GENERAL PLUMBING NOTES

1. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE 2018 NORTH CAROLINA PLUMBING CODE AND ALL LOCAL CODES AND ALL OTHER REGULATIONS GOVERNING WORK OF THIS NATURE.

2. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK MATERIALS AND LABOR TO SATISFY A COMPLETE AND WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.

3. NC FUNDED PROJECTS ARE EXEMPT FROM ANY PERMIT APPLICATIONS OR PAYMENT OF FEES. ACCORDING TO GENERAL STATUTE (G.S.) 143–135.1 STATE BUILDINGS ARE EXEMPT FROM COUNTY AND AND MUNICIPAL BUILDING REQUIREMENTS. MOREOVER, BUILDINGS CONSTRUCTED BY THE STATE OF NORTH CAROLINA OR ANY AGENCY PURSUANT TO G.S. 116–31.11 SHALL NOT BE SUBJECT TO INSPECTION BY COUNTY OR MUNICIPAL AUTHORITIES AND SHALL NOT BE SUBJECT TO COUNTY OR MUNICIPAL BUILDING CODES AND REQUIREMENTS.

4. THE CONTRACTOR SHALL, BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND SHALL DETERMINE FOR HIMSELF THE CONDITIONS THAT MAY EF–FECT THE WORK. NO ALLOWANCE SHALL BE MADE IF THE CONTRACTOR FAILS TO MAKE SUCH EXAMINATIONS.

5. WASTE AND VENT PIPING

   A. ABOVE GROUND

   – 2" AND BELOW: SCH. 40 GALV. STL. PIPE WITH SCREWED ENDS OR SCH. 40 PVC WITH SOLVENT JOINTS OR DWV COPPER WITH SOLDER JOINTS.

   – 3" AND LARGER: SERVICE WT. CAST IRON WITH NO–HUB OR BELL AND SPIGOT JOINTS; OR SCH. 40 PVC WITH SOLVENT JOINTS.

   B: BELOW GRADE:

   SERVICE WT. CAST IRON WITH BELL OR SPIGOT JOINTS OR SCH. 40 PVC WITH SOLVENT JOINTS.

   NOTE: PVC PIPING SHALL NOT BE USED IN THE AIR PLENUM CEILINGS AND SHALL NOT CROSS FIRE RATED WALLS, CEILINGS, OR FLOORS.

6. DOMESTIC WATER PIPING

   A. UNDERGROUND: PROVIDE TYPE "K" SOFT DRAWN COPPER TUBING WITH BRAZED CONNECTIONS.

   B. ABOVE GROUND: PROVIDE TYPE "L" HARD DRAWN TUBING WITH 125 PSI SOLDER JOINTS, COPPER OR BRASS FITTINGS.

7. DRAINAGE PIPING SHALL RUN AS STRAIGHT AS POSSIBLE AND SHALL HAVE LONG TURN FITTINGS.

8. DRAINAGE PIPING 3" SIZE AND SMALLER SHALL BE RUN AT A UNIFROM GRADE OF AT LEAST 1/4" PER FOOT, AND PIPING LARGER THAN 3" SHALL BE RUN AT A GRADE OF NO LESS THAN 1/8" PER FOOT.

9. ALL VENT PIPING SHALL BE SLOPED TO DRAIN BACK TO FIXTURES.

10. ALL STUB INS AND/OR SLAB OR WALL PENETRATION TO BE PER NFPA 20 SEC.2–11.1 AND A.2–11.1. ALL PIPING PENETRATIONS OF BUILDING FOUNDATIONS OR FOOTINGS SHALL BE SLEEVED.

11. PLUMBING SYSTEM SHALL BE FLOW AND PRESSURE TESTED IN ACCORDANCE WITH STANDARD PRACTICE AND THE NATIONAL STANDARD PLUMBING CODE.

12. PIPING SUPPORTS (ABOVE GRADE) ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE AND PREFORMED METAL TO SUPPORT PIPES WILL NOT BE PER–MITTED. SPACING OF PIPE SUPPORTS SHALL BE AS SPECIFIED IN CHAPTER 8 OF THE NATIONAL STANDARD PLUMBING CODE, FOR EXAMPLE TABLE 308.5 OF IPC 2009.

13. PIPING SUPPORTS (BELOW GRADE) EARTH SHALL BE EX–CAVATED TO A MINIMUM DEPTH WITH AN EVEN SUFACE TO INSURE SOLID BEARING OF PIPE FOR ITS ENTIRE LENGTH.

   A. INTERIOR: THE PIPE SHALL BE INSTALLED (UNLESS SPECIFIED OTHERWISE) A MINIMUM OF 4 INCHES BELOW THE BOTTOM OF THE SLAB AND SHALL NOT BE IN ANY DIRECT CONTACT WITH THE CONCRETE AT ANY POINT.

   B. EXTERIOR: THE WATER PIPE SHALL HAVE A MINIMUM OF 3 FEET OF COVER AND SHALL COMPLY WITH LO–CAL CODES.

14. CONTRACTOR IS RESPONSIBLE FOR THE PROPER FLASHING OF THE VENT PIPING RUN THROUGH THE ROOF.

15. ALL HOT WATER PIPING TO BE INSULATED WITH 1" FIBERGLASS INSULATION. ALL COLD WATER PIPING TO BE INSULATED WITH WITH 1/2" FOAM INSULATION.

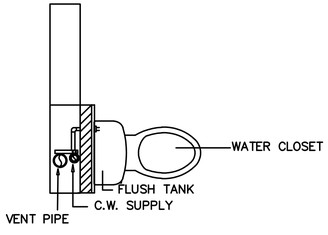
PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MIN. CONNECTIONS WASTE	VENT	CW	HW	REMARKS
P–0	ADA WALL HUNG LAVATORY	2"	2"	1/2"	1/2"	KOHLER PINOIR MODEL K–2028–4–0 OR EQUAL KOHLER FAUCET: K–393–N4
P–1	ADA FLOOR MOUNT FLUSH TANK WATER CLOSET	3"	2"	1/2"	N/A	KOHLER HIGHLINE MODEL K–3949–TR–0 OR EQUAL RIGHT–HANDED
GWH	GAS WATER HEATER 100 GAL., 199 kBTU	N/A	3"	2"	2"	STATE SUF 100
GWH	GAS WATER HEATER 100 GAL., 199 kBTU	N/A	3"	2"	2"	STATE SUF 100
BOILER	GAS FIRED BOILER 1000 BTU	N/A	8"	3"	3"	BURNHAM CLCW–20

NOTES:
1. WATER & DRAIN PIPES SHALL BE INSULATED UNDER LAVATORIES (ADA STD. 14.16.5)
2. SEE DRAWING SHEET P–1 FOR APPLIANCES

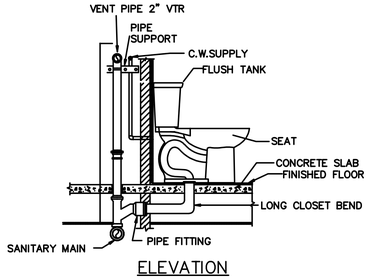
KITCHEN PLUMBING SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY	HOT WATER SIZE	HOT WATER APPT (NO)	COLD WATER SIZE	COLD WATER APPT (NO)	WASTE SIZE	WASTE APPT (NO)	DIRECT DRAIN SIZE	DIRECT DRAIN APPT (NO)	PLUMBING REMARKS
P–CW	1	CAN WASH	3/4	40	3/4	40	–				FD
P–2	1	PRE–RINSE SINK – SOILED DISHTABLE	1/2	14	1/2	14	–				FS
P–3	1	WAREWASHER, DOOR TYPE, HIGH TEMP	3/4	7	–		–				FS
P–4	3	SINK, HAND, WALL MOUNT W/SPLASH GUARDS	1/2	18	1/2	18	1 1/2	17			
P–6	1	THREE COMPARTMENT SCULLERY SINK	1/2	14	1/2	14	–				FS
P–11	1	WORK TABLE W/PREP SINK	1/2	14	1/2	14	–				FS
P–15	1	WORK TABLE W/PREP SINK	1/2	14	1/2	14	–				FS
P–28	1	ICE MAKER W/BIN	–		3/8	72	–				FD
P–29	1	SINK, HAND, WALL MOUNT W/SPLASH GUARDS	1/2	18	1/2	18	1 1/2	17			
P–36	1	COMBI–OVEN	–		3/8	72	–				FD
P–60	1	FREESTANDING SODA DISP. W/ICE BINN	–		1/2	14	–				FS
P–63	1	ICED TEA BREWER	–		1/4	48	–				–
P–64	1	COFFEE MAKER, AUTOMATIC	–		1/4	48	–				–
P–69	1	SODA DIG–R–800/CO–2 TANK(S)	–		1/2	48	–				FD
P–68	2	UNDERBAR ALL–IN–ONE STATION	3/8	7	3/8	7	–				FS
P–70	1	GLASSWASHER	–		3/4	7	–				FS
P–71	3	UNDERBAR WASTE CABINET	3/8	7	3/8	7	–				FS
P–72	1	UNDERBAR HANDSINK	3/8	7	3/8	7	1 1/2	8			



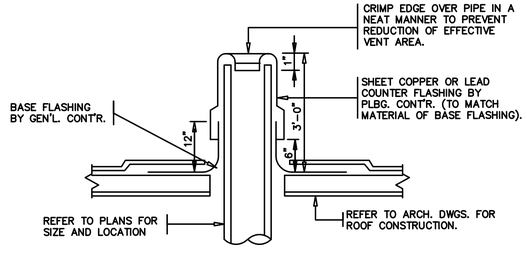
WATER CLOSET PLAN VIEW

NOTES:
1. FOR CONTINUATION OF PIPING SEE PLANS.

