

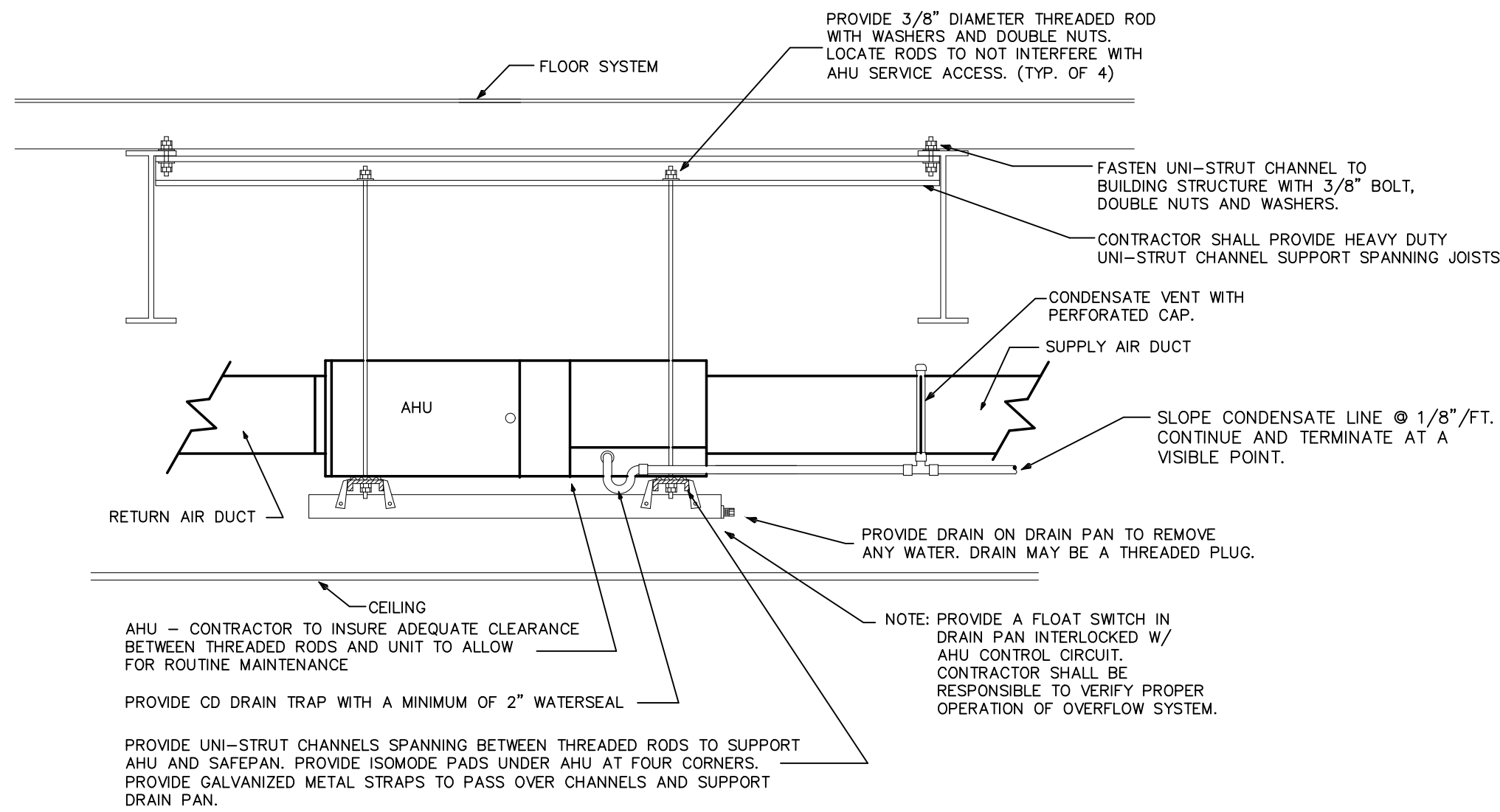
AIR COOLED HEAT PUMP SCHEDULE																												
HEAT PUMP											AIR HANDLING UNIT						INTEGRATED ELECTRIC HEATING											
CU LABEL(S)	MANUFACTURER & MODEL NO.	TOTAL CAPACITY COOLING	SENSIBLE CAPACITY COOLING	TOTAL CAPACITY HEATING	COMP. RLA	FAN FLA	VOLTAGE	MOCP	SEER	WEIGHT	AHU LABEL(S)	MANUFACTURER & MODEL NO.	TOTAL CFM	O/A CFM	E.S.P. BLOWER SPEED	FAN HP	VOLTAGE	WEIGHT	HEATER KW	VOLTAGE	NOTES							
CU #1	CARRIER 25HCD348A006	47,090	33,750	44,400	6.2	0.70	480V/3ø	10A	13.5	208 lbs.	AHU #1	CARRIER FX4DNF049L00	1,400	SEE SCH	0.4" MED.	3/4 HP	208V/1ø	185 lbs.	7.67 K.W.	480V/3ø	1 THRU 6							
CU #2	CARRIER 25HCD348A006	47,090	33,750	44,400	6.2	0.70	480V/3ø	10A	13.5	208 lbs.	AHU #2	CARRIER FX4DNF049L00	1,400	SEE SCH	0.4" MED.	3/4 HP	208V/1ø	185 lbs.	7.67 K.W.	480V/3ø	1 THRU 6							
CU #3	CARRIER 25HCD336A006	34,960	24,090	33,280	5.8	0.60	480V/3ø	10A	14.0	169 lbs.	AHU #3	CARRIER FX4DNF037L00	900	SEE SCH	0.4" LOW	1/2 HP	208V/1ø	157 lbs.	4.80 K.W.	480V/3ø	1 THRU 6							
GENERAL NOTES: • ALL RATINGS ARE AT ARI ENTERING CONDITIONS UNLESS OTHERWISE NOTED. • PROVIDE VIBRATION ISOLATION FOR UNITS. • EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COIL OR FILTER PRESSURE DROP. • CONTRACTOR MAY SUBSTITUTE MANUFACTURER FOR APPROVED EQUAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT ANY CLEARANCE REQUIREMENTS ARE MET FOR ANY SUBSTITUTIONS.											ABBREVIATION LEGEND: O/A – OUTSIDE AIR HP – HORSE POWER RLA – RUNNING LOAD AMPS FLA – FULL LOAD AMPS MOCP – MAX. OVERCURRENT PROTECTION (DUAL ELEMENT TYPE FUSE) E.S.P. – EXTERNAL STATIC PRESSURE E.E.R. – ENERGY EFFICIENCY RATIO SEER – SEASONAL ENERGY EFF. RATIO						SPECIFIC NOTES: 1) SIZE AND RUN REFRIGERANT PIPING AS PER MANUFACTURERS PUBLISHED RECOMMENDATIONS. 2) INSULATE REFRIGERANT SUCTION LINE WITH 3/4" ARI/ANFLEX OR APPROVED EQUAL. 3) INSTALL FILTER DRYER AND STRAINER IN THE REFRIGERANT SUCTION LINE. 4) PROVIDE FILL INSTALLED ACCESSORIES, AND 5 MINUTE TIME DELAY SWITCH. 5) PROVIDE 5 YEAR WARRANTY ON COMPRESSOR AND 1 YEAR WARRANTY ON ALL PARTS AND LABOR. 6) SINGLE POINT POWER WITH STEPDOWN TRANSFORMER FOR THE MOTOR.						SEQUENCE OF OPERATION FOR HEATING: FIRST STAGE: WHEN THE THERMOSTAT CALLS FOR HEATING, THE INDOOR FAN MOTOR, OUTDOOR FAN MOTORS AND THE COMPRESSOR (FULLY LOADED) ARE ENERGIZED. THE REVERSING VALVE SOLENOID IS ENERGIZED IN THE HEATING MODE. SECOND STAGE: IF ADDITIONAL HEAT IS REQUIRED, THE ELECTRIC HEAT SHALL BE ENERGIZED.					

GENERAL MECHANICAL NOTES

- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE APPLICABLE BUILDING CODE AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS: SMACNA, ASHRAE, NFPA 90A, 90B, 91 & ANSI B-9.1. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, AND SUPPORTED AS PER SMACNA STANDARDS.
- THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES TO INSURE AN ORDERLY PROGRESS OF THIS WORK.
- THE CONTRACTOR SHALL SUPPLY THE OWNER WITH ONE SET OF "AS-BUILT" DRAWINGS UPON COMPLETION OF THIS PROJECT. CONTRACTOR SHALL ALSO LEAVE FOR THE OWNER AT LEAST ONE SET OF THE MANUFACTURER'S INSTALLATION AND OPERATIONS MANUALS FOR ALL EQUIPMENT PROVIDED ON THE PROJECT.
- ALL PROVIDED MATERIALS SHALL BE NEW OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED WORKMAN.
- CONTRACTOR SHALL SUBMIT FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT. IT IS STRONGLY RECOMMENDED THAT THE SUBMITTALS BE MADE IN THE FORM OF AN ELECTRONIC SUBMITTAL IN A PDF TYPE FORMAT.
- ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE GALVANIZED SHEET STEEL, EXTERNALLY WEAPED WITH WITH A MIN. OF R-5 INSULATION OR R-8 IF DUCTWORK IS LOCATED EXTERIOR TO BLDG INSULATION ENVELOPE. ALL FLEX DUCT SHALL BE "THERMOFLEX" WITH A MINIMUM 4 R VALUE, OR APPROVED EQUAL, AND SHALL HAVE EQUIVALENT INSULATION.
- ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS.
- DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
- ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE TITUS, METALARE, AIRGUIDE, PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS.
- THERMOSTAT SHALL BE COMBINATION COOLING/HEATING, WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON-AUTO" SELECTOR SWITCHES. PROVIDE PROGRAMMABLE TYPE THERMOSTAT. CONTRACTOR SHALL FULLY INSTRUCT OWNER ON HOW TO PROPERLY PROGRAM INSTALLED THERMOSTATS. PROGRAMMABLE THERMOSTAT SHALL BE BY MANUFACTURER OF INSTALLED AIR HANDLING UNIT. IT IS RECOMMENDED THAT DURING OCCUPIED HOURS, THE FANS BE SET TO "ON" IN LEU OF "AUTO". THERMOSTATS SHALL BE MOUNTED A MAX. OF 4'-6".
- REFRIGERANT LINES SHALL BE COPPER, TYPE "L" HARD DRAWN WITH WROUGHT COPPER SOLDER-JOINT TYPE FITTINGS. USE 95/5 SOLDER. REFRIGERANT LINES SHALL SIZED AS PER MANUFACTURER RECOMMENDATIONS.
- SPLIT SYSTEMS (IF APPLICABLE) SHALL HAVE A MINIMUM OF 1-1/2" ANIMAFLEX INSULATION (OR APPROVED EQUAL) USED FOR SUCTION LINES. INSTALLATION SHALL BE AS PER MANUFACTURER'S INSTRUCTIONS. PRE-INSULATED LINES SETS ARE ACCEPTABLE.
- ALL BRANCH TAKE-OFFS TO BE PROVIDED W/MANUAL VOLUME DAMPERS AND TAPS AS PER PLANS REQUIREMENTS.
- PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE STARTING THEM. REPLACE THEM PRIOR TO FINAL ACCEPTANCE BY OWNER.
- PROVIDE SMOKE DETECTORS WITH ACCESS DOORS IN ALL SUPPLY AIR DUCTS FOR FANS AND AHUS. SERVING A COMMON DESIGN SUPPLY OR RETURN PLENUM OF ABOVE 2000 CFM. ALL SMOKE DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM BEFORE ORDERING. UPON DETECTION SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVING THAT COMMON PLENUM.
- HVAC CONTRACTOR SHALL PROVIDE A TEST AND BALANCE REPORT FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AHUS AND FANS. THE "I" & "B" SHALL BE IN ACCORDANCE WITH THE AIR BALANCE COUNCIL STANDARDS, AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY GRILLS, RETURN GRILLS, AND EXHAUST GRILLS, AND THE LEAVING AND EXTERIOR AIR TEMPERATURE ("T") FROM SUPPLY GRILLS AND EXHAUSTORS.
- THERMOSTAT LOCATION SHALL BE APPROVED BY OWNER BEFORE INSTALLATION.
- ALL INSULATION SHALL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
- MECHANICAL PLANS IN GENERAL ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCH. PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL INSTALL ALL OUTDOOR EQUIPMENT TO WITHSTAND WIND LOADING FORCES AS REQUIRED BY LOCAL CODES. REFER TO STRUCTURAL PLANS BY OTHERS FOR STRUCTURAL DETAILS.
- PROVIDE ALL NECESSARY CONTACTORS, RELAYS, ETC., FOR A COMPLETE OPERATING SYSTEM.
- THROUGHOUT THE COURSE OF THE WORK, MINOR CHANGES AND ADJUSTMENTS TO THE PLANS AND SPECIFICATIONS MAY BE REQUESTED BY THE TENANT. THE CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE TENANT, WHERE SUCH ADJUSTMENTS ARE NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE SYSTEMS, AND WITHIN THE INTENT OF THE CONTRACT DOCUMENTS.
- NOTWITHSTANDING ANY OTHER PROVISIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR BEARS ULTIMATE RESPONSIBILITY FOR COMPLIANCE OF THE INSTALLATION WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- IF ANY ERRORS, DISCREPANCIES OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH ERROR OR OMISSION. IN THE EVENT OF THE CONTRACTOR FAILING TO GIVE SUCH NOTICE BEFORE CONSTRUCTION AND/OR FABRICATION OF THE WORK, HE WILL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS, DISCREPANCIES OR OMISSIONS AND THE COST OF RECTIFYING SAME.

