PRESSURE TO THE EQUIPMENTS, IF NOT AVAILABLE.
5. CONTRACTOR SHALL NOTIFY ENGINEER IF 5PSI GAS PRESSURE IS NOT SUPPLIED TO THE BUILDING.

GAS PIPE SIZING PER
TABLE 402.4(2) INTERNATIONAL FUEL GAS CODE 2015

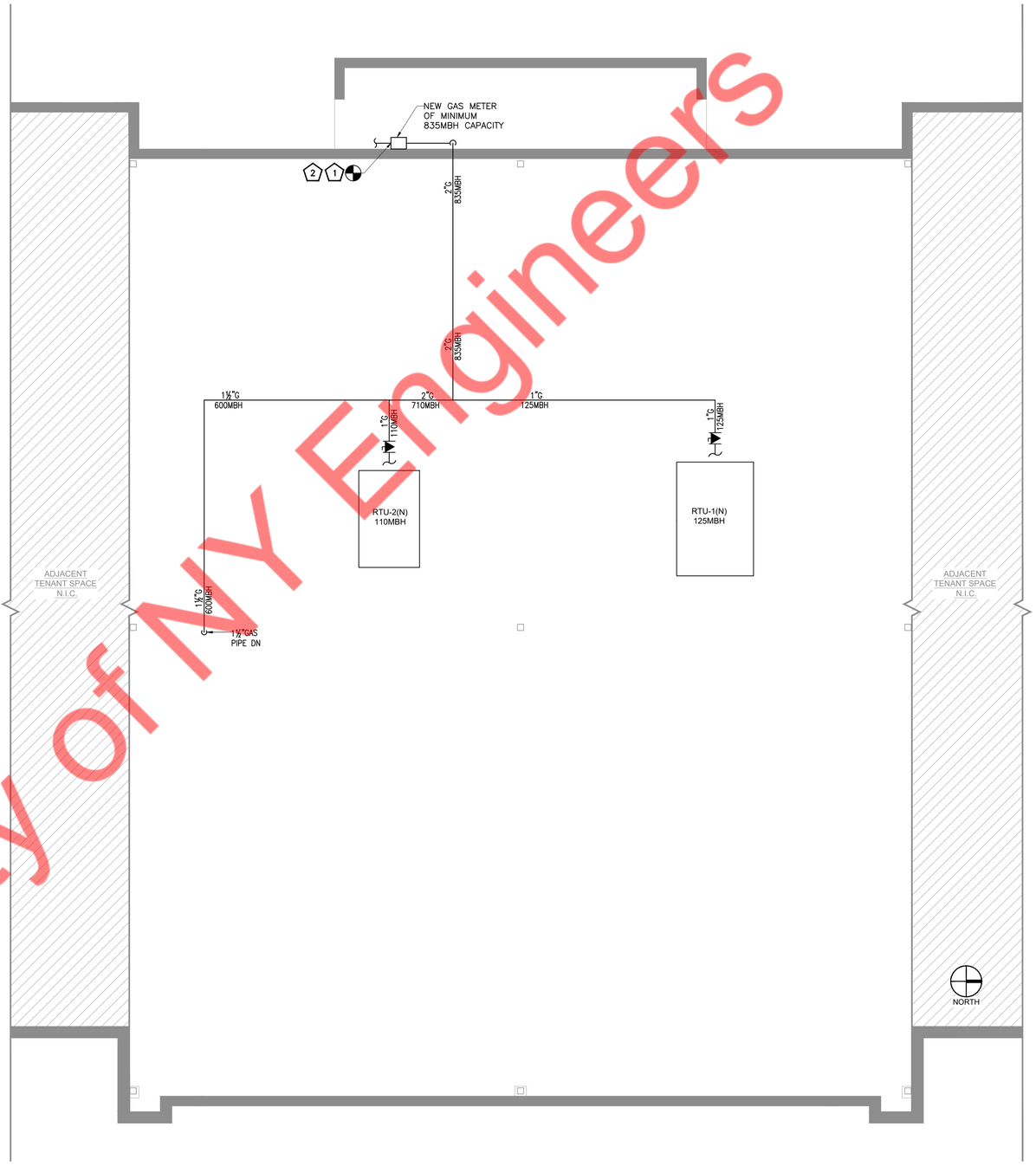
5+10+17+17+15+3+2=69 X 1.4 (FITTINGS)=97 FEET
EQUIVALENT LENGTH OF PIPE =100 FEET

GAS SCHEDULE FOR EXISTING SYSTEM WITH NEW GAS CONNECTION

DESCRIPTION	QTY.	MANUFACTURER	MODEL	SIZE	BTU/HR.
WATER HEATER (WH-1)	2	NORITZ	NCC300DV	1¼" @ EACH	600,000
RTU-1(1)	1	SEE MECHANICAL SCHEDULE	SEE MECHANICAL SCHEDULE	1"	125,000
RTU-2(N)	1	SEE MECHANICAL SCHEDULE	SEE MECHANICAL SCHEDULE	1"	110,000
			TOTAL LOAD		835,000



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



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