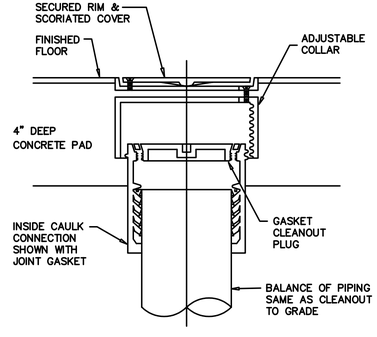


ELEVATION

FLOOR MOUNTED WATER CLOSET DETAIL
NOT TO SCALE



PLUMBING VENT THROUGH FLAT ROOF DETAIL
NOT TO SCALE



FLOOR CLEANOUT DETAIL
NOT TO SCALE

WATER RISER NOTES:

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

PLUMBING: NOTES & SPECIFICATIONS

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

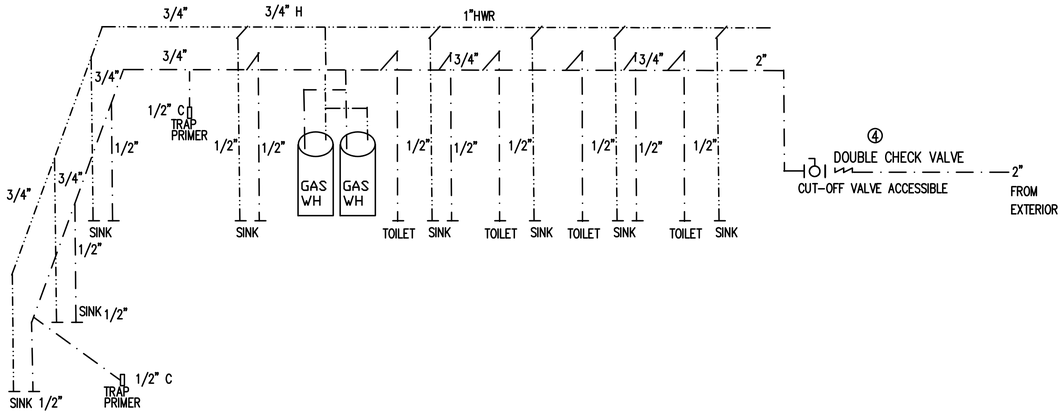
NORTH CAROLINA PROFESSIONAL SEAL 024506 ENGINEER CHRISTOPHER K. HORNE 3-27-19

PROJECT #	
DESIGNED BY:	CKH
DRAWN BY:	CKH
CHECKED BY:	CKH
DATE:	03–27–19

SHEET NUMBER:
P–0.0
OF 11

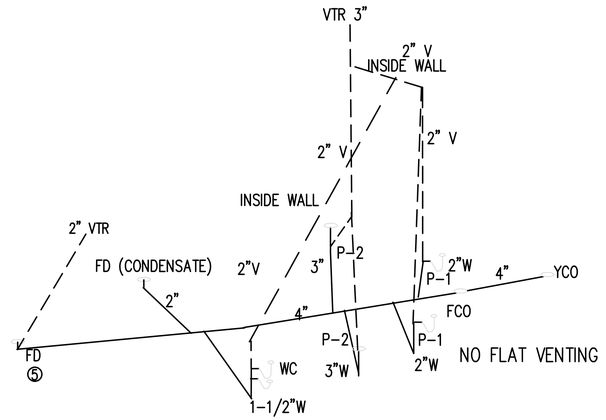
WATER RISER NOTES:

1. SUPPORT ALL PIPING FROM BUILDING STRUCTURE EVERY 4'–0" O.C.
2. ALL PIPING IS COPPER UNLESS OTHERWISE NOTED
3. CHECK VALVE FOR BACKFLOW PREVENTION W/CUTOFF VALVE
   CHECK VALVE SHOULD BE LEAD–FREE, CERTIFIED AND LISTED PER 2018 NCPC TABLE 608.1
4. TRAP PRIMER TO FLOOR DRAIN; 12" ABOVE FLOOR DRAIN; WATER CONNECTION TO COLD WATER PIPE



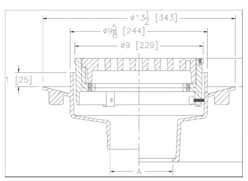
WATER PIPING RISER DIAGRAM (TYPICAL)

NOT TO SCALE



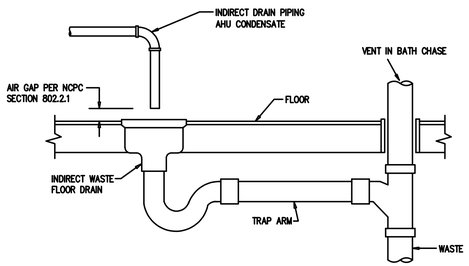
DWV PIPING RISER DIAGRAM (TYPICAL)

NOT TO SCALE



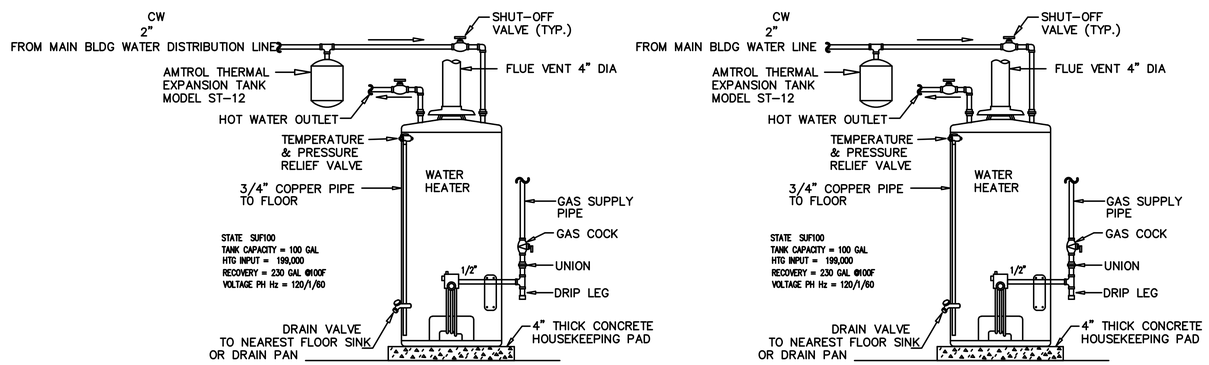
FLOOR DRAIN DETAIL

TYPICAL
DIM. IN INCHES



INDIRECT WASTE DRAIN DETAIL

NOT TO SCALE



GAS WATER HEATER DETAIL (EXISTING)

NOT TO SCALE

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

PLUMBING: BOILER SPECIFICATIONS

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL SEAL 024506 ENGINEER CHRISTOPHER K. HORNE 3-27-19

PROJECT #	
DESIGNED BY:	CKH
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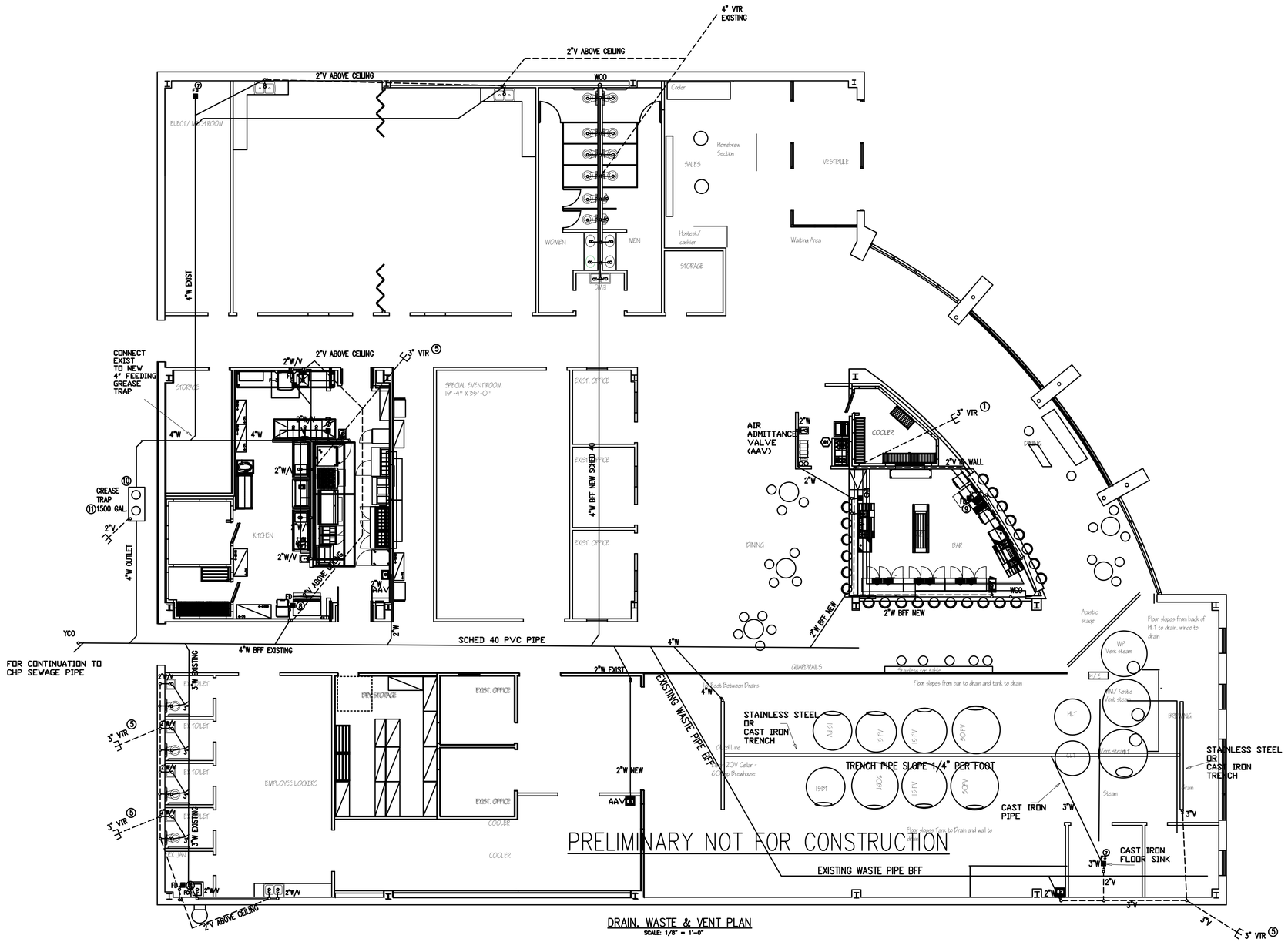
CHECKED BY:	CKH
DATE:	03–27–19

SHEET NUMBER:
P–0.2
OF 11



DRAIN, WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"

PLUMBING SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
	SANITARY / WASTE PIPING
	VENT PIPING
	CLEANOUT (YARD, "CO"; FLOOR "FCO")
	PIPE TURNING UP / DOWN

FLOOR DRAIN SCHEDULE					
MARK	DESCRIPTION	PIPE SIZE (A)	VENT	GRATE AREA (sqin)	REMARKS
FD	FLOOR DRAIN	2"	2"	16	CAST-IRON BODY AND FLANGE (SEE DETAILS P-61)

DWV PLAN KEY NOTES:

1. SUPPORT ALL PIPING FROM BUILDING STRUCTURE EVERY 4'-0" O.C.
2. SEWAGE PIPE SLOPE 1/8" PER FOOT MINIMUM
3. ROUTE SEWER LINES STRAIGHT TO AVOID TOO MANY BENDS
4. ROUTE ALL VENT PIPING IN WALLS IF POSSIBLE
5. MAINTAIN 10' HORIZONTAL SEPARATION FROM ANY OUTSIDE AIR VENTILATION/INTAKE VENTS (SEE MECHANICAL PLAN)
6. VENT PIPE GRADE PER IPC SECTION 905 (NO FLAT VENTING)
7. TRAP PRIMER FOR FLOOR DRAIN; SEE WATER PLAN SHEET P-1
8. ICE MAKER WASTE SHALL DISCHARGE TO AIR-GAP INTO FLOOR DRAIN
   FD: P-TRAP WATER PRIMED; VENT COMMON TO 3" VTR THRU WALL AS SHOWN
9. DISHWASHER WASTE SHALL DISCHARGE TO AIR-GAP INTO STANDPIPE
10. NEW, EXISTING 1500 GAL NON-TRAFFIC RATED GREASE TRAP (GT)
    GT SHOULD BE CLEANED REGULARLY TO ENSURE SEDIMENT AND FLOATING MATERIALS DO NOT ACCUMULATE TO IMPAIR WASTE PIPES, DISCHARGE COMPLIES WITH DISCHARGE LIMITS AND NO VISIBLE GREASE IS OBSERVED IN WASTE PIPE.
11. 1500 GAL = (1 MEAL/HR)(100 PERSONS)*(6 GAL WASTE FLOW RATE)*(2.5 HR. RETENTION PERIOD). ASSUMES 8 HR STORAGE FACTOR