OUTSIDE AIR CALCULATIONS

THE FOLLOWING IS BASED ON 2012 NCMC CODE TABLE 403.3 MINIMUM VENTILATION RATES FOR OUTSIDE AIR REQUIREMENTS (EQUATION 4-1)									
UNIT LABEL	OCCUPANCY CATEGORY	AREA	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	ZONE AIR DIST. EFF.	TOTAL			
		A ₁	P ₁	R ₁					
AHU #1	OFFICE	0,300	05 PEOPLE PER 1,000 S.F.	5.0 CFM PER PERSON	(02 x 5.0) + (0,300 x .06) = 028 PEOPLE AREA TOTAL	0.8	094/0.8 = 118		
AHU #1	LOBBY	0,600	10 PEOPLE PER 1,000 S.F.	5.0 CFM PER PERSON	(04 x 5.0) + (0,600 x .06) = 046 PEOPLE AREA TOTAL	0.8	078/0.8 = 98		
AHU #2	OFFICE	0,875	05 PEOPLE PER 1,000 S.F.	5.0 CFM PER PERSON	(05 x 5.0) + (0,875 x .06) = 078 PEOPLE AREA TOTAL	0.8	078/0.8 = 98		
AHU #3	OFFICE	0,650	05 PEOPLE PER 1,000 S.F.	5.0 CFM PER PERSON	(03 x 5.0) + (0,650 x .06) = 034 PEOPLE AREA TOTAL	0.8	074/0.8 = 93		
AHU #3	CORRIDOR	0,350	N/A	N/A	(N/A) + (0,352 x .06) = 020 PEOPLE AREA TOTAL	0.8	074/0.8 = 93		
AHU #2 TOTAL = 74									
A ₂ — ZONE FLOOR AREA R ₁ — AREA OUTDOOR RATE P ₁ — ZONE POPULATION E ₂ — ZONE AIR DISTRIBUTION EFFECTIVENESS R ₂ — PEOPLE OUTDOOR RATE									



4 AIR HANDLING UNIT MOUNTING DETAIL

NO SCALE

SPECIFIC MECHANICAL NOTES

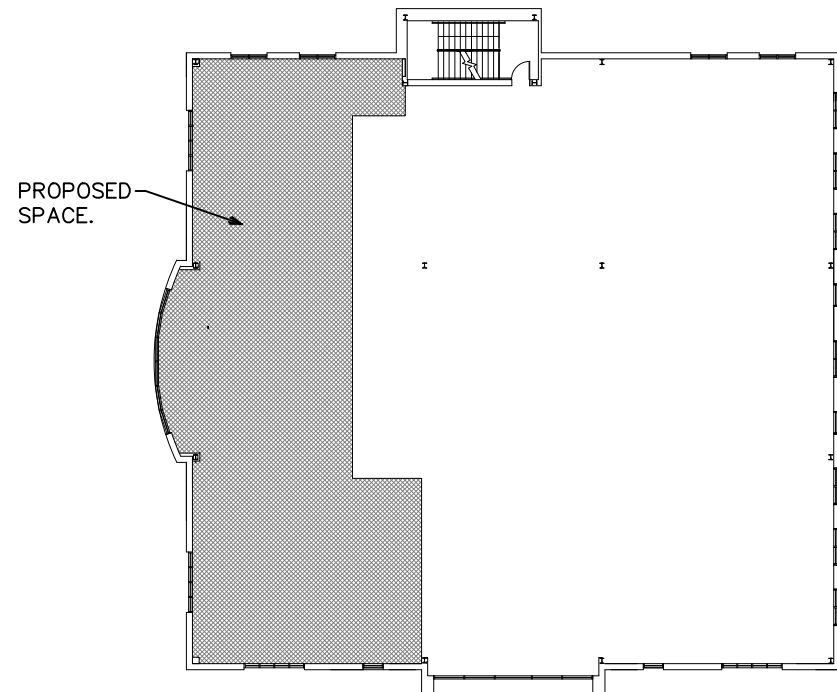
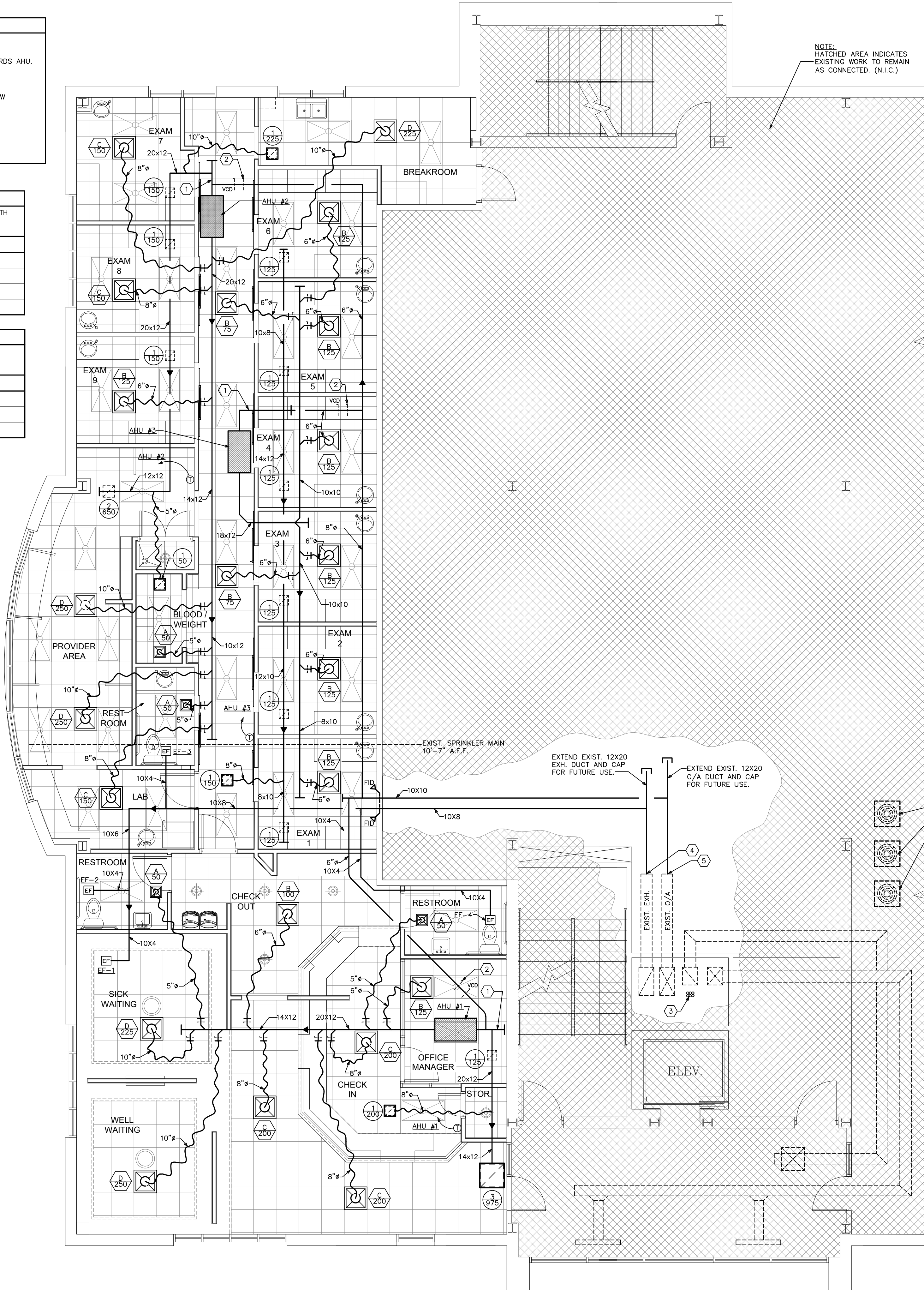
- RETURN AIR DUCT PLENUM SHALL BE FULL SIZE OF AHU RETURN AIR OPENING.
- BACKDRAFT DAMPER PROVIDED IN OUTSIDE AIR DUCT AT THIS LOCATION. AIR FLOW TOWARDS AHU.
- NEW REFRIGERANT PIPING FOR AHU #1 - 3 UP TO ROOF AT THIS LOCATION. ROUTE UP THRU CHASE ABOVE TO 3RD FL. CLG. NEW REFRIGERANT PIPING SHALL ROUTE UP THRU EXISTING REFRIGERANT BOXES AT ROOF. OFFSET REFRIGERANT PIPING ABOVE 3RD FL. CLG. AS REQUIRED. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. NEW CONDENSING UNITS SHALL BE MOUNTED ON EXISTING COND. UNIT SUPPORTS ON ROOF. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
- CONNECT TO EXISTING EXHAUST DUCTWORK ABOVE CEILING AT THIS LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
- CONNECT TO EXISTING OUTSIDE AIR DUCTWORK ABOVE CEILING AT THIS LOCATION. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.

SUPPLY DIFFUSER SCHEDULE

DESIGNATES LABEL FOR DIFFUSER TYPE			ALL DIFFUSERS ARE TO BE PROVIDED WITH OPPOSED BLADE DAMPERS UNLESS OTHERWISE SPECIFIED ON PLANS.	
DESIGNATES CFM QUANTITY FOR DIFFUSER				
LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS
A	TITUS TDC-AA	6"ø	0 – 125	12X12 LOUVERED FACE
B	TITUS TDC-AA	6"ø	0 – 125	24X24 LOUVERED FACE
C	TITUS TDC-AA	8"ø	130 – 200	24X24 LOUVERED FACE
D	TITUS TDC-AA	10"ø	205 – 325	24X24 LOUVERED FACE

RETURN GRILLE SCHEDULE

DESIGNATES LABEL FOR GRILLE TYPE		DESIGNATES CFM QUANTITY FOR GRILLE			
LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS	
1	TITUS 355FL	10x10	0 - 400	LOUVER FACE	
2	TITUS 355FL	12x12	400 - 650	LOUVER FACE	
3	TITUS 355FL	24x24	1205 - 1450	LOUVER FACE	



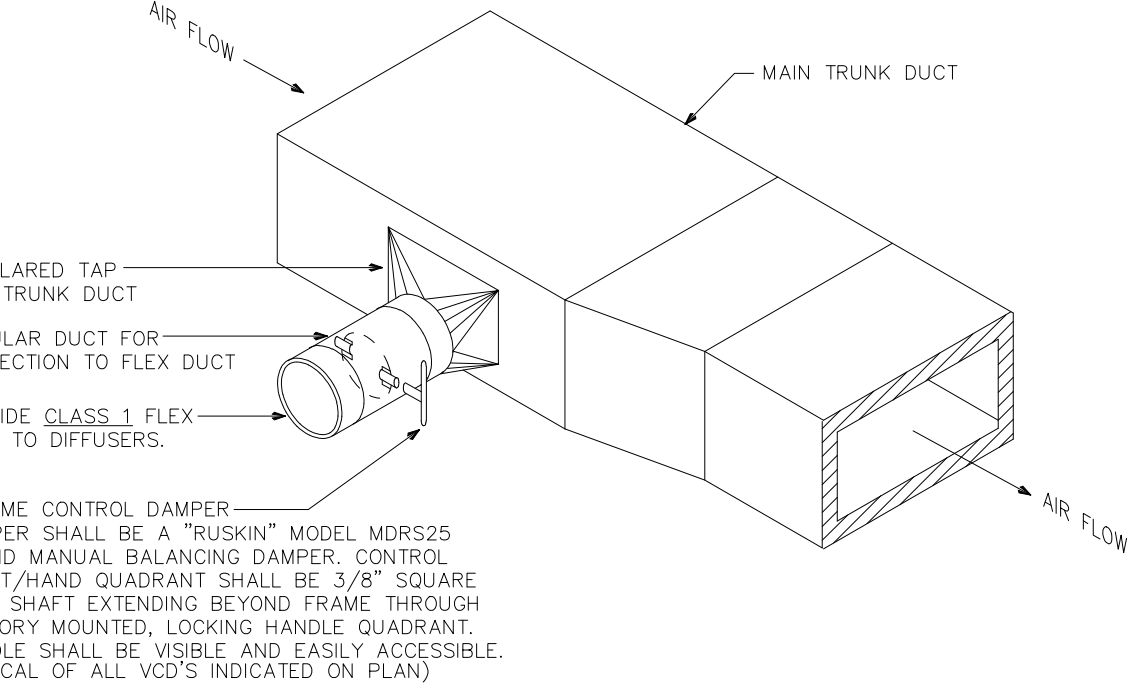
KEY PLAN

NO SCALE

APPENDIX B BUILDING CODE SUMMARY (MECHANICAL SUMMARY)

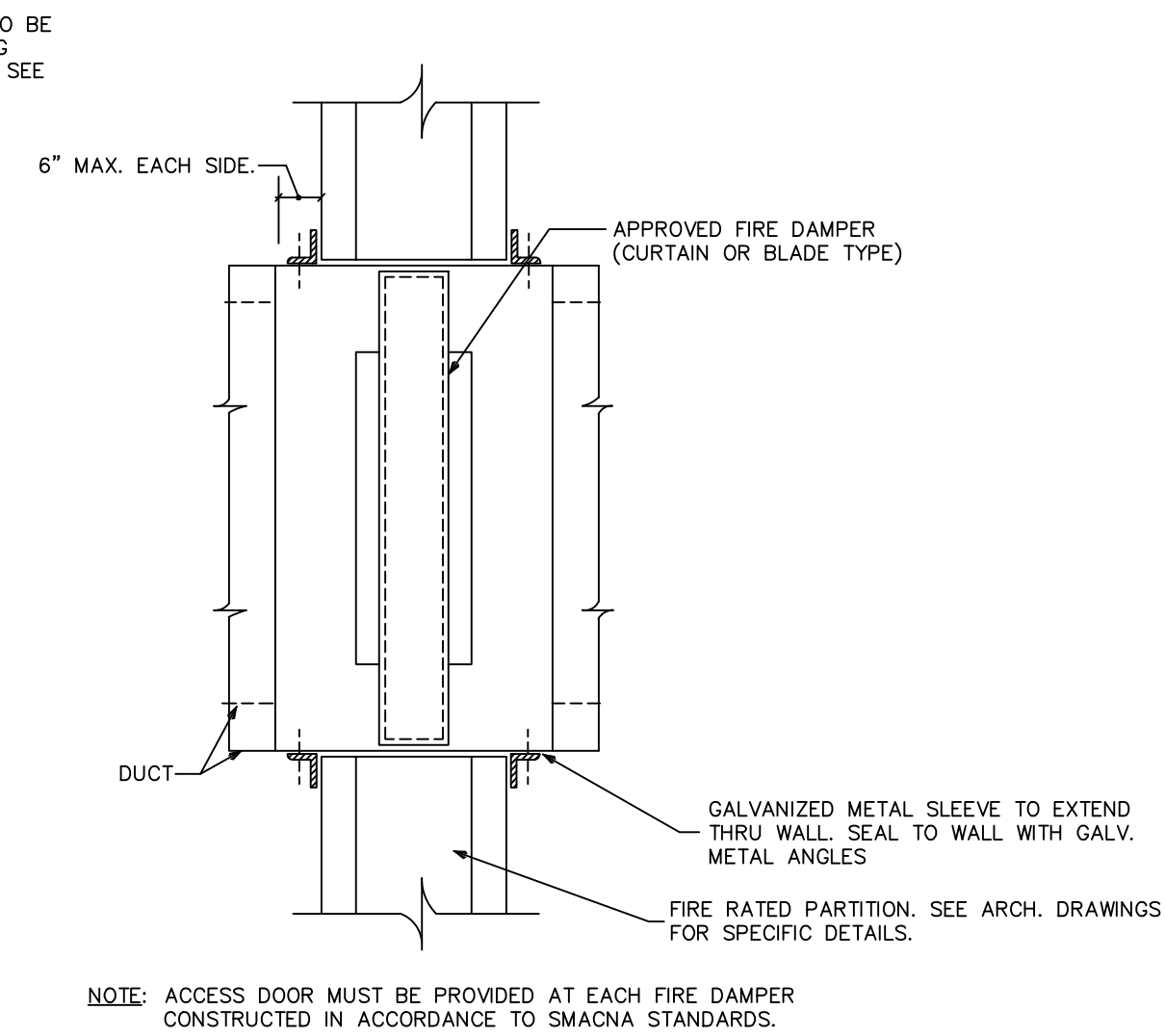
MECHANICAL SYSTEMS, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE: Prescriptive [X] Energy Cost Budget []	
Thermal Zone — Zone 4A	
Exterior Design Conditions	
winter dry bulb	20° F
summer dry bulb	97° F
Interior Design Conditions	
winter dry bulb	68° F
summer dry bulb	74° F
relative humidity	52.9%
Building Heating Load 122,080 BTU	
Building Cooling Load 129,140 BTU	
Mechanical Spacing Conditioning System	
Unitary	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
Description of unit	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
heating efficiency	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
cooling efficiency	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
heat output of unit	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
cooling output of unit	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
Boiler N/A	
total boiler output.	If oversized, state reason.
Chiller N/A	
total chiller capacity.	If oversized, state reason.
List equipment efficiencies	
Equipment schedules with motors (mechanical systems)	
motor horsepower	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
number of phases	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
minimum efficiency	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
motor type	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
# of poles	REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
DESIGNER STATEMENT: ¹	
To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Code 2012.	
SIGNED:	TODD W. CAREY
TITLE:	N.C. PROFESSIONAL ENGINEER #9079



2 BRANCH DUCT DETAIL

NO SCALE



3 FIRE DAMPER DETAIL

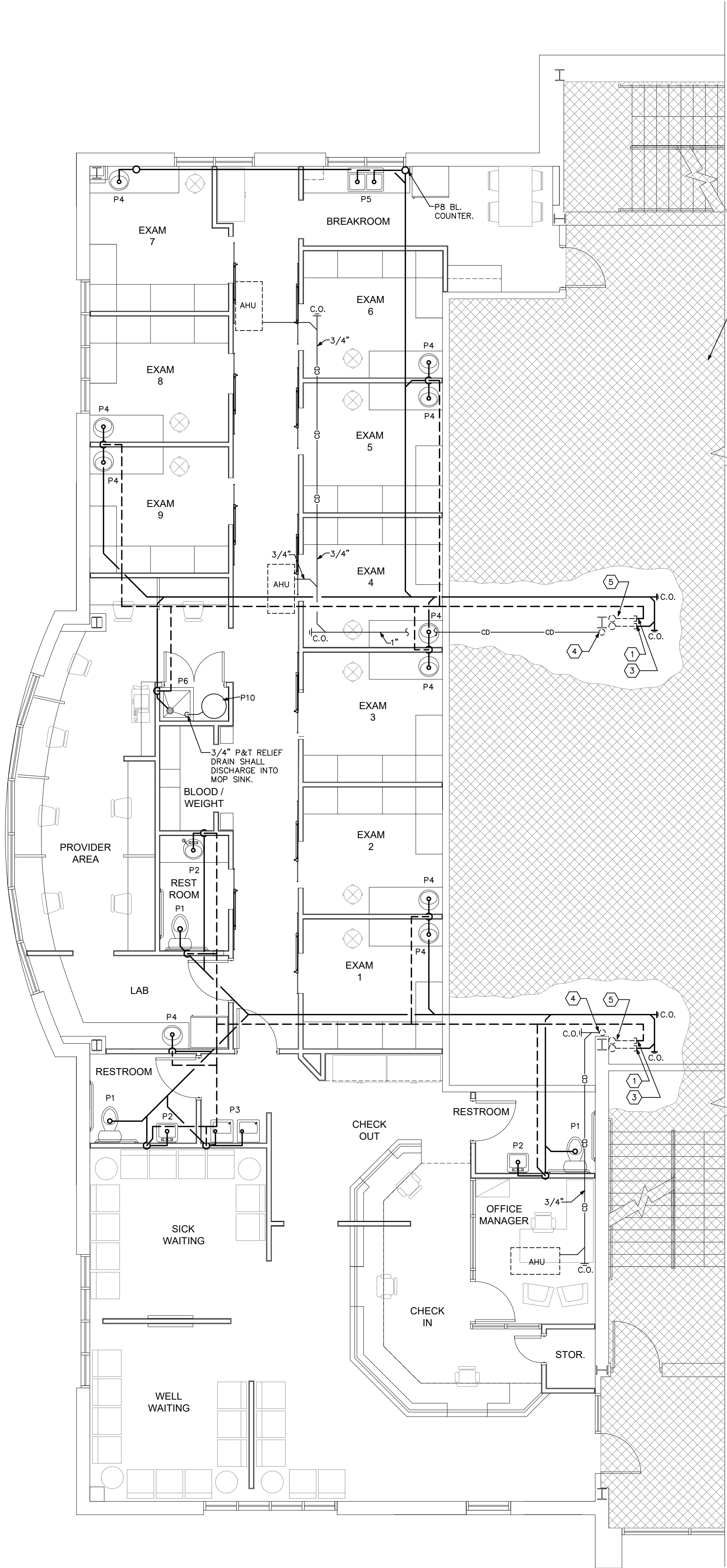
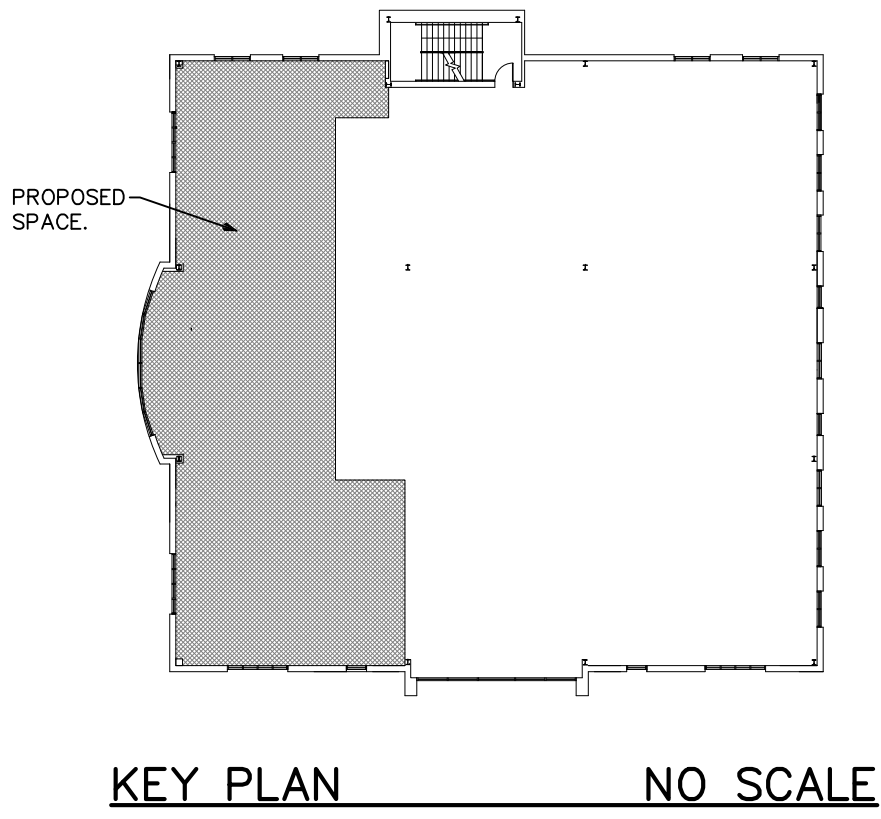
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1 FLOOR PLAN - MECHANICAL