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

PLUMBING: DRAIN, WASTE & VENT PLAN

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024506 3-27-19 CHRISTOPHER K. HORNE

PROJECT #	
DESIGNED BY:	CKH
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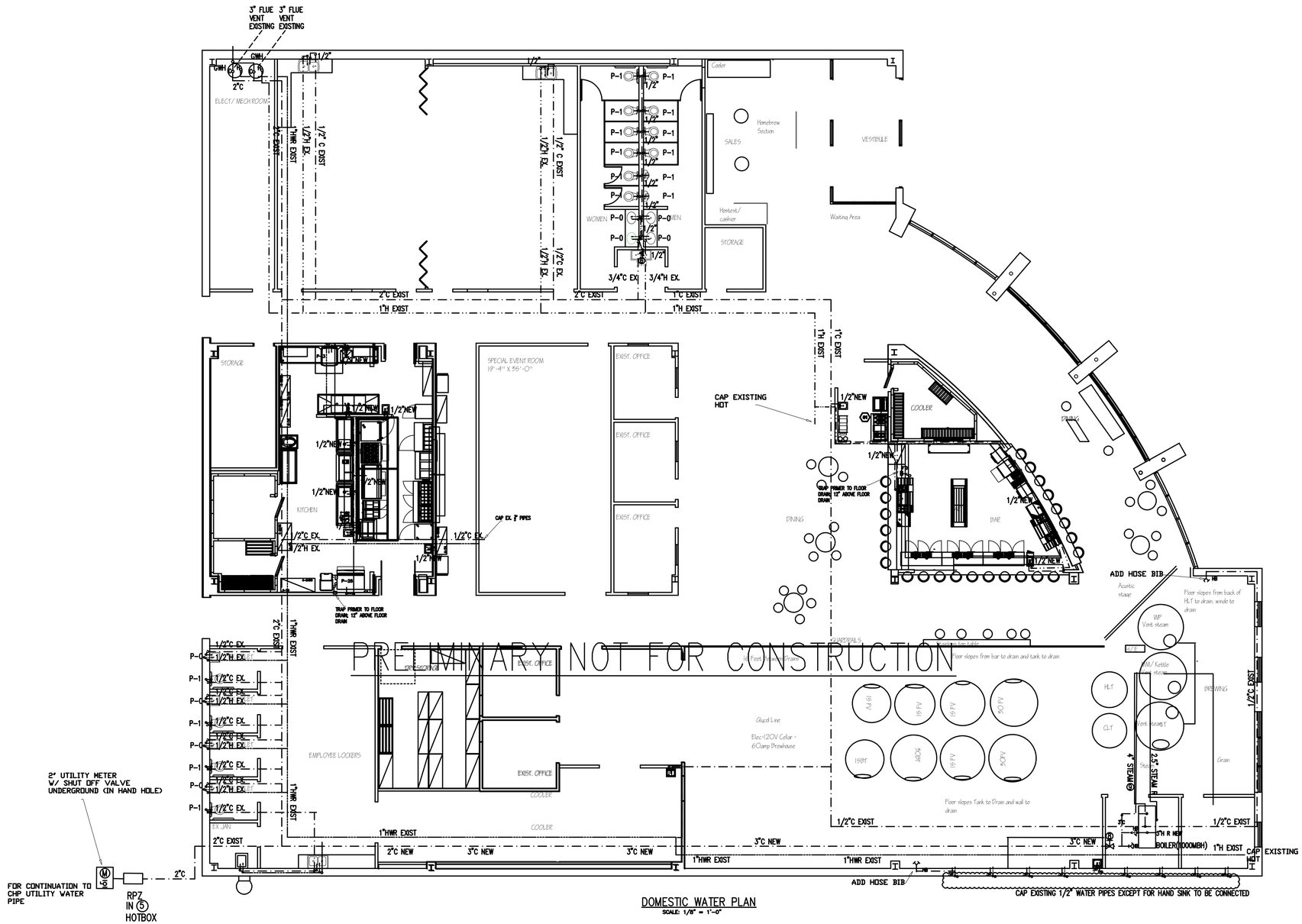
CHECKED BY:	CKH
DATE:	03-27-19

SHEET NUMBER:
P-2
OF 11



PRELIMINARY NOT FOR CONSTRUCTION

DOMESTIC WATER PLAN

SCALE: 1/8" = 1'-0"

PLUMBING SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
—·—·—	COLD WATER
—·—·—	HOT WATER
———	HOT WATER RETURN
—o—o—	PIPE TURNING UP / DOWN
HV	BALL VALVE / SHUT-OFF

NOTES:

1. SUPPORT ALL PIPING FROM BUILDING STRUCTURE EVERY 4'-0" O.C.
2. ALL PIPING IS COPPER UNLESS OTHERWISE NOTED
3. CHECK VALVE FOR BACKFLOW PREVENTION W/CUTOFF VALVE
   CHECK VALVE SHOULD BE LEAD-FREE, CERTIFIED AND LISTED PER 2018 NCPC TABLE 608.1
4. TRAP PRIMER TO FLOOR DRAIN; 12" ABOVE FLOOR DRAIN; WATER CONNECTION TO COLD WATER PIPE
5. BACKFLOW PREVENTER (BFP) / CUTOFF VALVE, ANCHORED/LOCKING HASP
6. ENSURE PRESSURE REDUCING VALVE (PRV)
7. BOLIER PIPING SHALL BE SCH 40 BLACK IRON STEEL
8. GLOBE VALVE, SAFETY RELIEF VLAVE THEN FLOW REGULATOR 3 FT. MIN. BEFORE BOILER COLD WATER INPUT
9. STEAM PIPE INSULATED

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

PLUMBING: DOMESTIC WATER PLAN

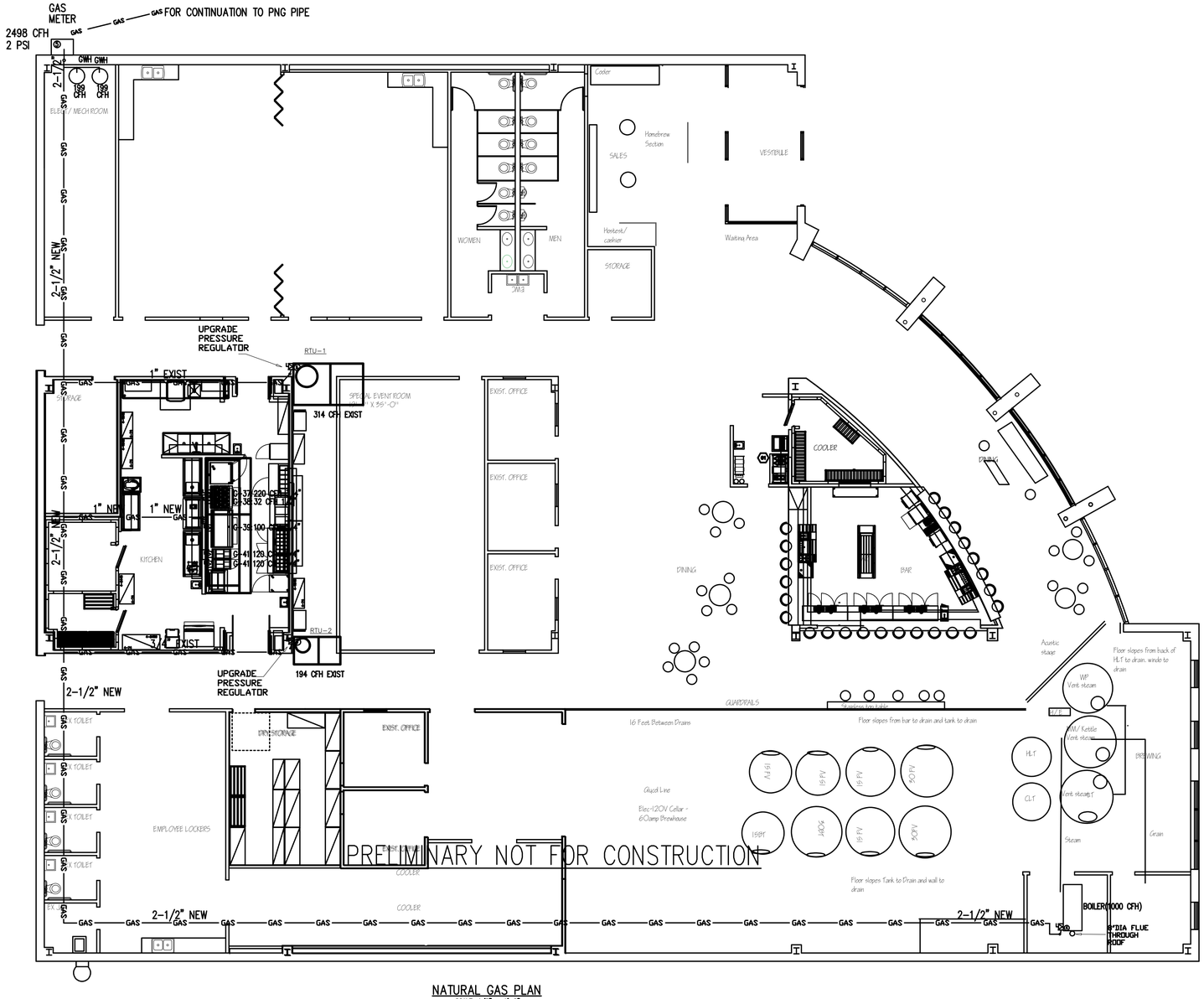
project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024506 3-27-19 CHRISTOPHER K. HORNE

PROJECT #	
DESIGNED BY:	CKH
DRAWN BY:	CKH
CHECKED BY:	CKH
DATE:	03-27-19

SHEET NUMBER:
P-1
OF 11



NATURAL GAS PLAN
SCALE: 1/8" = 1'-0"

GAS SCHEDULE						
ITEM NO.	EQUIPMENT CATEGORY	GAS LINE (IN)	MBTUH	GAS MANIFOLD-IN	EQUIPMENT REMARKS	
G-37	RANGE, RESTAURANT, GAS	3/4	220	1/8"	BTC.	NEW
G-39	SALAMANDER BROILER, GAS	1/2	32	1/8"	BTC.	NEW
G-39	GRIDDLE, COUNTER TOP, GAS	3/4	100	1/8"	BTC.	NEW
G-41	DEEP FRYER, GAS	3/4	120	1/8"	BTC.	NEW
G-41	DEEP FRYER, GAS	3/4	120	1/8"	BTC.	NEW
GWH	WATER HEATER	3/4	199		EXISTING	
GWH	WATER HEATER	3/4	199		EXISTING	
AHU-1	PACKAGED ROOF TOP HVAC EQUIP	1	314		EXISTING	
AHU-2	PACKAGED ROOF TOP HVAC EQUIP	3/4	194		EXISTING	
BOILER	BREWERY BOILER	2-1/2	1000		NEW	
		TOTAL	2498			

GAS PLAN KEY NOTES:

1. SUPPORT ALL GAS PIPING EVERY 8'-0"
2. PIPE MATERIAL SHALL BE SCHEDULE 40 STEEL; ASME B36.10, 10M or ASTM A53 or ASTM A106
3. GAS VALVES SHOULD MEET ANSI/ASME B16.33
4. PRESSURE REGULATOR, UNION AND SHUT OFF VALVE; SHUT-OFF VALVE UPSTREAM OF UNION AND 6 FEET FROM GAS FURNACE
5. UPGRADE EXISTING PNG SERVICE FROM 0.7" W.C. TO 2" PSI (BY PNG/DUKE ENERGY)

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

PLUMBING: GAS PIPING PLAN

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024506 CHRISTOPHER K. HORNE

PROJECT #	
DESIGNED BY:	CKH
DRAWN BY:	CKH
CHECKED BY:	CKH
DATE:	04-15-19

SHEET NUMBER:
P-3
OF 12

MECHANICAL SPECIFICATIONS

1. SUMMARY OF WORK

A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT, GENERAL CHARACTER AND LOCATION OF THE WORK INCLUDED. OFFSETS AND/OR CHANGES IN ELEVATION OF PIPING AND DUCTWORK DUE TO STRUCTURAL OR OTHER INTERFERENCES SHALL BE PROVIDED WITHOUT EXTRA COST.

B. CONTRACTOR SHALL VERIFY AND EVALUATE ALL EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

C. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING SYSTEMS.

D. PROVIDE ONE YEAR GUARANTEE AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP AFTER FINAL ACCEPTANCE BY OWNER.

E. ENTIRE DEMOLITION AND INSTALLATION SHALL CONFORM WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF MUNICIPAL, STATE AND FEDERAL AUTHORITIES INCLUDING ASME, ASTM, ANSI, ASHRAE AND NFPA.

2. MECHANICAL EQUIPMENT AND PIPING IDENTIFICATION

A. PROVIDE IDENTIFICATION OF ALL PIPES, VALVES, AND EQUIPMENT

B. IDENTIFICATION DEVICES TO BE USED SHALL INCLUDE THE FOLLOWING:
1. PLASTIC PIPE MARKERS
2. VALVE TAGS AND EQUIPMENT TAGS
3. VALVE SCHEDULE

C. IDENTIFICATION MATERIALS MANUFACTURED BY ONE OF THE FOLLOWING:
1. SETON NAMEPLATE CORP.
2. ALLEN SYSTEMS INC.
3. BRADY CO.

3. REFRIGERANT PIPING

A. PIPE:
USE TYPE L OR TYPE ACR DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS. INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND ASHRAE STANDARD 15.

B. REFRIGERATION PIPING WORK MUST BE PERFORMED UNDER THE DIRECT SUPERVISION OF EPA CERTIFIED TECHNICIAN.

4. INSULATION

ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS IN ACCORDANCE WITH ASTM E84 AND NFPA 90A.

A. DUCTWORK INSULATION
1. ALL SUPPLY DUCTWORK SHALL BE INSULATED WITH SEMI-RIGID BOARD TYPE FIBROUS GLASS INSULATION ASTM C 612. INSULATION SHALL HAVE FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER. THICKNESS TO BE 1-1/2", THERMAL CONDUCTIVITY: 0.22 AT 75°F
2. ALL MAKE-UP AIR DUCTWORK SHALL BE INSULATED WITH SEMI-RIGID BOARD TYPE FIBROUS GLASS INSULATION ASTM C 612. INSULATION SHALL HAVE FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER THICKNESS TO BE 1-1/2", THERMAL CONDUCTIVITY: 0.22 AT 75°F.
3. ALL EXHAUST AIR SYSTEMS SHALL BE INSULATED WITH SEMI-RIGID BOARD TYPE FIBROUS GLASS INSULATION ASTM C 612. INSULATION SHALL HAVE FACTORY APPLIED REINFORCED ALUMINUM FOIL VAPOR BARRIER THICKNESS TO BE 1-1/2", THERMAL CONDUCTIVITY: 0.22 AT 75°F.

B. REFRIGERANT PIPING INSULATION
1. ALL REFRIGERANT PIPING TO BE INSULATED WITH FLEXIBLE ELASTOMERIC TYPE INSULATION ASTM C 534, TYPE I. COAT WITH WATER BASED LATEX ENAMEL COATING RECOMMENDED BY MANUFACTURER.

C. EXISTING DUCTWORK AND PIPING INSULATION
1. ALL EXISTING INSULATION FOR DUCTWORK AND PIPING SYSTEMS PERTAINING TO THIS WORK, SHALL BE PATCHED AND/OR REPLACED AS REQUIRED TO MAINTAIN A VAPOR BARRIER.

5. SUPPORTS AND ANCHORS

A. MANUFACTURERS: GRINNELL, B-LINE, O.Z. GEDNEY, MICHIGAN HANGER, BERGEN/CARPENTER AND PATERSON.

B. USE MATERIALS COMPATIBLE WITH PIPING SYSTEMS AVOIDING ELECTROLYTIC ACTION AND CONFORM TO ANSI/ASME B31, NFPA, MSS SP-58, 69, 89.

6. TESTING AND BALANCING

A. AIR BALANCING SHALL BE ACCOMPLISHED BY ADJUSTMENT OF ADJUSTABLE FAN SHEAVES. EXISTING BRANCH DAMPERS ARE TO BE USED FOR ANY REQUIRED TRIM ADJUSTMENT.

B. UPON COMPLETION OF THE INSTALLATION, THE CONTRACTOR SHALL REPLACE ANY ANY EXISTING PORTION OF THE ASSOCIATED SYSTEM(S) AFFECTED BY THE RENOVATIONS.

C. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND EQUIPMENT REQUIRED TO BALANCE ALL AIR SYSTEMS IN ACCORDANCE WITH QUANTITIES SHOWN.

D. BALANCING SHALL BE PERFORMED UNDER THE SUPERVISION OF A TECHNICAN CERTIFIED BY NEBB OR AABC. THE REPORT SHALL BE PROVIDED ON AABC TYPE FORMS.

7. AIR DISTRIBUTION SYSTEMS

A. AIR TERMINALS
1. SUPPLY AIR DIFFUSERS TO BE MANUFACTURED BY TITUS OR PRICE. FINISH TO BE STANDARD WHITE. NECK SIZE TO BE AS INDICATED ON DRAWINGS. DIFFUSER FIT 48X24 T-BAR CEILING GRID. SILICONE SEAL AIR TIGHT TO CEILING. DIFFUSERS TO BE FURNISHED WITH OPTIONAL BUTTERFLY DAMPER.
2. RETURN AIR REGISTERS TO BE AS MANUFACTURED BY TITUS OR PRICE. FINISH TO BE STANDARD WHITE. NECK SIZE TO BE AS INDICATED ON DRAWINGS.

B. SHEET METAL WORK
1. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE GALVANIZED SHEET STEEL AND SHALL BE INSTALLED IN ACCORDANCE WITH SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA) DUCT CONSTRUCTION. STANDARDS. DUCT SYSTEMS TO BE 2" PRESSURE CLASS.
2. ALL DUCT DIMENSIONS INDICATED ON THE PLANS ARE INSIDE CLEAR DIMENSIONS.
3. SUPPLY DUCTWORK TO BE RECTANGULAR WITH HEMMED "S" LONGITUDINAL SEAMS AND DUCTMATE TRANSVERSE JOINTS.
4. MANUAL VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT THE OPPOSITE END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. LEVERS MUST BE ACCESSIBLE.
5. EXHAUST DUCTWORK ELBOWS TO BE LONG RADIUS TYPE.
6. ACCESS DOORS SHALL BE PROVIDED IN DUCTWORK WHEREVER CONTROLS, CONTROL DAMPERS, COILS, & INSTRUMENTS ARE INSTALLED.

7. SEQUENCE OF OPERATION: SPLIT SYSTEM

COOLING:
ON A CALL FOR COOLING, THERMOSTAT MAKES CIRCUITS R--G, R--Y, AND R--G. CIRCUIT R--O ENERGIZES REVERSING VALVE, SWITCHING IT TO COOLING POSITION. CIRCUIT R--Y SENDS LOW VOLTAGE THROUGH THE SAFETIES AND ENERGIZES THE T1 TERMINAL ON THE CIRCUIT BOARD. IF THE COMPRESSOR HAS BEEN OFF FOR 5 MINUTES, OR POWER HAS NOT BEEN CYCLED FOR 5 MINUTES, THE DF2 RELAY AND T2 TERMINAL WILL ENERGIZE. THIS WILL CLOSE THE CONTACTOR, AND START THE OUTDOOR FAN MOTOR AND COMPRESSOR. WHEN THE CYCLE IS COMPLETE, R--Y IS TURNED OFF, STOPPING THE COMPRESSOR AND OUTDOOR FAN. THE 5 MINUTE TIME GUARD BEGINS COUNTING. COMPRESSOR WILL NOT COME ON AGAIN UNTIL THIS DELAY EXPIRES. IN THE EVENT OF A POWER INTERRUPTION, THE TIME GUARD WILL NOT ALLOW ANOTHER CYCLE FOR 5 MINUTES.

HEATING:
ON A CALL FOR HEATING, THERMOSTAT MAKES CIRCUITS R--Y AND R--G. CIRCUIT R--Y SENDS LOW VOLTAGE THROUGH THE SAFETIES AND ENERGIZES THE T1 TERMINAL ON THE CIRCUIT BOARD. T1 ENERGIZES THE DEFROST LOGIC CIRCUIT. IF THE COMPRESSOR HAS BEEN OFF FOR 5 MINUTES, OR POWER HAS NOT BEEN CYCLED FOR 5 MINUTES, THE DF2 RELAY AND T2 TERMINAL WILL ENERGIZE. THIS WILL CLOSE THE CONTACTOR, START THE OUTDOOR FAN MOTOR AND COMPRESSOR. WHEN THE CYCLE IS COMPLETE, R--Y IS TURNED OFF, STOPPING THE COMPRESSOR AND OUTDOOR FAN. THE 5 MINUTE TIME GUARD BEGINS COUNTING. COMPRESSOR WILL NOT COME ON AGAIN UNTIL THIS TIME DELAY EXPIRES. IN THE EVENT OF A POWER INTERRUPTION, THE TIME GUARD WILL NOT ALLOW ANOTHER CYCLE FOR 5 MINUTES.

5 DEGREE DEADBAND REQUIREMENT:
IMPLEMENT A ZERO ENERGY BAND OF 5 DEGREES USING A DIGITAL PROGRAMMABLE THERMOSTAT WITH VARIABLE SVENS OPTION.

SET POINTS:

VAKO 0600 - COOLING > 78 DEG. F ; HEATING < 70 DEG. F
DAY 0730 - SET UP COOLING 5 DEG; SET BACK HEATING 5 DEG.
EVENING 1700 HRS - COOLING > 78 DEG. F ; HEATING < 70 DEG. F
SLEEP 2100 HRS - SET UP COOLING 5 DEG; SET BACK HEATING 5 DEG.