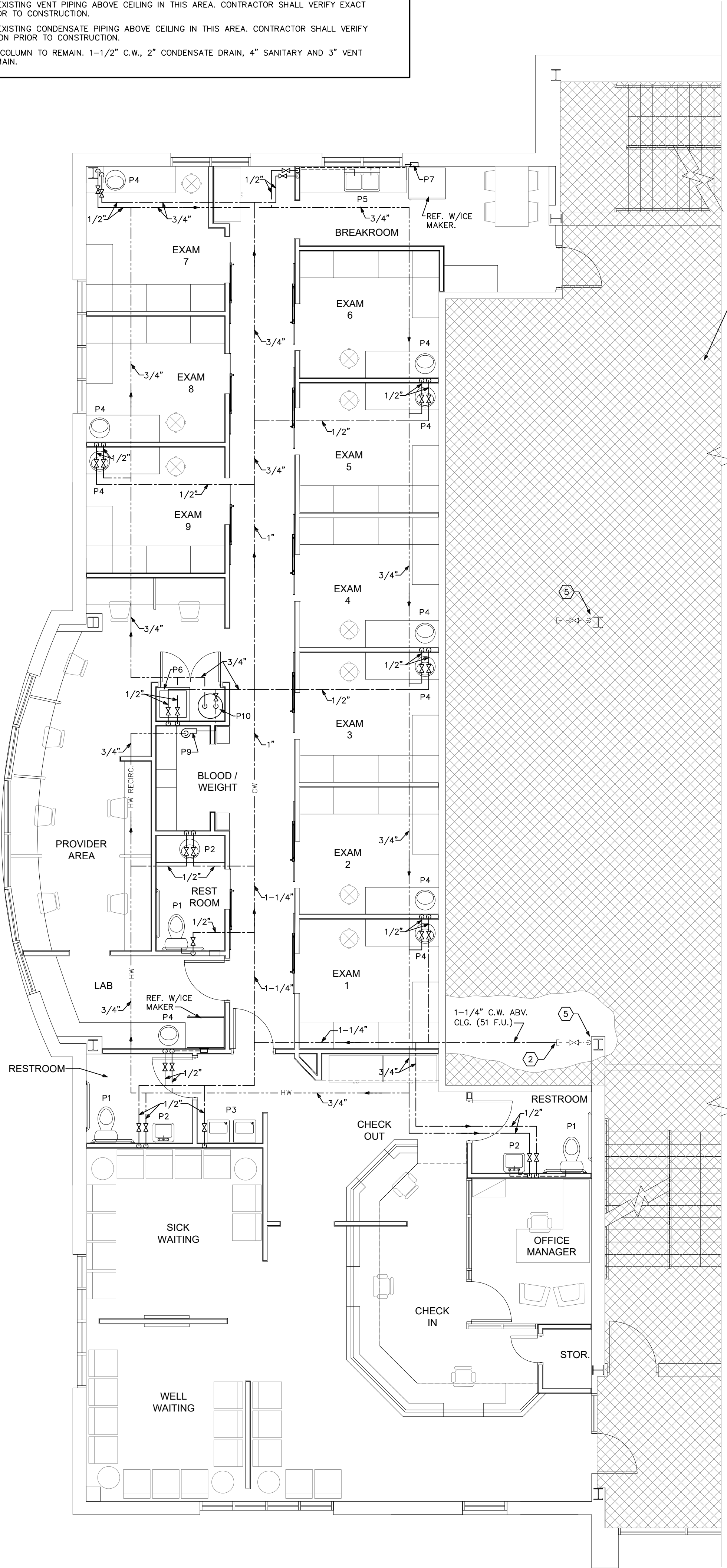
SCALE: 3/16"=1'-0"

PLUMBING ABBREVIATION LEGEND					
DN.	DOWN	C.C.	CENTER TO CENTER	F.U.	FIXTURE UNITS
EXT.	EXTERIOR	N.T.S.	NOT TO SCALE	H.B.	HOSE BIBBS
F.D.	FLOOR DRAIN	MFG.	MANUFACTURER	C.O.	CLEANOUT
F.F.	FINISH FLOOR	S.O.V.	SHUT OFF VALVE	E.W.H.	ELECTRIC WATER HEATER
A.F.F.	ABOVE FINISH FLOOR	W.C.	WATER CLOSET	JAN.SK.	JANITOR SINK
V.T.R.	VENT THRU ROOF	LAV.	LAVATORY	P & T	PRESSURE & TEMPERATURE
TYP.	TYPICAL	SK.	SINK	RWL.	RAIN WATER LEADER
R.D.	ROOF DRAIN	D.W.	DISH WASHER		
REV.	REVISION	E.D.F.	ELECTRIC DRINKING FOUNTAIN		
O.C.	ON CENTER	UR.	URINAL		

- SPECIFIC MECHANICAL NOTES**
1. CONNECT TO EXISTING SANITARY PIPING BELOW FLOOR IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
 2. CONNECT TO EXISTING C.W. PIPING ABOVE CEILING IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
 3. CONNECT TO EXISTING VENT PIPING ABOVE CEILING IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
 4. CONNECT TO EXISTING CONDENSATE PIPING ABOVE CEILING IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.
 5. EXISTING WET COLUMN TO REMAIN: 1-1/2" C.W., 2" CONDENSATE DRAIN, 4" SANITARY AND 3" VENT PIPING TO REMAIN.



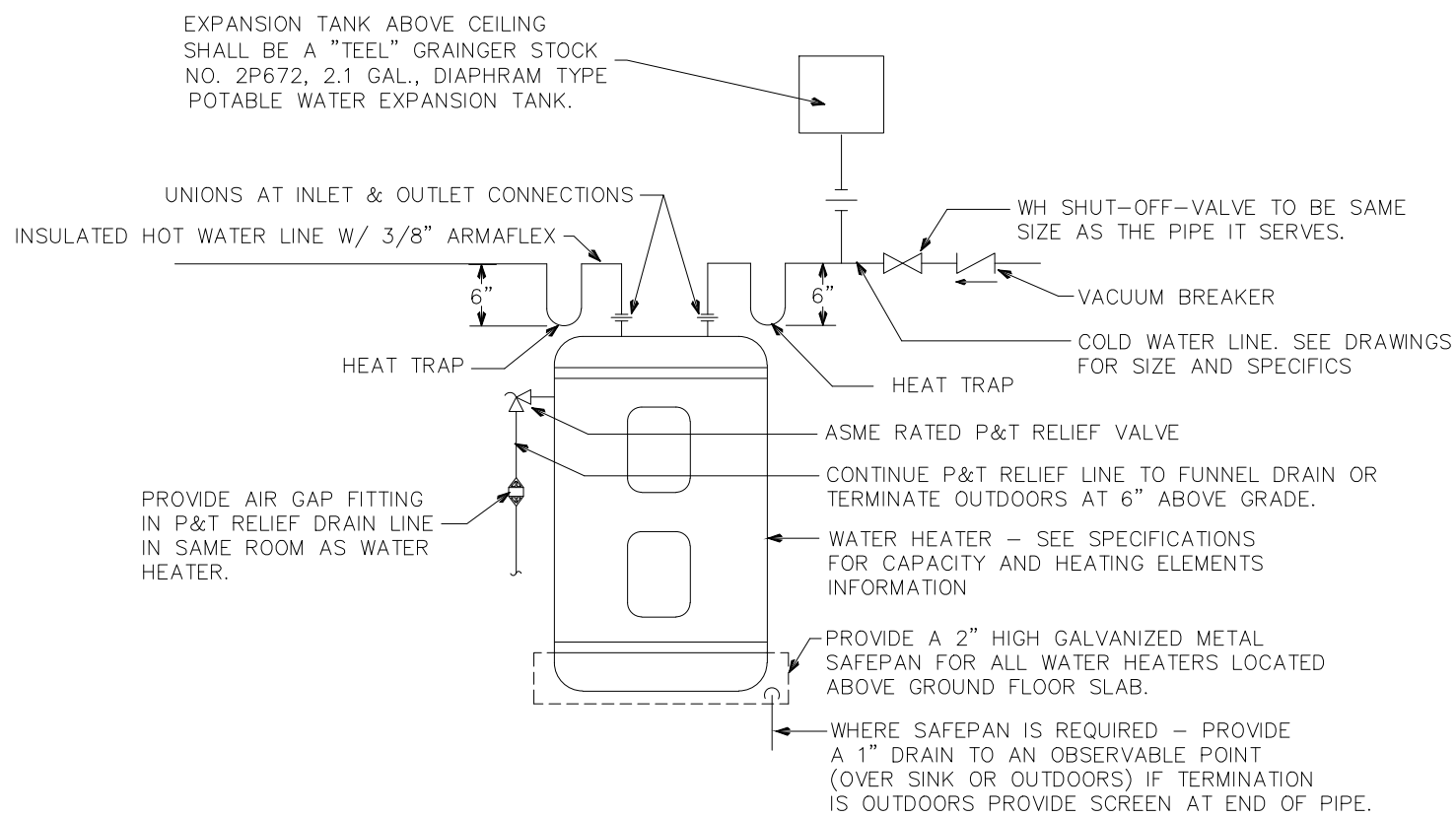
(SANITARY PIPING)
2 FLOOR PLAN - PLUMBING
SCALE: 3/16"=1'-0"



(WATER PIPING)
1 FLOOR PLAN - PLUMBING
SCALE: 3/16"=1'-0"

PLUMBING SYMBOLS LEGEND	
	FLOOR DRAIN
	HOSE BIBB
	CLEANOUT
	RELIEF VALVE
	AIR CHAMBER
	UNION
	SOIL OR WASTE LINE
	SANITARY VENT LINE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC WATER RECIRCULATION
	PRESSURE & TEMP. RELIEF LINE
	CONDENSATE DRAIN LINE
	RAIN WATER LEADER
	GAS LINE
	SEWER LINE
	FIRE PROTECTION
	SHUT OFF VALVE
	SAFEPAN LINE
	FIRE SPRINKLER HEAD
	PIPE TURN UP
	PIPE TURN DOWN
	P-TRAP