8. VENTILATION

SYSTEM SHALL RUN TO SATISFY NCMC 401.2 REQUIRING OUTSIDE AIR VENTILATION
OUTSIDE AIR / MAKE-UP AIR VENT THROUGH EXTERIOR WALL CONNECTED TO AHU RETURN AIR PLENUM

9. OPERATIONS MANUAL

AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED TO THE BUILDING OWNER BY THE CONTRACTOR AT THE PROJECT CLOSE OUT IN COMPLIANCE WITH NCEC 503.2.9.2

10. HEAT PUMP TESTING

ELECTRIC HEAT PUMPS SHALL BE TESTED IN ACCORDANCE WITH UL 1995 AND NCMC 918.3
EQUIPMENT MUST BE UL LISTED AND LABELED IN OBSERVANCE OF NCMC 301.4 AND 1101.2.

11. HEAT PUMP HEATING CONTROL MECHANISM

EXCEPT DURING DEFROST, SUPPLEMENTAL HEAT OPERATION IS DISABLED WHEN THE HEAT PUMP CAN MEET THE HEATING LOAD
OUTDOOR TEMPERATURE LOCKOUT OF THE HEAT STRIP AS DESCRIBED IN NCEC 503.2.4.1.1. THE LOCKOUT SHALL BE SET NO HIGHER THAN 40°F. C. AND NO LOWER THAN 35°F.

ABBREVIATIONS

AC	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AH	AIR HANDLER (SPLIT REFRIG)
AHU	AIR HANDLING UNIT
AL	ACOUSTICAL LINING
AP	ACCESS PANEL
BB	ELECTRIC BASEBOARD RADIATION
B	BOILER
BDD	BACK DRAFT DAMPER
BFC	BELOW FINISHED CEILING
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
C	CHILLER
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CLEAN OUT
CP	CONDENSATE PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CVB	CONSTANT VOLUME BOX
CWP	CONDENSER WATER PUMP
DB	DRY BULB
DS	DUCT SILENCER
DWP	DOMESTIC WATER PUMP
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EJ	EXPANSION JOINT
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EWC	ELECTRIC WATER COOLER
FA	FREE AREA
FX	FLEXIBLE CONNECTION
FC	FAN COIL UNIT
FD	FIRE DAMPER
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FOP	FUEL OIL PUMP
FP	FIRE PUMP
FPM	FEET PER MINUTE
FTR	FINNED TUBE RADIATION
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HAND DAMPER
HP	HEAT PUMP
HV	HEATING AND VENTILATING UNIT
HWC	HOT WATER CONVERTER
HWP	HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
LD	LINEAR DIFFUSER
LF	LINEAR FEET
MC	MECHANICAL CONTRACTOR
MTD	MOUNTED
MOD	MOTOR OPERATED DAMPER
MUA	MAKE-UP AIR UNIT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NIC	NOT IN CONTRACT
NK	NECK
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OAT	OUTSIDE AIR TEMPERATURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OBD	OPPOSED BLADE DAMPER
PBD	PARALLEL BLADE DAMPER
PRV	PRESSURE REDUCING VALVE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RCP	REFLECTED CEILING PLAN
RHC	REHEAT COIL
RF	RETURN FAN
SA	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SCG	SMOKE CONTROL GRILLE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SP	STATIC PRESSURE
TG	TRANSFER GRILLE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
VAV	VARIABLE AIR VOLUME UNIT
VD	VOLUME DAMPER
VTR	VENT THRU ROOF
WB	WET BULB
WMS	WIRE MESH SCREEN

APPENDIX B: MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: 15 F
summer dry bulb: 92 F

Interior design conditions
winter dry bulb: 69 F
summer dry bulb: 72 F
relative humidity: 50%

Building heating load: 262.9 MBH

Building cooling load: 31.1 TONS

Mechanical Spacing Conditioning System

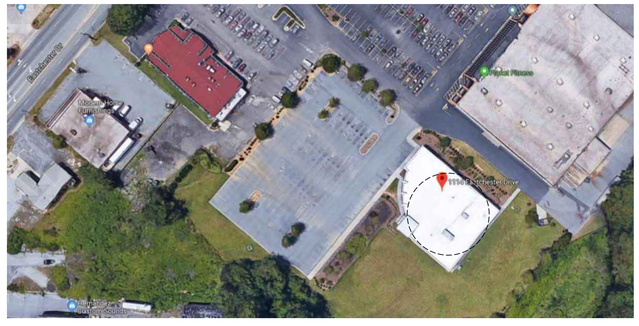
Unitary
description of unit: Rooftop VAV cooling units (existing) / Indoor VAV units with electric reheat
heating efficiency: ---
cooling efficiency: ---
size category of unit: SEE SCHEDULE

Boiler
Size category. If oversized, state reason: 1000 MBH

Chiller
Size category. If oversized, state reason: N.A.

List equipment efficiencies: SEE SCHEDULE

THERMAL ZONE 4A PER 2018 NCECC TABLE 301.1



VICINITY MAP

100'

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

MECHANICAL NOTES & SPECIFICATIONS

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024506 CHRISTOPHER K. HORNE

PROJECT #	
DESIGNED BY:	CKH
DRAWN BY:	CKH
CHECKED BY:	CKH
DATE:	04-23-19

SHEET NUMBER:
M-0.0
OF 11

GENERAL NOTES – HVAC

GN-1. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ANY INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE PROPERTY WHICH ARE TO REMAIN IN OPERATION. ISOLATE WORK AREAS BY MEANS OF TEMPORARY PARTITIONS AND/OR HAZARD SIGNAGE TO KEEP A SAFE WORK ENVIRONMENT.

GN-2. NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE D.O.T. AND/OR MANAGER TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF ANY AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE MUST BE GIVEN TO THE D.O.T. INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.

GN-3. ALL ITEMS REMOVED SHALL BECOME PROPERTY OF THE OWNER AND SHALL BE DISPOSED OF AS PER THE OWNER'S INSTRUCTIONS, UNLESS INDICATED OTHERWISE. ALL ITEMS WHICH ARE NOT TO BE STORED ON SITE BY OWNERS, SHALL BE REMOVED FROM THE BUILDING IMMEDIATELY.

GN-4. THIS CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLVE.

GN-5. ALL SHUT DOWNS OF EXISTING SYSTEMS SHALL BE SCHEDULED AND APPROVED BY THE DOT/OWNER PRIOR TO COMMENCING WITH WORK.

GN-6. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.

GN-7. USE OF THE OWNER'S BUILDING CORRIDORS FOR HANDLING OF MATERIALS AND EQUIPMENT REMOVAL SHALL BE AT THE DIRECTION OF THE D.O.T./OWNER AND SHALL BE COORDINATED WITH DOT OPERATIONS.

GN-8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT AND ENVIRONMENTAL CONDITIONS.

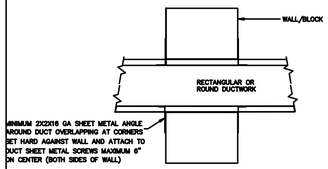
GN- 9. SUCCESSFULLY PRESSURE TEST ALL REROUTED PIPING SYSTEMS. TEST SHALL BE PERFORMED AT NORMAL SYSTEM OPERATING PRESSURES. REPAIR AND RETEST AS REQUIRED UNITL SYSTEMS PROVE TIGHT.

GN-10. EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS, EXCEPT WHERE INDICATED AS BEING RELOCATED.

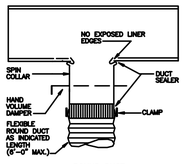
GN-11. PROVIDE ALL NECESSARY TEMPORARY OR PERMANENT CAPS OR PLUGS FOR PIPING. DO NOT LEAVE PIPING OPEN ENDED.

GN-12. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".

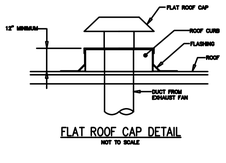
GN-13. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION, PURCHACE AND/OR INSTALLATION OF ALL WORK.



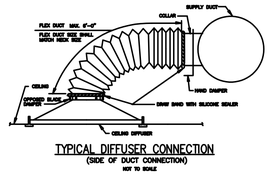
DUCT PENETRATION THROUGH EXISTING WALL
NOT TO SCALE



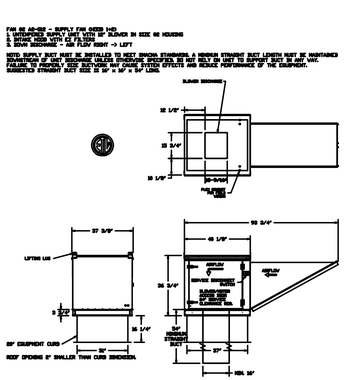
TYPICAL LOW PRESSURE BRANCH DUCT TAKE-OFF
NOT TO SCALE

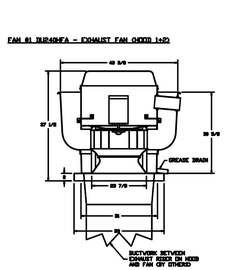


FLAT ROOF CAP DETAIL
NOT TO SCALE



TYPICAL DIFFUSER CONNECTION
(SIDE OF DUCT CONNECTION)
NOT TO SCALE



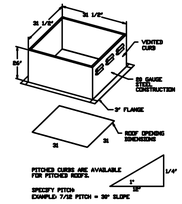


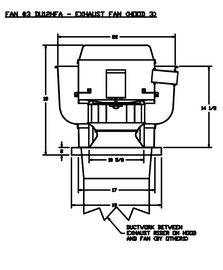
FEATURES:
- HEAVY DUTY CONSTRUCTION GID BELTS/PULLEYD
- ROOF MOUNTED FANS
- BACKWARDLY INCRD.
- 1.15 SF
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION CERBLE PHASED
- HIGH HEAT OPERATION 300°F DAMPED
- ENGINE CLASSIFICATION TESTING

GENERAL TEMPERATURE RISE
CONSERT FAN MUST OPERATE CONTINUOUSLY WHILE EXPOSTING AIR AT 300°F DAMPED UNITS. ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATION EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ASHRAE 68-1997 TEST
CONSERT FAN MUST OPERATE CONTINUOUSLY WHILE EXPOSTING GREASE LADEN VAPORS AT 400°F DAMPED FOR A PERIOD OF 15 HOURS WITHOUT THE FAN HOUSING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS
GREASE BOX.





FEATURES:
- HEAVY DUTY CONSTRUCTION GID BELTS/PULLEYD
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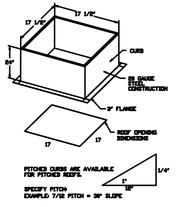
- HIGH HEAT OPERATION 300°F DAMPED

GENERAL TEMPERATURE RISE
CONSERT FAN MUST OPERATE CONTINUOUSLY WHILE EXPOSTING AIR AT 300°F DAMPED UNITS. ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATION EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

OPTIONS
ECM WIRING PACKAGE-EXHAUST - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL. OGDEC MOTORS.