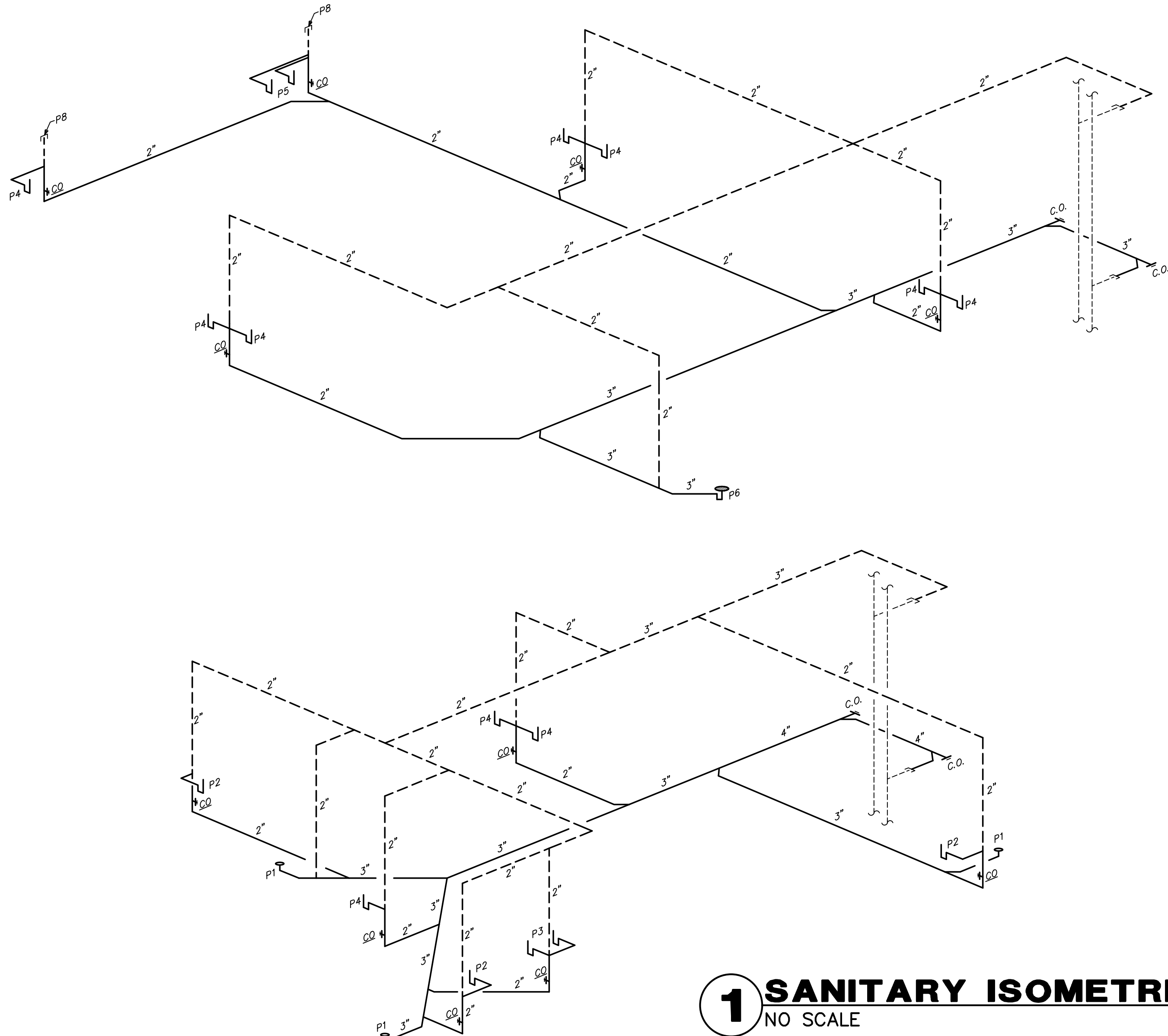
PLUMBING FIXTURE SCHEDULE
P-1 (HANDICAPPED FLOOR MOUNTED FLUSH TANK WATER CLOSET) SHALL BE AN AMERICAN STANDARD MODEL 2467.016 CADET 1.6 GPF RIGHT HEIGHT ELONGATED PRESSURE ASSISTED TOILET. VITREOUS CHINA, LOW-CONSUMPTION (1.6 GPF), CLOSE-COUPLED FLUSHOMETER TANK WITH RISE AND SHINE ELONGATED OPEN FRONT SEAT AND COVER AMERICAN STANDARD MODEL 5325.024 * http://www.americanstandard-us.com/assets/documents/omstd/spec/SpecSheet_2669.pdf
P-2 (HANDICAPPED WALL HUNG LAVATORY) SHALL BE AN AMERICAN STANDARD MISSOURI LAVATORY MODEL 0436.004US, VITREOUS CHINA, WALL MOUNT WITH CONCEALED ARMS SUPPORT, PROVIDE AN AMERICAN STANDARD MONTEREY MODEL 6531.170 CENTERSET FAUCET WITH 4" WRIST BLADE HANDLES. WATER PIPING AND P-TRAP SHALL BE COVERED WITH AN UNDERSINK PROTECTIVE PIPE COVER KIT BY TRUEBRO (HTTP://WWW.TRUEBRO.COM) OR APPROVED EQUAL. * http://www.americanstandard-us.com/assets/documents/omstd/spec/SpecSheet_4486.pdf * http://www.americanstandard-us.com/assets/documents/omstd/spec/SpecSheet_426.pdf
P-3 (HANDICAPPED ELECTRIC WATER COOLER COMBINATION H2/O & WALL CARRIER) SHALL BE AN ELKAY MODEL EMABFTL8C, SPLIT LEVEL TWO STATION WATER COOLER WITH BARRIER FREE ACCESS, MODEL EMABFTL8C, 8.8 GPH, 4.0 FLA AT 120 VOLT, WITH ACCESSORY H-WALL CARRIER ELKAY MODEL MIP200. H2/O WATER COOLER: * http://www.elkay.com/emabftl8c H-WALL CARRIER SYSTEM: * http://www.elkay.com/mip200 WALL CARRIER INSTALLATION: * http://goo.gl/P4tct
P-4 (SINGLE BOWL STAINLESS STEEL SINK W/GOOSENECK FAUCET) SHALL BE A "JUST" MODEL SBL-1812-A-GP, 18"x33"x24", SINGLE BOWL, SEAMLESS DIE-DRAWN CONSTRUCTION OF TYPE 304, 18-8 STAINLESS STEEL, INTERIOR AND TOP SURFACES POLISHED TO A NONPOROUS HAND-BLENDED JUST FINISH WITH HIGHLIGHTED BOWL RIM, FULLY COATED UNDERSIDE INSULATED FOR SOUND AND REDUCES CONDENSATION, STRAIGHT-SIDED COMPARTMENT WITH RADIUS CORNERS PROVIDES GREATER CAPACITY, SELF-RIMMING TOP MOUNT GRIP-RIM PLUS WITH STAINLESS STEEL MOUNTING CHANNELS, CONFORMS TO ASME/ANSI A112.19.3M, CERTIFIED PERFORMANCE WITH ASME A112.19.3/CSA B45.4, FAUCET SHALL BE A "JUST" MODEL JGN-A-WR WITH 4" WRIST BLADE HANDLES. * http://www.justmfg.com/PDF/SBL1812A.pdf * http://www.justmfg.com/PDF/JGN4.pdf
P-5 (HANDICAPPED DOUBLE BOWL STAINLESS STEEL SINK) SHALL BE A "JUST" MODEL DL-ADA-1933-A-GP, 19"x33"x6-1/2" DOUBLE BOWL, SEAMLESS DIE-DRAWN CONSTRUCTION OF TYPE 304, 18-8 STAINLESS STEEL, INTERIOR AND TOP SURFACES POLISHED TO A NON-POROUS HAND-BLENDED JUST FINISH WITH HIGHLIGHTED BOWL RIM, FULLY COATED UNDERSIDE INSULATED FOR SOUND AND REDUCES CONDENSATION, STRAIGHT-SIDED COMPARTMENT WITH 1 3/4" RADIUS CORNERS PROVIDES GREATER CAPACITY, SELF-RIMMING TOP MOUNT GRIP-RIM PLUS WITH 300 SERIES STAINLESS STEEL MOUNTING CHANNELS, DRAIN PUNCH #35 CENTERED FOR JUST J-35, UNLESS OTHERWISE SPECIFIED, FAUCET SHALL BE A "JUST" MODEL J-1174-KS WITH 4" WRIST BLADE HANDLES. * http://www.justmfg.com/PDF/DLADA1933A.pdf * http://www.justmfg.com/PDF/J-29.pdf
P-6 (FLOOR MOUNTED MOP RECEPTOR) SHALL BE A FLORESTONE MMR-2424, 24X24X10" MOLDED MOP BASIN WITH 3" OUTLET, PROVIDE WITH MR-371 FAUCET WITH WALL BRACE, PAIL HOOK AND APPROVED VACUUM BREAKER, MR-370 HOSE & HOSE BRACKET, MR-372 MOP HANGER, MR-373 BUMBER GUARDS AND MR-377 STAINLESS TIEEL WALL GUARD. * http://www.florestone.com/mop_sinks/model_50-70.html * http://www.florestone.com/mop_sinks/ms_accessories.html
P-7 (WATER CONNECTION BOX) SHALL BE A HIGH QUALITY CONNECTION BOX AS SPECIFIED ON PLUMBINGSUPPLY.COM LOCATED ON THIS PAGE "http://www.plumbingupply.com/icemaker-outlet-boxes.html" SHALL INCLUDE 2 SUPPORT BRACKETS, HIGH IMPACT POLYSTYRENE, 1/4" BRASS BALL VALVE WITH 1/2" SWEAT CONNECTION, OR APPROVED EQUAL.
P-8 (2" STUDOR VENT - AIR ADMITTANCE VALVE) SHALL BE A IPS CORPORATION "STUDOR MINI-VENT", 2" VENT. * http://www.ipscorp.com/plumbing/studor/minivent WHEN NEEDED:
P-9 (HOT WATER RECIRCULATING PUMP-W/TIMER) SHALL BE A "GRUNDFOS" MODEL 84P15-10S/DTLC, GRANGER STOCK #4JA13, INLINE CIRCULATOR PUMP, OPEN LOOP SYSTEM, 1/25 HP, 1 PHASE, VOLTAGE 115, 3/4" INLET/OUTLET, INCLUDES POWER CORD, 24 HR. TIMER, COMFORT BYPASS VALVE, SUPPLY LINES. * http://www.grainger.com/product/GRUNDFOS-Hot-Water-Circulator-Pump-4JA13
P-10 (WATER HEATER - MEDIUM DUTY - TALL MODEL) SHALL BE A LOCHINVAR MODEL KTA05SD, 55 GALLON GLASSLINED STORAGE TANK, TALL TANK TYPE WATER HEATER WITH (2) - 4.5 KW ELECTRIC ELEMENTS WIRED FOR NON-CONCURRENT INDEPENDENT OPERATION AT 208 VOLTS, SINGLE PHASE INCOMING POWER, 3 YEAR LIMITED WARRANTY ON STORAGE TANK AGAINST TANK FAILURE, WATER HEATER SHALL MEET OR EXCEED ALL APPLICABLE SECTIONS OF ASHRAE STANDARD 90-S&A AND IECC&A REQUIREMENTS FOR ENERGY CONSERVATION. * http://www.lochinvar.com/_linfiles/RE-21.pdf
NOTES: 1.) ALL PLUMBING FIXTURES SHALL BE AS SPECIED OR APPROVED EQUAL. 2.) PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.



2 WATER HEATER DETAIL

NO SCALE

- ### GENERAL PLUMBING NOTES
- DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES, EQUIPMENT, ETC. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE AND ACCEPTABLE WORKING INSTALLATION. CONTRACTOR IS RESPONSIBLE TO INSTALL ALL FIXTURES AND EQUIPMENT IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THIS REQUIREMENT IS TO SUPERSEDE ANY DETAILS OR INFORMATION CONTAINED ON THESE DRAWINGS.
 - ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL, STATE, AND ALL LOCAL CODES AND ORDINANCES HAVING JURISDICTION.
 - THE PLUMBING CONTRACTOR SHALL VISIT THE SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS. ALL EXECUTION AND BACKFILL AS REQUIRED FOR THIS PHASE OF CONSTRUCTION SHALL BE A PART OF THIS CONTRACT.
 - ALL MATERIAL SHALL BE NEW.
 - ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/ARCHITECT.
 - ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
 - THE PLUMBING CONTRACTOR SHALL SECURE AND PAY ALL PERMIT FEES, INSPECTIONS, AND TESTS.
 - ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
 - THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN (1) ONE YEAR FROM DATE OF ACCEPTANCE. 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.
 - VERIFY LOCATION, SIZE AND INVERTS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. ADVISE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
 - ALL FIXTURES SHALL BE PROVIDED WITH READILY ACCESSIBLE STOPS.
 - ALL BELOW FLOOR SLAB WATER PIPING SHALL BE FLEXIBLE "TWO-PIPE PEX (CROSS-LINKED POLYETHYLENE)" INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS FOUND HERE: WWW.LUBRIZOL.COM. ALL ABOVE SLAB WATER PIPING SHALL BE "LOWGUARD GOLD CPVC" INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS FOUND HERE: WWW.LOWGUARDGOLD.COM. ALL WATER PIPING AS SPECIFIED OR APPROVED EQUAL. ALL WATER PIPING LARGER THAN 2" SHALL BE TYPE "L" COPPER AND TYPE "K" COPPER FOR 2 1/2" AND LARGER.
 - SOIL, WASTES AND VENT PIPING SHALL BE PVC #40 D.M.V. WASTE AND VENT PIPING ABOVE SLAB SHALL BE PVC. IF APPROVED BY LOCAL AUTHORITIES HAVING JURISDICTION, OTHERWISE CAST IRON. PVC SHALL NOT BE INSTALLED IN A/C RETURN AIR PLENUM OR PENETRATE FIRE RATED WALLS OR FLOORS.
 - AIR CONDITIONING CONDENSATE DRAIN PIPING SHALL BE PVC #40 OR COPPER DRAIN WASTE AND VENT PIPE AND FITTINGS. INSULATE ALL CONDENSATE PIPING EXCEPT EXTERIOR PIPING. INSTALL ALL CONDENSATE PIPING FOR AIR CONDITIONING UNITS AS REQUIRED PER LOCAL CODES.
 - FURNISH AND INSTALL APPROVED WATER HAMMER ARRESTORS AT EACH GROUP OF FIXTURES. INSTALLATION OF WATER HAMMER ARRESTORS SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE AND INSTALL AN APPROVED WATER HAMMER ARRESTOR AT EACH FIXTURE OR DEVICE THAT HAS A SOLENOID WATER CONTROL VALVE.
 - PROVIDE CHROME PLATED COMBINATION COVERED PLATE AND CLEANOUT PLUG FOR ALL WALL CLEANOUTS. JO5AM 58890.
 - INSULATE LINES AS FOLLOWS:
 - 1-1/2" THICK ARMAFLEX PREFORMED INSULATION SHALL BE PROVIDED ON BOTH C.W. & H.W. WHEN PIPING IS LOCATED OUTSIDE OF THE INSULATED BUILDING ENVELOPE.
 - 1-1/2" THICK ARMAFLEX PREFORMED INSULATION SHALL BE PROVIDED ON HW PIPING & H.W. RECIRC. PIPING, ONLY WHEN THERE IS A H.W. RECIRCULATING PIPING SYSTEM.
 - CONDENSATE PIPING: 1/2" THICK ARMAFLEX PREFORMED OR APPROVED EQUAL.



1 SANITARY ISOMETRIC

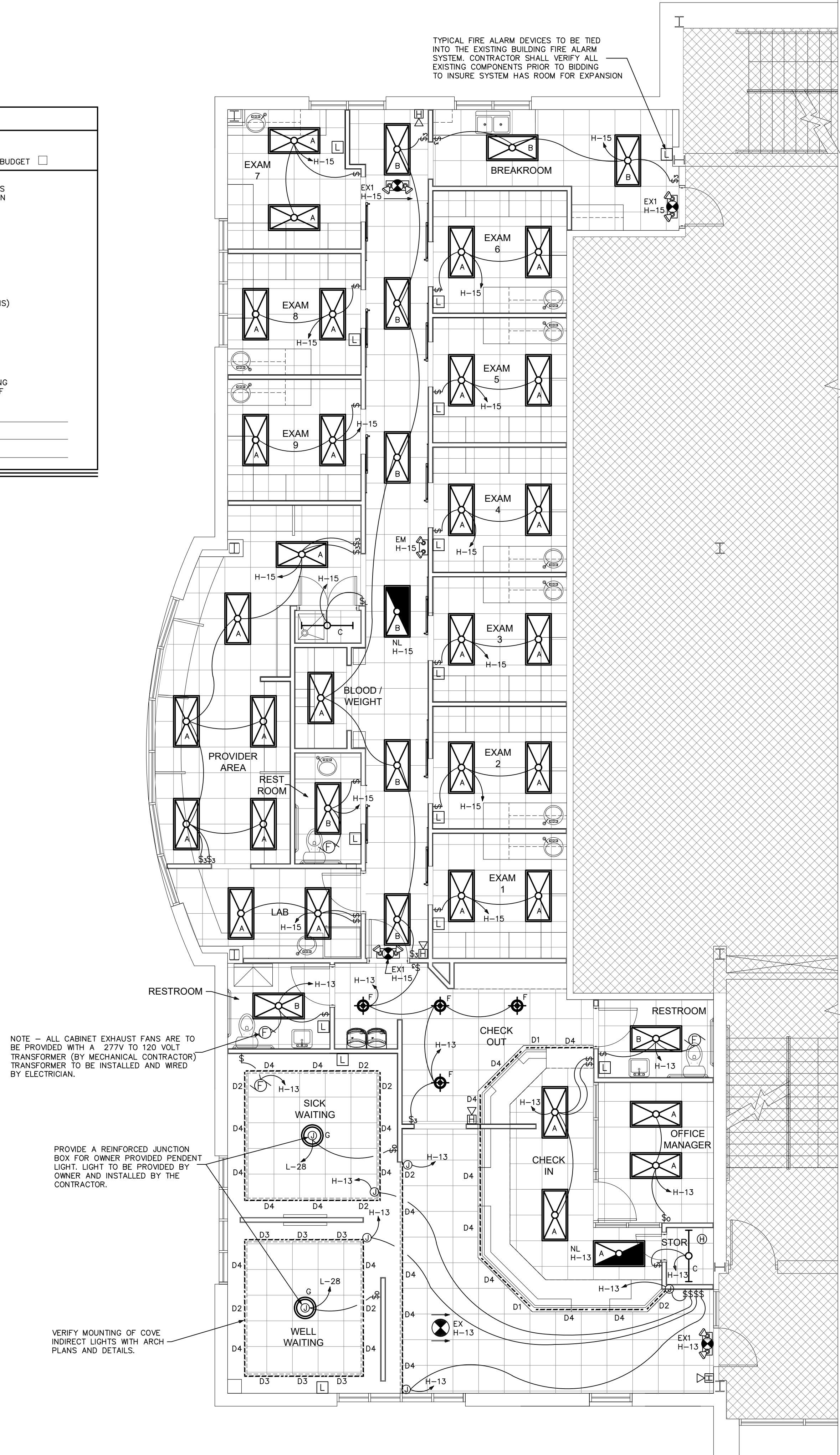
NO SCALE

PLUMBING FIXTURE CONNECTION SIZES				
FIXTURE	C.W. CONN. SIZE	H.W. CONNECTION SIZE	SANITARY BRANCH SIZE	F.U. LOAD VALUES
WATER CLOSET (P1)	1/2"	-	3"	5.0
LAVATORY (P2)	1/2"	1/2"	1-1/4"	2.0
ELECTRIC WATER COOLER (P3)	1/2"	-	1-1/4"	0.5
SINK (P4,P5)	1/2"	1/2"	1-1/2"	4.0
MOP SINK (P6)	1/2"	1/2"	2"	4.0

NOTE: F.U. LOAD VALUES BASED ON IPC 2012 - APPENDIX E TABLE E103.X(2)

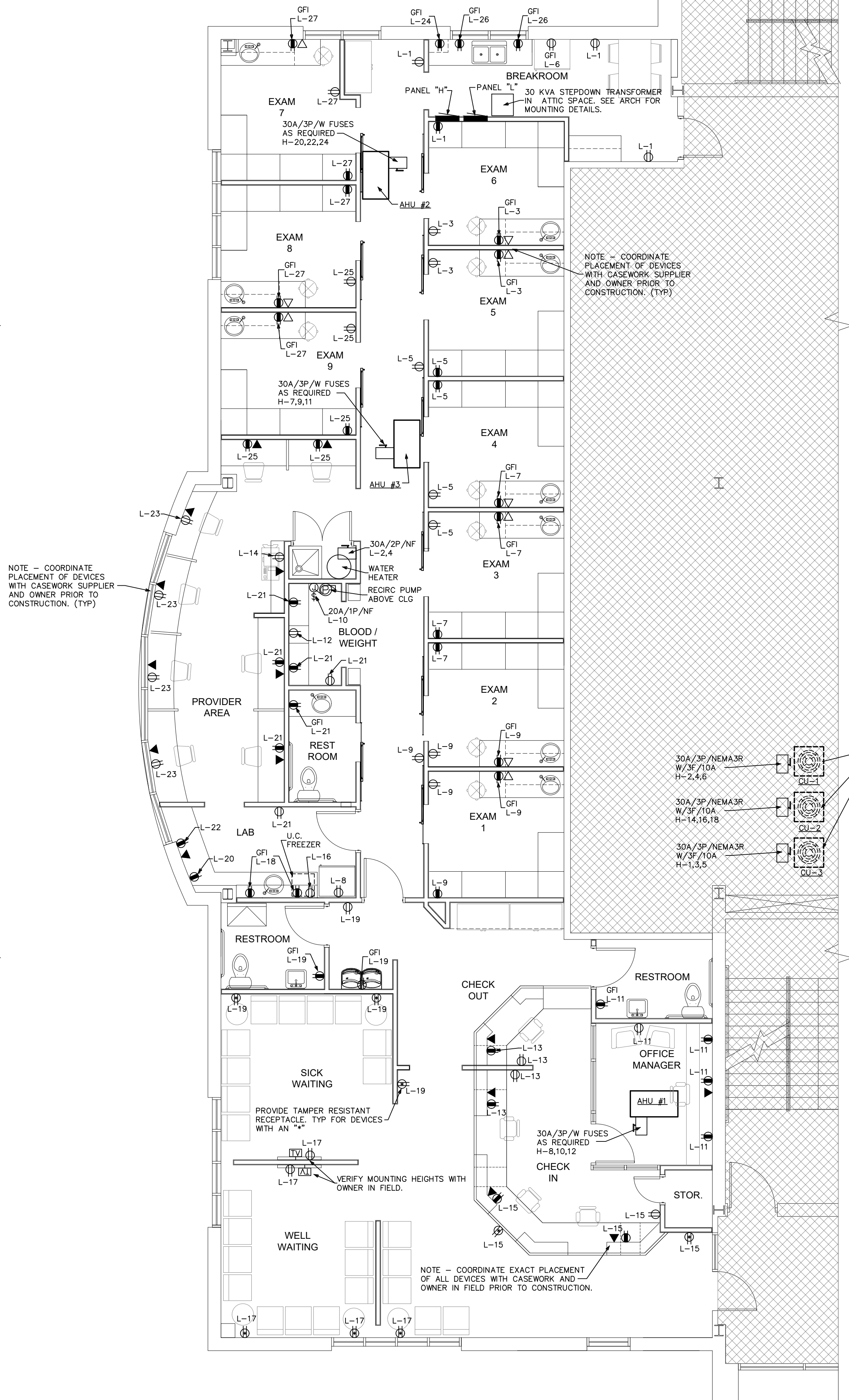
LIGHTING FIXTURE SCHEDULE							
LABEL	TYPE OF FIXTURE	FINISH	LENS TYPE	VOLTAGE	LAMP	MANUFACTURER & MODEL NO.	REMARKS
A	RECESSED 2'x4' TROFFER	WHITE	PRISMATIC	277	(3) 32W T8	LITHONIA 2SP80-332-FWA12-MVOLT	
B	RECESSED 2'x4' TROFFER	WHITE	PRISMATIC	277	(2) 32W T8	LITHONIA 2SP80-232-FWA12-MVOLT	
C	4' FLUORESCENT STRIP	WHITE		277	(2) 32W T8	LITHONIA C-232-MVOLT	
D1	1' SECTION OF LED WASH LT			277	780 LUMENS 14W	I2SYSTEMS V2355-A-1-B-CBC	3500 K. PROVIDE CONNECTORS AND ANCHORS AS NECESSARY
D2	2' SECTION OF LED WASH LT			277	1560 LUMENS 28W	I2SYSTEMS V2355-A-2-B-CBC	3500 K. PROVIDE CONNECTORS AND ANCHORS AS NECESSARY
D3	3' SECTION OF LED WASH LT			277	2340 LUMENS 42W	I2SYSTEMS V2355-A-3-B-CBC	3500 K. PROVIDE CONNECTORS AND ANCHORS AS NECESSARY
D4	4' SECTION OF LED WASH LT			277	3120 LUMENS 56W	I2SYSTEMS V2355-A-4-B-CBC	3500 K. PROVIDE CONNECTORS AND ANCHORS AS NECESSARY
EM	EMERGENCY EGRESS	WHITE		277	INCLUDED	LITHONIA ELM2-MVOLT	W/ BATTERY BACKUP
EX1	EXIT/EMERGENCY EGRESS	WHITE	RED	277	INCLUDED	LITHONIA LHQM-MVOLT	
EX	EXIT SIGN	WHITE	RED	277	INCLUDED	LITHONIA LE-SW2R-120/277-ELN	W/ BATTERY BACKUP
F	RECESSED FLUORESCENT	WHITE		277	(2) 13W DTT	LITHONIA LF6N-2/130TT-F602-COL-MVOLT	
G	DECORATIVE PENDENT LIGHT	BY OWNER	BY OWNER	120	MAX OF 75 W.	TO BE OWNER PROVIDED	