ROOF TOP UNIT SCHEDULE

TAG	MANUF	MODEL #	TONS	CFM	COOLING (BTU/H)	HEATING (BTU/H)	SEER	VOLTS	MFS	MCA	OA REQ	COMMENTS
RTU-1(EXIST)	TRANE	TCD330	27.5	8000	314,300	225,200	14.00	208/3/60	176	225	1483	EXISTING RTU FEEDING VAVs
RTU-2(EXIST)	TRANE	TCD210	17.5	5600	193,500	174,000	14.00	208/3/60	88	100	866	EXISTING RTU FEEDING VAVs

NOTES:
1. SET OA VOLUME TO VALUE SHOWN ON SCHEDULE
2. USE EXISTING HVAC EQUIPMENT
3. CONTRACTOR SHALL PROVIDE GAS FLUE AND COMBUSTION AIR INTAKE PER MANUFACTURERS RECOMMENDATIONS

OUTSIDE AIR SUMMARY
OUTSIDE AIR REQUIREMENTS PER ASHRARE 62.1-2007 / 2018 NC MECHANICAL VENTILATION CODE 403.3

ZONE / MECH. UNIT - SPACES	NO. OF OCC.	CFM / OCC	SQ.FT.	CFM / SQ.FT.	SUB-TOTAL	BUILDING EXHAUST SUMMARIZED					TOTAL DESIGN OA
						PRESSURIZATION	TOILETS	KITCHEN HOOD	MAKE-UP AIR	BALANCE	
RTU-1	100	10	8050	0.06	1483	1483	450	2185	2136	-499	1483
RTU-2	50	10	6100	0.06	866	866	375	2185	2136	-424	866

NOTES:
1. OUTSIDE AIR IS BASED AN OCCUPANCY OF 150 PERSONS AND 10 CFM/PERSON AND 0.06 CFM/SQFT PER NCMC SEC 403.3

VAV BOX SCHEDULE

EXIST/NEW	MFG.	MODEL #	INLET SIZE	CLG. CFM	HTG. CFM	EL. HT. (KW)	# STAGES	VOLTAGE/PH.
VAV-101	TRANE	VSEF1206	12"ø	1725	800	15	2	208/3
VAV-102	TRANE	VSEF1206	10"ø	1300	600	15	2	208/3
VAV-103	TRANE	VSEF1206	12"ø	1300	700	15	2	208/3
VAV-104	TRANE	VSEF1206	12"ø	500	300	15	2	208/3
VAV-105	TRANE	VSEF1206	12"ø	1300	800	15	2	208/3
VAV-106	TRANE	VSEF1206	12"ø	1300	700	7.5	2	208/3
VAV-107	TRANE	VSEF1206	10"ø	1300	600	15	2	208/3
VAV-108	TRANE	VSEF1206	12"ø	1300	800	15	2	208/3
VAV-109/NEW	TRANE	VSEF1206	10"ø	1500	900	15	2	208/3

NOTES:
1.

FAN SCHEDULE

MARK	MANUF.	MODEL #	CFM	* S.P.	TYPE	VOLTS	HP	COMMENTS
EF-1	GREENHECK	GB-180-7	3650	0.5	WALL MNT.	120 / 1 Ph.	3/4	EXISTING 6-GRILLES. CAN BE ADJUSTED
EF-2	GREENHECK	GB-09-D	375	0.5	CLG. MNT. D.D. CENT.	120 / 1 Ph.	1/15	EXISTING
EF-3	GREENHECK	GB-90-D	450	0.5	CLG. MNT. D.D. CENT.	120 / 1 Ph.	1/15	EXISTING
EF-4/5	CAPTIVEAIR	DU240HFA	3770	.25		208 / 3 Ph.	3	NEW KITCHEN
EF-6	CAPTIVEAIR	DU12HFA	600	.25		120 / 1 Ph.	1/4	NEW KITCHEN
MUA-1	CAPTIVEAIR	A2-G12	3022	.25		208 / 3 Ph.	1	MUA FOR EF-4/5

NOTES:
1. MAINTAIN 10' CLEARANCE BETWEEN EF-4/5, 6 DISCHARGE & RTU-1/2 INTAKE VENTS

KITCHEN EXHAUST AIR BALANCE

AREA	SERVICE	EXHAUST CFM	MAKE-UP AIR CFM	SUPPLY AIR	EQUIPMENT
KITCHEN	MAIN KITCHEN HOOD	3777 CFM			EF-4/5
			3022		MUA-1
KITCHEN	SEC. KITCHEN HOOD	600 CFM			EF-6
	ROOF TOP EQUIP RTU-1			1000 CFM	RTU-1
	ROOF TOP EQUIP RTU-2			250 CFM	RTU-2
				BALANCE = =-105 CFM	

V Scroll Series Dual 15 HP
Pro Chiller Model: PS215B98R4200-V-V*

Voltages

	120/1/60	230/1/60	230/3/60	460/3/60
MCA	N/A	N/A	182	88
MOP	N/A	N/A	263	128

System Data

Dimensions	112"L x 57"W x 100"H	Controls	Microprocessor
Frame	Coated Steel	Electrical Enclosure	NEMA 4
Housing	Galv Sheet Metal	Shipping Weight	3100 LBS
Tank	200 Gal	Oil @ 1Hz	N/A
Compressor	15 HP	Refrigerant	R404A
Condenser	Air Cooled	BTUH @ 20 °F, 90 °F Ambient	206600
Circulation Pump	2 HP	BTUH @ 25 °F, 90 °F Ambient	232000
Process Pump	2 HP	BTUH @ 30 °F, 90 °F Ambient	259800
Glycol Connection Size	2 IN	BTUH @ 35 °F, 90 °F Ambient	297100
HX	Brazed Plate	Expansion Fittings	2 on 3 IN

Chiller Specifications

	Chiller Package includes the following:
Compressor	Bitzer Hermetic Scroll compressors.
Condenser	High efficiency V coil micro tube air cooled condenser.
Condenser Fans	High efficiency A2 motors with blade-shaped blades and serrated trailing edges.
Evaporator	High efficiency brazed plate evaporator with electronic expansion valves.
Glycol Pump	Dual stainless steel centrifugal pump configuration with dedicated process and internal circulation pump.
Storage Tank	High Density Polyethylene insulated Storage Tank.
Control Panel	UL/cUL 508A rating with on/off switches, indicator lights, motor starters, non-fused main electrical disconnect.
Factory Tested	Each system factory charged with refrigerant and tested under load at design operating temperatures.
Enclosure	Coated welded structural steel frame with hinged service panels.
Control System	ICC Microprocessor controller with touchscreen interface. Web based remote monitoring, control, with alarm notifications as standard.
Warranty	2 years from date of shipment covering parts, pro-rated labor, and workmanship (As of January 2017).

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

MARK	DATE	REVISION

MECHANICAL SPECIFICATIONS

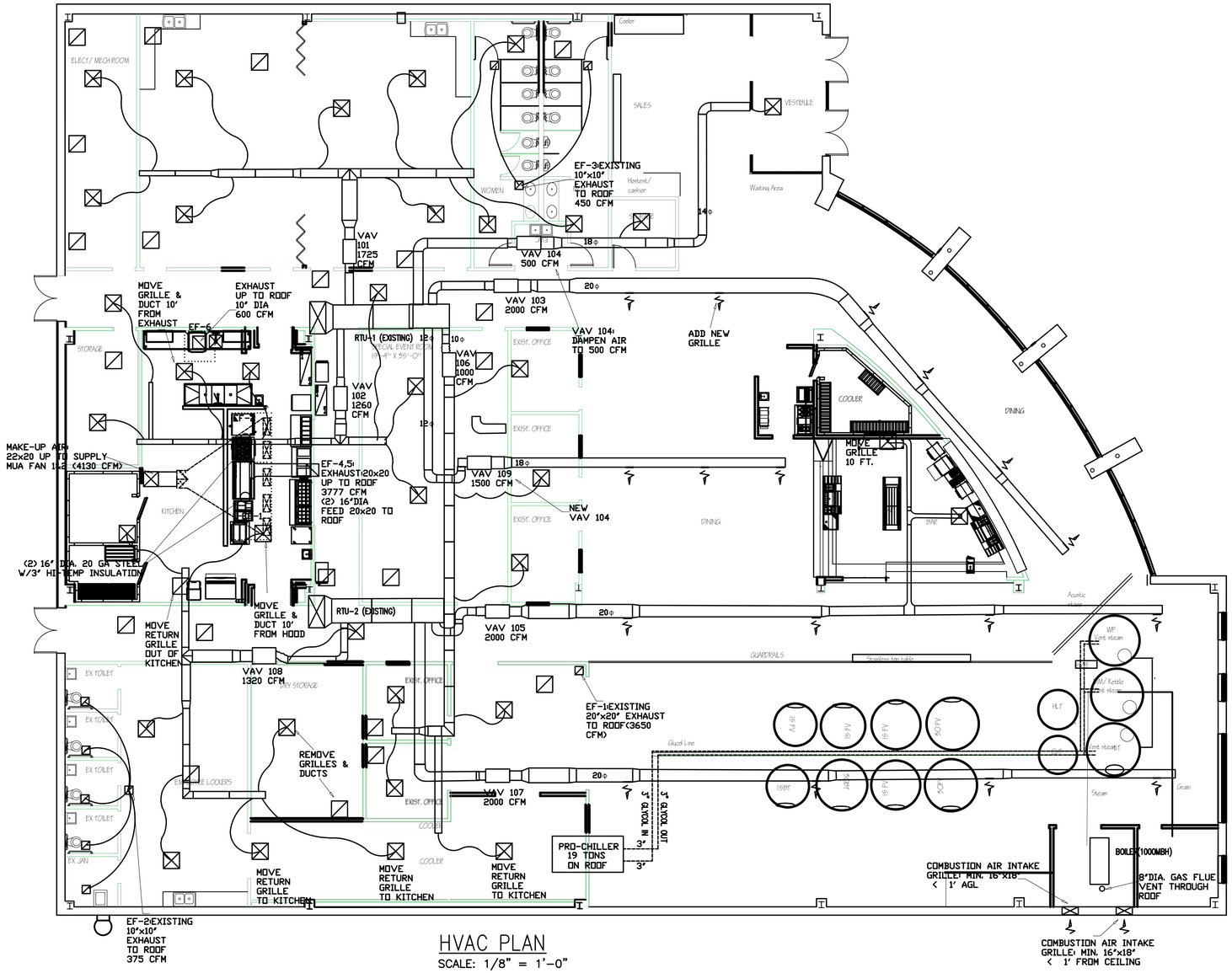
project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL SEAL 024506 ENGINEER CHRISTOPHER K. HORNE

PROJECT #	
DESIGNED BY:	CKH
DRAWN BY:	CKH
CHECKED BY:	CKH
DATE:	04-23-19

SHEET NUMBER:
M-0.1
OF 11



HVAC PLAN

SCALE: 1/8" = 1'-0"

NOTES:

1. USE EXISTING RTUs & VAVs; ADD NEW VAV-109 AS SHOWN. TRANSLATE/MOVE EXISTING DUCTS GRILLES AS SHOWN IN KITCHEN AREA
2. BOILER GAS FLUE: MAINTAIN 10' SEPARATION BETWEEN AHU INTAKE AIR VENTS AND EACH GAS/EXHAUST VENTS
3. CONTRACTOR SHALL PROVIDE FLUE GAS EXHAUST THROUGH ROOF PER MANUFACTURERS RECOMMENDATIONS AND ENSURE COMBUSTION AIR IS UNRESTRICTED AS SHOWN
4. BOILER ROOM AIR INTAKE = COMBUSTION AIR + VENTILATION AIR = Bhp* 8CFM/Bhp + Bhp* 2CFM/Bhp <= 200 CFM
   FOR OUTSIDE WALL GRILLE, USE METAL LOUVER WITH BIRD SCREEN
5. USE EXISTING GAS PIPING FOR NEW AHU ; CONNECT NEW PIPING TO EXISTING GAS PIPING.
   NEW GAS PIPING SHALL BE SCHEDULE 40 CARBON STEEL WITH THREADED FITTINGS AND CONNECTIONS. ALL PIPING ARE ROUTED OVERHEARD AND SUPPORTED FROM THE STRUCTURE.
6. A free flow of combustion air will aid the proper operation of the burner and allow for proper venting of the boiler.
   CONSULT BOILER MANUFACTURER"S INSTRUTIONS TO PROPERLY SIZE MAKE-UP AIR OPENINGS IN BOILER ROOM

xy. CHILLER WILL BE INSTALLED ON ROOF SUBJECT TO STRUCTURAL REVIEW FOR 3100 LBS. WEIGHT

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

HVAC PLAN

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL SEAL 024506 ENGINEER CHRISTOPHER K. HORNE