ELECTRICAL SYSTEM AND EQUIPMENT		
METHOD OF COMPLIANCE		
PREScriptive	☒	PERFORMANCE ☐ ENERGY COST BUDGET ☐
PROVIDE A STANDARD RISER DIAGRAM WHICH INDICATES DESIGNATED POINTS FOR CHECK METERING. PROVIDE A STANDARD PANEL SCHEDULE DESCRIPTION WHICH IDENTIFIES DIFFERENT ENCLOSE LOADS.		
LIGHTING SCHEDULE		
LAMP TYPE REQUIRED IN FIXTURE	SEE SCHEDULE ON DRAWINGS	
NUMBER OF LAMPS IN FIXTURE	SEE SCHEDULE ON DRAWINGS	
BALLAST TYPE USED IN FIXTURE	SEE SCHEDULE ON DRAWINGS	
NUMBER OF BALLASTS IN FIXTURE	SEE SCHEDULE ON DRAWINGS	
TOTAL WATTAGE PER FIXTURE	SEE SCHEDULE ON DRAWINGS	
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED	3250 VS 5438	
TOTAL EXTERIOR WATTAGE SPECIFIED VS ALLOWED	N/A	
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)		
MOTOR HORSEPOWER	N/A	
NUMBER OF PHASES	N/A	
MINIMUM EFFICIENCY	N/A	
MOTOR TYPE	N/A	
NUMBER OF POLES	N/A	
DESIGNER STATEMENT:		
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA ENERGY CODE 2012, CHAPTER 5.		
SIGNED:		
NAME:	TODD W. CAREY, P.E.	
TITLE:	NORTH CAROLINA PROFESSIONAL ENGINEER #9079	

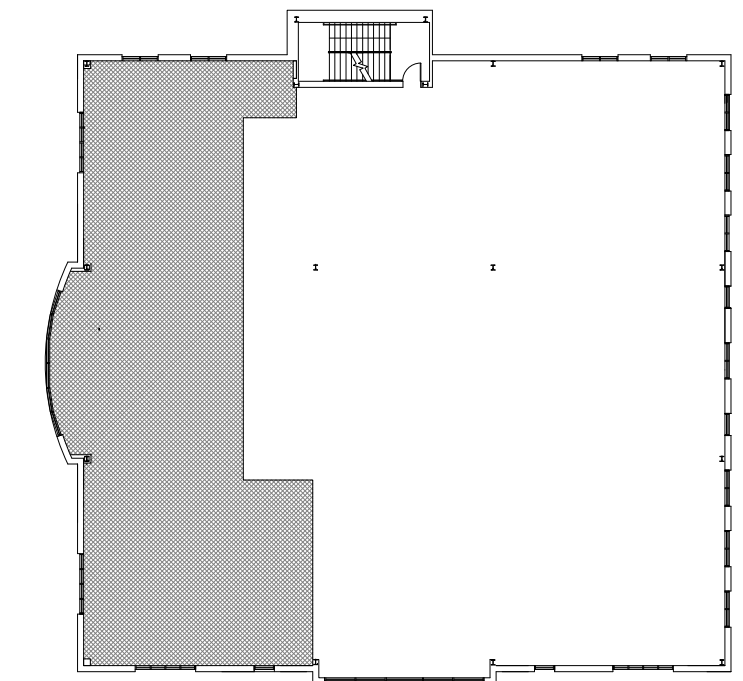


2 FLOOR PLAN - LIGHTING
SCALE: 3/16"=1'-0"

ELECTRICAL SYMBOLS LEGEND		NOTE - NOT ALL SYMBOLS MAY BE USED ON PROJECT	
SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
	DUPLEX RECEPTACLE, WTD. +18" AFF		TRANSFORMER - SIZE AS NOTED
	240 VOLT RECEPTACLE (HT. AS REQ.)		PANEL - SIZE AS NOTED
	QUADRUPLEX RECEPTACLE, WTD. +18"		MOMENTARY CONTACT PUSH BUTTON
	COUNTERTOP HT. RECEPTACLE +42"		F-FAN, W-MOTOR, P-PUMP
	SINGLE POLE SWITCH, WTD. +47"		SPECIAL OUTLET - AS REQUIRED
	THREE-WAY SWITCH, WTD. +47"		OKT. HOMERUN (B INDICATES PANEL)
	MANUAL STARTER SWITCH		"2" DESIGNATES CIRCUIT NUMBER
	DIMMER SWITCH, WTD. +47"		EXIT SIGN, ONE SIDED, OR TWO SIDED
	SWITCH W/ ILLUM WHEN ON WTD. +47"		EMERGENCY LIGHTING
	THREE-WAY SWITCH W/ OCCU SENSOR		RECESSED MOUNTED LIGHTING FIXTURE
	SWITCH W/ OCCU SENSOR		B DESIGNATES FIXTURE TYPE
	WTD. +47"		OVERHEAD OCCUPANCY SENSOR
	JUNCTION BOX, FLUSH IF POSSIBLE		HIGHBAY HID LIGHTING FIXTURE
	TELEPHONE / DATA OUTLET +18"		B DESIGNATES FIXTURE TYPE
	DED. COMPUTER TERM. OUTLET +18"		FLUORESCENT LIGHTING NIGHT LIGHT
	DISCONNECT SWITCH W/ STARTER		B DESIGNATES FIXTURE TYPE
	DISCONNECT SWITCH		FLUORESCENT STRIP LIGHTING FIXTURE
	FLR. WTD. FLUSH DUPLEX RECEPTACLE		B DESIGNATES FIXTURE TYPE
	FLR. WTD. FLUSH QUAD. RECEPTACLE		ISOLATED GROUND
	FLR. WTD. FLUSH PHONE/DATA OUTLET		WEATHER-PROOF
	FLR. WTD. FLUSH COMPUTER OUTLET		BC BELOW COUNTER
	AREA SMOKE DETECTOR		TC TIME CLOCK - 24 HOUR
	HEAT DETECTOR		GFI GROUND FAULT INTERRUPTER
	DUCT SMOKE DETECTOR		AFF ABOVE FINISHED FLOOR
	FIRE ALARM MAN. PULL STATION +47"		EWG ELECTRIC WATER COOLER
	HORN WITH STROBE LIGHT, WTD. +80"		ASW ABOVE SHOW WINDOW
	STROBE LIGHT ONLY, WTD. +80"		BSW BELOW SHOW WINDOW
	STROBE DEVICE IS CANNULA RATING		FACP FIRE ALARM CONTROL PANEL
	IF STROBE DEVICE IS CANNULA RATING		FAAP FIRE ALARM ANNUNCIATOR PANEL



1 FLOOR PLAN - POWER
SCALE: 3/16"=1'-0"



KEY PLAN (2nd FLR) NO SCALE

- GENERAL NOTES:
- ALL PHONE/DATA OUTLETS ARE TO BE A DEEP JUNCTION BOX WITH A 3/4" E.C. UP TO THE CEILING SPACE. ALL WIRING TO BE BY OTHERS.
 - COORDINATE FINAL DEVICE LOCATIONS WITH ARCHITECT, AND EQUIPMENT INSTALLER.
 - FIRE STOP ALL PENETRATIONS AT RATED ASSEMBLIES.
 - RECEPTACLES AT WET LOCATIONS SHALL BE GROUND FAULT PROTECTED.
 - VERIFY CONNECTION REQUIREMENTS OF ALL APPLIANCES AND EQUIPMENT WITH ARCHITECT PRIOR TO ROUGH-IN.
 - PROVIDE SEPARATE NEUTRAL CONDUCTOR FOR EACH CIRCUIT SERVING COMPUTER OR NON-LINEAR LOADS.

ELECTRICAL NOTES:

1. GENERAL: ALL WORK SHALL CONFORM TO THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL JURISDICTIONAL CODES.
- THE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND ANY APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, THE 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 THE OWNER HAS DIRECTED THE CORRECTIVE ACTION TO BE TAKEN.
- THE CONTRACTOR SHALL COORDINATE THE PROPOSED LOCATIONS OF ALL ELECTRICAL MATERIALS AND EQUIPMENT WITH THE REPRESENTATIVES OF THE OTHER TRADES INVOLVED BEFORE STARTING INSTALLATION OF THOSE ITEMS.
- COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES, CONDUIT, AND SLEEVES TO BE SET IN CAST-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.
- UNLESS OTHERWISE SPECIFIED ON THE PLANS, ALL SPECS ARE NOT INTENDED TO BE PROPRIETARY. SUBSTITUTIONS WILL BE ACCEPTABLE FOR EQUAL, RATED AND LISTED UNITS.
2. SCOPE: EXCEPT WHERE OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS BY "FUTURE," BY OTHERS, OR BY A SIMILAR NOTATION, IT IS THE INTENT THAT THE CONTRACTOR FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS NECESSARY TO PROVIDE ALL SYSTEMS IN COMPLETE AND OPERATING CONDITION.
3. EXCAVATE AS NECESSARY FOR THE INSTALLATION OF ELECTRICAL MATERIALS AND EQUIPMENT. VERIFY THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES OR STRUCTURES BEFORE EXCAVATING AND EXERCISE CARE TO AVOID DAMAGE TO SUCH ITEMS DURING EXCAVATION. BACKFILL WITH EARTH FREE OF LARGE CLODS, LARGE STONES AND FOREIGN DEBRIS, DEPOSITED IN 6" LAYERS AND COMPACTED TO A DENSITY OF NOT LESS THAN THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. MATERIALS: THE MATERIALS AND EQUIPMENT FURNISHED SHALL BE AS INDICATED ON THE DRAWINGS. SUBSTITUTIONS SHALL NOT BE MADE EXCEPT WHERE EXPRESSLY APPROVED BY THE OWNER OR HIS REPRESENTATIVE PRIOR TO THE STARTING INSTALLATION OF THE ITEMS. THE ELECTRICAL MATERIALS AND EQUIPMENT FURNISHED SHALL BE USED OR LABELED BY UNDERWRITERS LABORATORIES OR OTHER RECOGNIZED TESTING ORGANIZATION, AND SHALL BE ACCEPTABLE TO THE LOCAL BUILDING AUTHORITY.
5. GROUNDING: GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250, NEC.
6. SHARED NEUTRAL CONDUCTORS SHALL NOT BE ALLOWED UNLESS INSTALLED IN ACCORDANCE WITH NEC-210.4

7. CONDUITS: PROVIDE CONDUITS WHERE CALLED FOR ON PANEL SCHEDULES. ELECTRICAL METALLIC TUBING (EMT) SHALL BE INSTALLED ONLY IN DRY LOCATIONS, IN CONCRETE ABOVE GRADE, AND WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
- CONDUITS INSTALLED UNDERGROUND SHALL BE POLYVINYLCHLORIDE (PVC) AND SHALL NOT BE SMALLER THAN 3/4" TRADE SIZE. WHERE PVC CONDUIT IS INSTALLED UNDERGROUND, ELBOWS TURNING UP AND CONDUIT EMERGING ABOVE GRADE SHALL BE RSC. THE TOPS OF CONDUITS SHALL NOT BE LESS THAN 24" BELOW FINISHED GRADE.
- PVC CONDUIT INSTALLED ABOVE GRADE OR DIRECT-BURIED IN EARTH SHALL BE NEMA TC2 TYPE EPC-40-PVC (SCHEDULE 40) EXCEPT THAT WHERE UNDER AREAS SUBJECT TO HEAVY VEHICULAR TRAFFIC, IT SHALL BE NEMA TC2 TYPE EPC-80-PVC (SCHEDULE 80).
- ALL ARMOR GLAD CABLE (AC CABLE) WIRING SHALL MEET OR EXCEED ALL NEC, CSHA AND HUD STANDARDS.
8. CONDUCTORS: CONDUCTORS SHALL BE AS SCHEDULED ON PANEL SCHEDULES. ALL POWER CONDUCTORS SHALL NOT BE SMALLER THAN #14 AWG (CU) OR #12 AWG (AL). CONTROL CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #18 AWG CU. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET WITHOUT SPLICES EXCEPT WITHIN WIREWAY OR JUNCTION BOXES. MARK CONDUCTORS IN PANELS, PULL BOXES OR WIREWAYS AND TERMINAL STRIP TERMINALS FOR IDENTIFICATION OF CIRCUITS.
- CONDUCTORS SHALL BE JOINED USING COMPRESSION SPLICES, EXCEPT THAT CONDUCTORS #10 AND SMALLER MAY BE JOINED USING WIRE NUT TYPE CONNECTORS. CONDUCTORS SHALL BE TERMINATED USING COMPRESSION OR PRESSURE TYPE TERMINAL LUGS, OR IN PRESSURE TERMINALS. COMPRESSION SPLICES USED ON CONDUCTORS #10 AWG AND SMALLER, SHALL BE THE SELF-INSULATED TYPE; OTHER SPLICES SHALL BE INSULATED USING 3M #334 OR #88 PLASTIC TAPE. SPLICES IN WET LOCATIONS SHALL BE INSULATED WITH ELECTRICAL TAPE AND ENCAPSULATED WITH SCOTCHCAST OR EQUAL POTTING COMPOUND.
9. PROVIDE AND INSTALL JUNCTION AND PULL BOXES WHERE INDICATED AND WHERE NECESSARY TO TERMINATE, TAP OFF, OR REDIRECT MULTIPLE CONDUIT RUNS, OF SIZE INDICATED OR AS REQUIRED BY NEC. WHERE FEEDER SPLICES ARE TO BE MADE, INSTALL BOXES LARGE ENOUGH TO PROVIDE AMPLE WORK SPACE.
10. LIGHTING FIXTURES: LIGHTING FIXTURES SHALL BE AS INDICATED ON THE DRAWINGS, AND SHALL BE INSTALLED COMPLETE WITH LAMPS. FIXTURES WITH ADJUSTMENTS AFFECTING LIGHT DISTRIBUTION SHALL BE SET TO PROVIDE THE REQUIRED LIGHT PATTERNS PRIOR TO THE FINAL DEMONSTRATION TEST.
11. TESTS: AFTER EACH SYSTEM HAS BEEN COMPLETED, A FUNCTIONAL TEST SHALL BE PERFORMED TO DEMONSTRATE THAT THE SYSTEM OPERATES IN ACCORDANCE WITH THE REQUIREMENTS OF THE DRAWINGS. THE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE.
12. TERMINALS: ALL ELECTRICAL EQUIPMENT FURNISHED ON THIS PROJECT IS TO HAVE TERMINALS RATED FOR 75° C. OPERATION.

PANEL SCHEDULE L																	
100 AMP, 120/208 VOLT, THREE PHASE, FOUR WIRE, 100A, M.C.B., 10000 AMPS MINIMUM A.I.C. BRACING, FLUSH MOUNTED, TYPE NEMA 1 ENCLOSURE																	
#	BKR.	WIRE AND CONDUIT					LOAD DESCRIPTION	WIRE AND CONDUIT					BKR.	#			
		COND.	NEUTRAL	Ø	C.	KEYS		COND.	NEUTRAL	Ø	C.	KEYS					
1	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	720	720	-----	-----	WATER HEATER	CHAL. 1/2	#10	---	#10	2	4
2	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	720	720	-----	-----	-----	-----	-----	-----	-----	-----	2
3	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	900	900	-----	-----	REFRIGERATOR	CHAL. 1/2	#12	#12	#12	20/1	5
4	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	720	720	-----	-----	LAB REFRIGERATOR	CHAL. 1/2	#12	#12	#12	20/1	8
5	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	900	900	-----	-----	LAB REFRIG. PUMP	CHAL. 1/2	#12	#12	#12	20/1	10
6	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	1080	1080	-----	-----	SCALE OUTLET	CHAL. 1/2	#12	#12	#12	20/1	12
7	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	666	666	-----	-----	COPY MACHINE/PRINTER	CHAL. 1/2	#12	#12	#12	20/1	14
8	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	720	720	-----	-----	LAB EQUIPMENT OUTLET	CHAL. 1/2	#12	#12	#12	20/1	16
9	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	900	900	-----	-----	LAB EQUIPMENT OUTLET	CHAL. 1/2	#12	#12	#12	20/1	18
10	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	1080	1080	-----	-----	LAB EQUIPMENT OUTLET	CHAL. 1/2	#12	#12	#12	20/1	20
11	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	1080	1080	-----	-----	LAB EQUIPMENT OUTLET	CHAL. 1/2	#12	#12	#12	20/1	22
12	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	720	720	-----	-----	BREAK RM MICROWAVE	CHAL. 1/2	#12	#12	#12	20/1	24
13	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	900	900	-----	-----	BREAK AREA COUNTER RECEPT	CHAL. 1/2	#12	#12	#12	20/1	26
14	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	900	900	-----	-----	WAITING AREA PENDENT LTS	CHAL. 1/2	#12	#12	#12	20/1	28
15	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	1080	1080	-----	-----	SPACE	-----	-----	-----	-----	-----	30
16	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	32
17	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	34
18	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	36
19	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	38
20	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	40
21	20/1	#12	#12	#12	1/2	CHAL. RECEPTACLES	0	0	-----	-----	SPACE	-----	-----	-----	-----	-----	42
WIRE/CONDUIT KEY							WIRING TYPE							58.2 AMPS			
1234							C-CU WIRE							63.5 AMPS			
1							H-THWN										
2							A-EMT										
3							L-78-86 Deg. F.										
4							22, 846										
PRINTED ON PANELS PROGRAM SERIAL NUMBER 2001, 4001																	
REGISTERED TO - TODD W. CAREY AND ASSOCIATES																	

PANEL L DIVERSIFICATION CALCULATIONS									
RECEPTACLES (76) - 13680 VA TOTAL									
FIRST 10 KVA AT 100% - 10000									
REMAINER AT 50% - 1840									
MOTOR LOADS AT 100% - 666									
PLUS 25% OF THE LARGEST MOTOR - 167									
MISC. NON-CONTINUOUS LOADS AT 100% - 8500									
TOTAL DIVERSIFIED PANEL LOAD - 21173									
LOAD AT 120/208V/3-PHASE/4-WIRE - 58.8A									

PANEL SCHEDULE H																			
125 AMP, 277/480 VOLT, THREE PHASE, FOUR WIRE, M.L.D., 14000 AMPS MINIMUM A.I.C. BRACING, FLUSH MOUNTED, TYPE NEMA 1 ENCLOSURE																			
#	BKR	WIRE AND CONDUIT				LOAD DESCRIPTION	NEUT	LINE A	LINE B	LINE C	LOAD DESCRIPTION	WIRE AND CONDUIT				BKR	#		
		COND.	NEUTRAL	Ø	C. KEYS							KEYS	C.	Ø	NEUTRAL			COND.	
1	15/3	#14	---	---	---	CHAL CONDENSING UNIT #3	0	1773	---	---	CONDENSING UNIT #1	CHAL	1/2	#14	---	#14	15/3	2	
3	15/3	#14	---	---	---	CHAL CONDENSING UNIT #3	0	1911	---	---	CONDENSING UNIT #2	CHAL	1/2	#14	---	#14	15/3	4	
5	15/3	#14	---	---	---	CHAL CONDENSING UNIT #3	0	1773	---	---	CONDENSING UNIT #3	CHAL	1/2	#14	---	#14	15/3	6	
7	15/3	#14	---	---	---	CHAL CONDENSING UNIT #3	0	1911	---	---	CONDENSING UNIT #4	CHAL	1/2	#14	---	#14	15/3	8	
9	15/3	#14	---	---	---	CHAL AIR HANDLING UNIT #3	0	1985	---	---	CONDENSING UNIT #5	CHAL	1/2	#14	---	#14	15/3	10	
11						CHAL AIR HANDLING UNIT #3	0	3000	---	---	CONDENSING UNIT #6	CHAL	1/2	#14	---	#14	15/3	12	
13	20/1	#12	#12	#12	1/2	CHAL LOBBY AREA LIGHTING	2180	2180	---	---	CONDENSING UNIT #7	CHAL	1/2	#14	---	#14	15/3	14	
15	20/1	#12	#12	#12	1/2	CHAL GENERAL LIGHTING	3104	3104	---	---	CONDENSING UNIT #8	CHAL	1/2	#14	---	#14	15/3	16	
17						SPACE	0	1911	---	---	CONDENSING UNIT #9	CHAL	1/2	#14	---	#14	15/3	18	
19						SPACE	0	0	---	---	CONDENSING UNIT #10	CHAL	1/2	#14	---	#14	15/3	20	
21						SPACE	0	3000	---	---	CONDENSING UNIT #11	CHAL	1/2	#14	---	#14	15/3	22	
23						SPACE	0	0	---	---	CONDENSING UNIT #12	CHAL	1/2	#14	---	#14	15/3	24	
25						SPACE	0	3000	---	---	AIR HANDLING UNIT #2	CHAL	1/2	#12	---	#12	20/3	26	
27						SPACE	0	0	---	---	AIR HANDLING UNIT #2	CHAL	1/2	#12	---	#12	20/3	28	
29						SPACE	0	0	---	---	AIR HANDLING UNIT #2	CHAL	1/2	#12	---	#12	20/3	30	
31						SPACE	0	8930	---	---	TRANSFORMER / PANEL 'L'	CHAL	3/4	#10	---	#8	50/3	32	
33						SPACE	0	8036	---	---	TRANSFORMER / PANEL 'L'	CHAL	3/4	#10	---	#8	50/3	34	
35						SPACE	0	5880	---	---	TRANSFORMER / PANEL 'L'	CHAL	3/4	#10	---	#8	50/3	36	
							24610	24640	19380	PEAK PHASE (B) UNBALANCED NEUTRAL LOAD AMPS = 11.2 AMPS									
							L-78-86 Deg. F.			MIN DIVERSIFIED LOAD AT 480 VOLT, THREE PHASE = 82.6 AMPS									
							66.630												
PRINTED ON PANELS PROGRAM SERIAL NUMBER 2001.4001																			
REGISTERED TO - TODD W. CAREY AND ASSOCIATES																			