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OF 11

PANEL SCHEDULE

PANEL A — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
EXISTING	600			20	1	2	20	2000			MOBILE WARMING
NORTH REST.		300		20	3	4	20		624		PIZZA PREP
E. WATER COOLER			720	20	5	6	20			1400	OVERHEAD WARMER
EXISTING	600			20	7	8	20	1200			SANDWICH PREP UNIT
RECEPT		600		20	9	10	20		1032		FREEZER, REACH IN
FRYER, DEEP FAT			750	20	11	12	20			1500	GRIDDLE
FRYER, DEEP FAT	750			20	13	14	20	720			REFRIDGERATOR, SHORTY
FRYER, DEEP FAT		750		20	15	16	20		408		RANGE, RESTAURANT, GAS
FRYER, DEEP FAT			750	20	17	18	20			4475	COMBI-OVEN
SUPPLY FAN	354			20	19	20	20	4475			COMBI-OVEN
SUPPLY FAN		354		20	21	22	20		2500		WAREWASHER, DOOR, HI TEMP
MIXER			500	20	23	24	20			2500	WAREWASHER, DOOR, HI TEMP
MIXER	500			20	25	26	20	450			EXHAUST FAN
EXISTING		600		20	27	28	20		450		RECEPT
EXISTING			600	20	29	30	20			1200	WARMER, FOOD, ELECTRIC
EXISTING	600			20	31	32	20	720			EXHAUST HOOD FIRESYSTEM
EXISTING		600		20	33	34	20		1065		EXHAUST HOOD W/FANS
EXISTING			600	20	35	36	20			1065	EXHAUST HOOD W/FANS
EXISTING	600				37	38	20	600			EXHAUST HOOD LIGHT
EXISTING		600			39	40	20		600		EXISTING
EXISTING			600		41	42	20			600	EXISTING
	4004	3804	3920	TOTAL			TOTAL	10165	6679	12740	
REMARKS	34	32	33	AMPS			AMPS	85	56	107	REMARKS

PANEL SCHEDULE

PANEL B — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
EXISTING	600			20	1	2	20	600			EXISTING
EXISTING		600		20	3	4	20		600		EXISTING
EXISTING			600	20	5	6	20			600	EXISTING
ICE MAKER, BIN	1605			20	7	8	20	600			EXISTING
ICE MAKER, BIN		1605		20	9	10	20		600		EXISTING
EXISTING			600	20	11	12	30			600	EXISTING
EXISTING	600			20	13	14	30	600			EXISTING
EXISTING		600		20	15	16	30		600		EXISTING
EXISTING			600	20	17	18	30			600	EXISTING
EXISTING	600			20	19	20	30	600			EXISTING
EXISTING		600		20	21	22	30		600		EXISTING
WALK-IN FREEZER LIGHTS			120	20	23	24	20			600	EXISTING
WALK-IN FREEZER EVAPORATOR	1000			20	25	26	20	600			EXISTING
WALK-IN FREEZER EVAPORATOR		1000		20	27	28	20		600		EXISTING
WALK-IN COOLER EVAPORATOR			480	20	29	30	20			600	EXISTING
WALK-IN COOLER LIGHTS	120			20	31	32	20	600			EXISTING
WALK-IN FREEZER CONDENSER		1425		20	33	34	20		600		EXISTING
WALK-IN FREEZER CONDENSER			1425	20	35	36	20			600	EXISTING
WALK-IN COOLER CONDENSER	1325			20	37	38	20	600			EXISTING
WALK-IN COOLER CONDENSER		1325		20	39	40	20				
EXISTING			600	20	41	42	20				
	5850	7155	4425				TOTAL	4200	3600	3600	
REMARKS	49	60	37				AMPS	35	30	30	REMARKS

PANEL SCHEDULE

PANEL C — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
RECEPTS	600			20	1	2	20	600			EXISTING
EXISTING		600		20	3	4	20		600		EXISTING
EXISTING			600	20	5	6	20			600	EXISTING
EXISTING	600			20	7	8	20	600			EXISTING
EXISTING		600		20	9	10	20		1350		RECEPTS
EXISTING			600	20	11	12	20			600	EXISTING
EXISTING	600			20	13	14	20	600			EXISTING
EXISTING		600		20	15	16	20		600		EXISTING
EXISTING			600	20	17	18	20			600	EXISTING
EXISTING	600			20	19	20	20	600			EXISTING
EXISTING		600		20	21	22	20		1675		WALK-IN COOLER, BEER -CONDEN
EXISTING			600	20	23	24	20			1675	WALK-IN COOLER, BEER -CONDEN
EXISTING	600			20	25	26	20	1450			WALK-IN COOLER, BEER -CONDEN
EXISTING		600		20	27	28	20		1450		WALK-IN COOLER, BEER -CONDEN
EXISTING			600	20	29	30	20			900	RECEPTS
EXISTING	600			20	31	32	20	750			RECEPTS
EXISTING		600		20	33	34	20		600		WALK-IN COOLER, BEER - EVAP
LIGHTS			1260	20	35	36	20			120	WALK-IN COOLER, BEER - LIGHT
EXISTING	600			20	37	38	20	180			WALK-IN COOLER, BEER - EVAP
EXISTING		600		20	39	40	20		900		RECEPTS
				20	41	42	20			120	WALK-IN COOLER, BEER - LIGHT
	4200	4200	4260				TOTAL	4780	7175	4615	
REMARKS	35	35	36				AMPS	40	60	38	REMARKS

PANEL SCHEDULE

PANEL D — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
EXISTING	1440			20	1	2	20	960			EXISTING
EXISTING		1440		20	3	4	20		900		EXISTING
EXISTING			1440	20	5	6	20			1800	EXISTING
EXISTING	1440			20	7	8	20	960			EXISTING
				20	9	10	20		900		EXISTING
				20	11	12	20			1200	EXISTING
				20	13	14	20	960			EXISTING
				20	15	16	20		900		EXISTING
				20	17	18	20			1560	EXISTING
				20	19	20	20				
				20	21	22	20				
				20	23	24	20				
				20	25	26	20				
				20	27	28	20				
				20	29	30	20				
				20	31	32	20				
				20	33	34	20				
				20	35	36	20				
				20	37	38	20				
				20	39	40	20				
				20	41	42	20				*
							TOTAL	5760	5520	6000	
REMARKS							AMPS	48	46	50	REMARKS

PANEL SCHEDULE

PANEL E — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
COCKTAIL STATION	120			20	1	2	20	1332			UNDERBARPASS THRU COOLER
GLASSWASHER		3172		20	3	4	20		600		BACK BAR ACCESSORY
GLASSWASHER			3172	20	5	6	20			1170	COFFEE MAKER
PUMP	2100			50	7	8	20	1170			COFFEE MAKER
PUMP		2100			9	10	20		1680		ICED TEA BREWER
PUMP			2100	50	11	12	20			120	SODA BAG-N-BOX/CO2 TANK
PUMP	2100				13	14	20	120			FREE STANDING SODA DISP
DISPENSER, BEER		120		20	15	16	20		600		EXISTING
DISPENSER, BEER			120	20	17	18	20			600	EXISTING
COCKTAIL STATION	120			20	19	20	20	600			EXISTING
EXISTING		600		20	21	22	20		600		EXISTING
EXISTING			600	20	23	24	20			600	EXISTING
EXISTING	600			20	25	26	20	600			EXISTING
EXISTING		600		20	27	28	20		600		EXISTING
EXISTING			600	20	29	30	20			600	EXISTING
EXISTING	600			20	31	32	20	600			EXISTING
EXISTING		600		20	33	34	20		600		EXISTING
EXISTING			600	20	35	36	20			600	EXISTING
EXISTING	600			20	37	38	20	600			EXISTING
EXISTING		600		20	39	40	20		600		EXISTING
				20	41	42	20				
							TOTAL	11262	13072	10962	
REMARKS							AMPS	94	109	91	REMARKS

PANEL SCHEDULE

PANEL F — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
EXISTING	0			20	1	2	20	0			EXISTING
EXISTING		0		20	3	4	20		0		EXISTING
EXISTING			0	20	5	6	20			0	EXISTING
EXISTING	0			20	7	8	20	0			EXISTING
EXISTING		0		20	9	10	20		0		EXISTING
EXISTING			0	20	11	12	20			0	EXISTING
EXISTING	0			20	13	14	20	0			EXISTING
EXISTING		0		20	15	16	20		0		EXISTING
EXISTING			0	20	17	18	20			0	EXISTING
EXISTING	0			20	19	20	20	0			EXISTING
EXISTING		0		20	21	22	20		0		EXISTING
EXISTING			0	20	23	24	20			0	EXISTING
EXISTING	0			20	25	26	20	0			EXISTING
EXISTING		0		20	27	28	20		0		EXISTING
EXISTING			0	20	29	30	20			0	EXISTING
EXISTING	0			20	31	32	20	0			EXISTING
EXISTING		0		20	33	34	20		0		EXISTING
EXISTING			0	20	35	36	20			0	EXISTING
EXISTING	0			20	37	38	20	0			EXISTING
EXISTING		0		20	39	40	20		0		EXISTING
				20	41	42	20				
							TOTAL	0	0	0	
REMARKS							AMPS	0	0	0	REMARKS

PANEL SCHEDULE

PANEL G — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _225_ AMP, _3_ POLE __10K___ A. I. C. 225A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
EXISTING	600			20	1	2	20	120			WALK-IN COOLER LIGHT
EXISTING		600		20	3	4	20		450		RECEPTS
EXISTING			600	20	5	6	20			450	RECEPTS
EXISTING	600			20	7	8	20	1350			RECEPTS
EXISTING		600		20	9	10	20		600		RECEPTS
EXISTING			600	20	11	12	20			1450	WALK-IN COOLER, BEER -CONDEN
EXISTING	600			20	13	14	20	1450			WALK-IN COOLER, BEER -CONDEN
EXISTING		600		20	15	16	20		180		WALK-IN COOLER, BEER - EVAP
EXISTING			600	20	17	18	20			600	EXISTING
EXISTING	600			20	19	20	20	600			EXISTING
EXISTING		600		20	21	22	20		600		EXISTING
EXISTING			600	20	23	24	20			600	EXISTING
EXISTING	600			20	25	26	20	600			EXISTING
EXISTING		600		20	27	28	20		600		EXISTING
EXISTING			600	20	29	30	20			600	EXISTING
EXISTING	600			20	31	32	20				
EXISTING		600		20	33	34	20				
EXISTING			600	20	35	36	20				
RECEPTS				20	37	38	20				
EXISTING		600		20	39	40	20				
EXISTING			600	20	41	42	20	600			EXISTING
	4350	4200	4200				TOTAL	4720	2430	3700	
REMARKS	37	35	35				AMPS	40	21	31	REMARKS

DIVIDE WATTS BY 120 TO GET AMPS

PANEL SCHEDULE

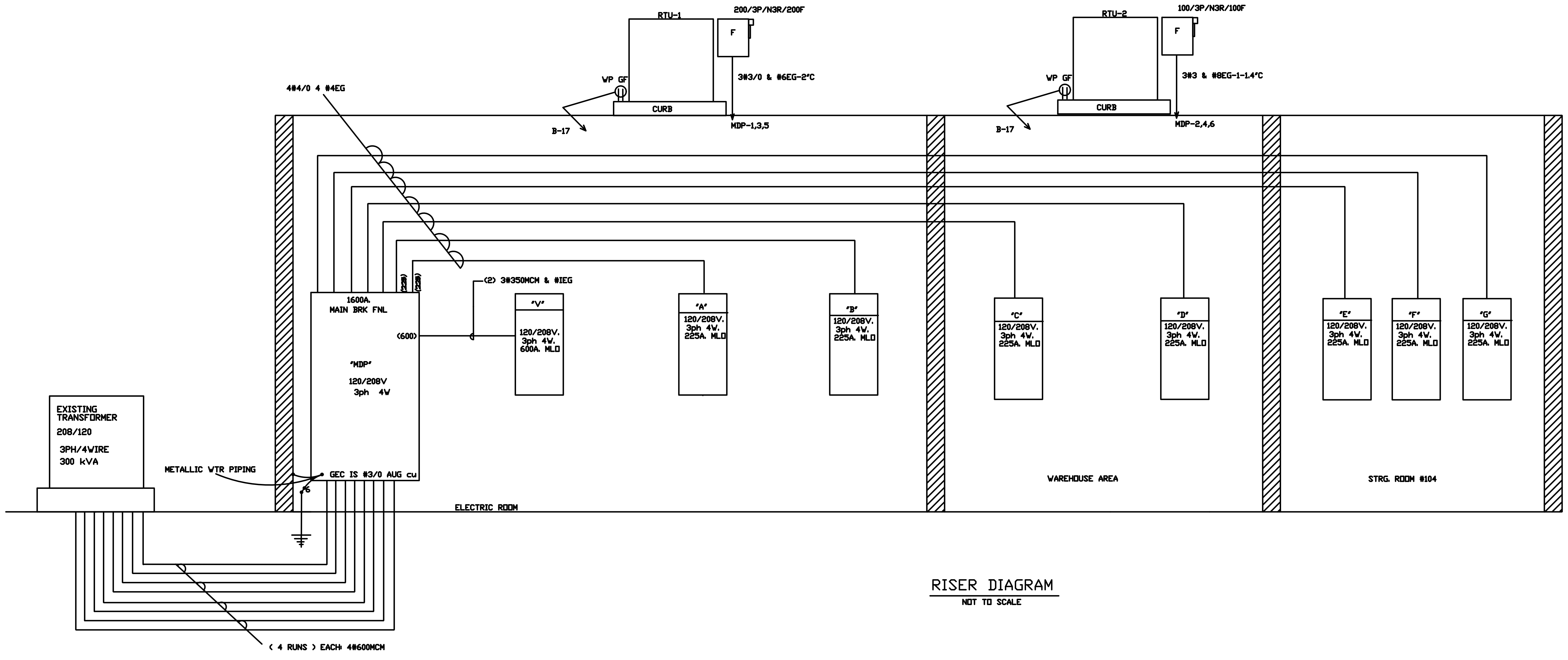
PANEL V — 120/208 VOLT 3 PHASE 4 WIRE
MB ☐ MLO ■ _600_ AMP, _3_ POLE __10K___ A. I. C. 600A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD SERVED
	A	B	C					A	B	C	
	4320			60	1	2	60	4320			
VAV-101		4320			3	4			4320		VAV-102
			4320		5	6				4320	
	4320			60	7	8	60	4320			
VAV-103		4320			9	10			4320		VAV-104
			4320		11	12				4320	
	4320			60	13	14	60	2220			
VAV-105		4320			15	16			2220		VAV-106
			4320		17	18				2220	
	4320			60	19	20	60	3750			
VAV-107		4320			21	22			3750		VAV-108
			4320		23	24				3750	
CHILLER	13312			250	25	26	60				
CHILLER		13312			27	28					SPARE
CHILLER			13312		29	30					
				60	31	32	60				
SPACE					33	34					SPACE
					35	36					
				60	37	38	60				
SPACE					39	40					SPACE
SPARE					41	42					*
							TOTAL	40762	45202	45202	
REMARKS							AMPS	340	377	377	REMARKS

PANEL SCHEDULE

PANEL MDP — 120/208 VOLT 3 PHASE 4 WIRE
MB ■ MLO ☐ 1600_ AMP, _3_ POLE __65K___ A. I. C. 1600A_ BUS ☐ TOP FEED ☒ BOTTOM FEED
☒ GROUND BAR ☒ S/N BAR ☒ SURFACE MOUNTED ☐ FLUSH MOUNTED DIMENSIONS: ____W.____D

LOAD TYPE	WATTS PER PHASE			CKT. BRKR SIZE			CKT. BRKR SIZE	WATTS PER PHASE			LOAD TYPE
	A	B	C					A	B	C	
	17040			200	1	2	100	8400			
ROOF-TOP UNIT RTU-1		17040			3	4			8400		ROOF-TOP UNIT RTU-2
			17040		5	6				8400	
	14169			225	7	8	225	10050			
PANEL A		10599			9	10			10755		PANEL B
			16660		11	12				8025	
	8980			225	13	14	225	5760			
PANEL C		11375			15	16			5560		PANEL D
			8875		17	18				6000	
	11262			225	19	20	225	0			
PANEL E		13072			21	22			0		PANEL F
			10962		23	24				0	
	9070			225	25	26	225	*			
PANEL G		6430			27	28			*		SPARE
			7900		29	30				*	
				*	31	32	*	*			
SPACE				*	33	34	*		*		SPACE
				*	35	36	*			*	*
	40762			600	37	38	*	*			*
VAV POWER PANEL "V"		45202			39	40	*		*		SPACE *
			45202		41	42	*			*	*
							TOTAL	125493	128433	129064	
REMARKS							AMPS	1046	1070	1075	REMARKS



RISER DIAGRAM
NOT TO SCALE

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

Electrical: Schedules and Riser

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

SEAL
024506
CHRISTOPHER K. HORNE
CKH

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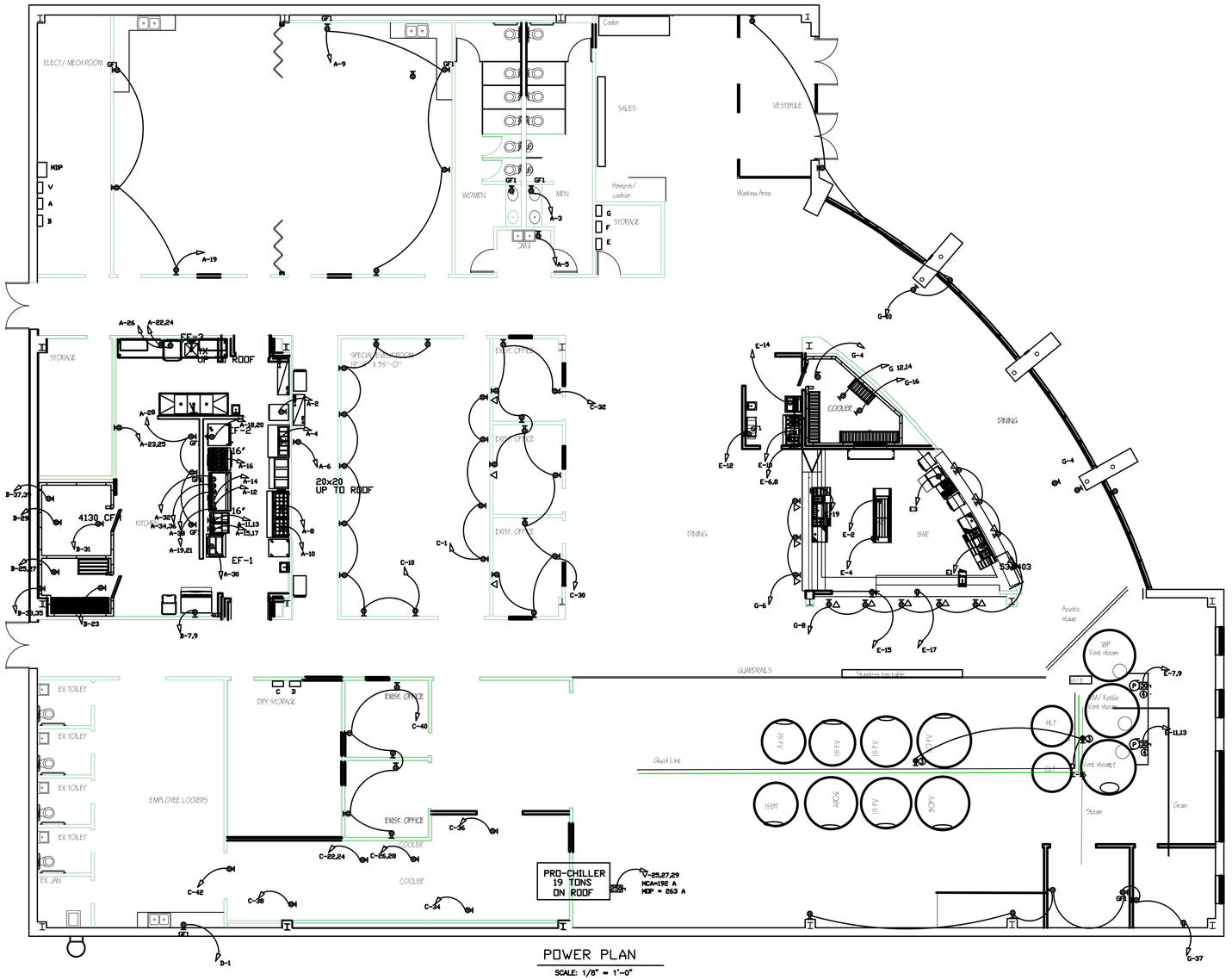

POWER PLAN KEYNOTES:

1. POWER CONDUCTORS/WIRING ABOVE CEILING IN RIGID METAL CONDUIT
2. ANY USE OF UNDERSLAB CONDUITS FOR POWER WIRE MUST BE RATED FOR WET LOCATION
3. KETTLE LEG-MOUNTED RECEPTACLE OUTLET. 48"AFF
4. KETTLE PUMPS VERIFY AMPERAGE

MARK	DATE	REVISION

eMuWave, PLLC
202 W. Lexington Ave
High Point, NC 27262
NC. LIC# P-1561

Electrical Power Plan

project description:
Interior Alterations for
High Pint Brewery
1114 Eastchester Drive
HIGH POINT, NC 27265

client description:
Robert C. Canter, AIA
1314 Westchester Drive
High Point, NC 27262

NORTH CAROLINA PROFESSIONAL SEAL 024506 ENGINEER CHRISTOPHER K. HORNE

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