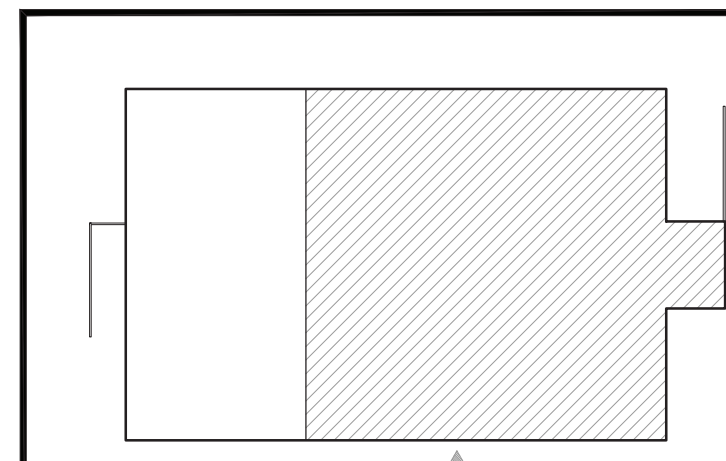


1 MECHANICAL: PARTIAL FIRST FLOOR PLAN
M2.01 SCALE: 1/8" = 1'-0"

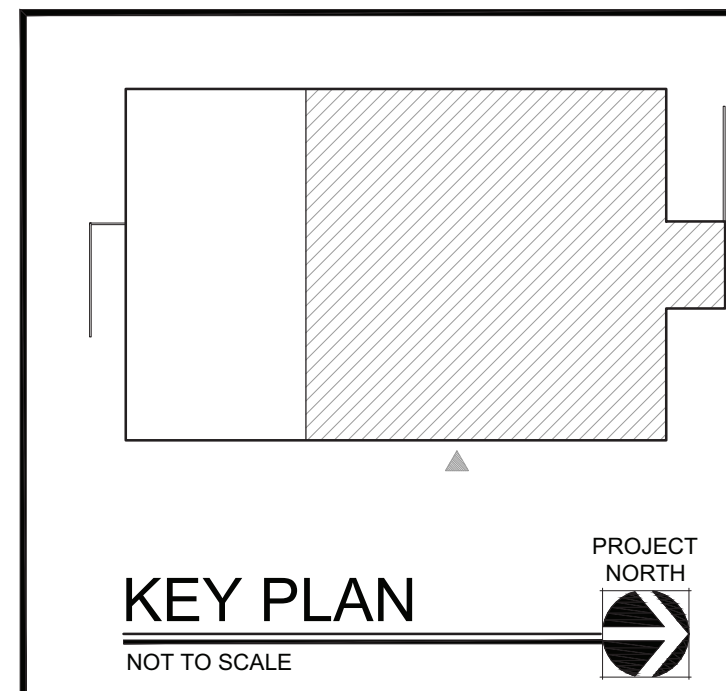
- KEYED NOTES** (APPLIES TO THIS SHEET ONLY)
- 1 18x18 DOWN TO HOOD. TRANSITION TO 16" AT CONNECTION.
 - 2 16x14 DOWN TO HOOD. TRANSITION TO 14" AT CONNECTION.
 - 3 TIME CLOCK FOR EF-3, EF-4, AND EF-5 MOUNTED ON WALL.

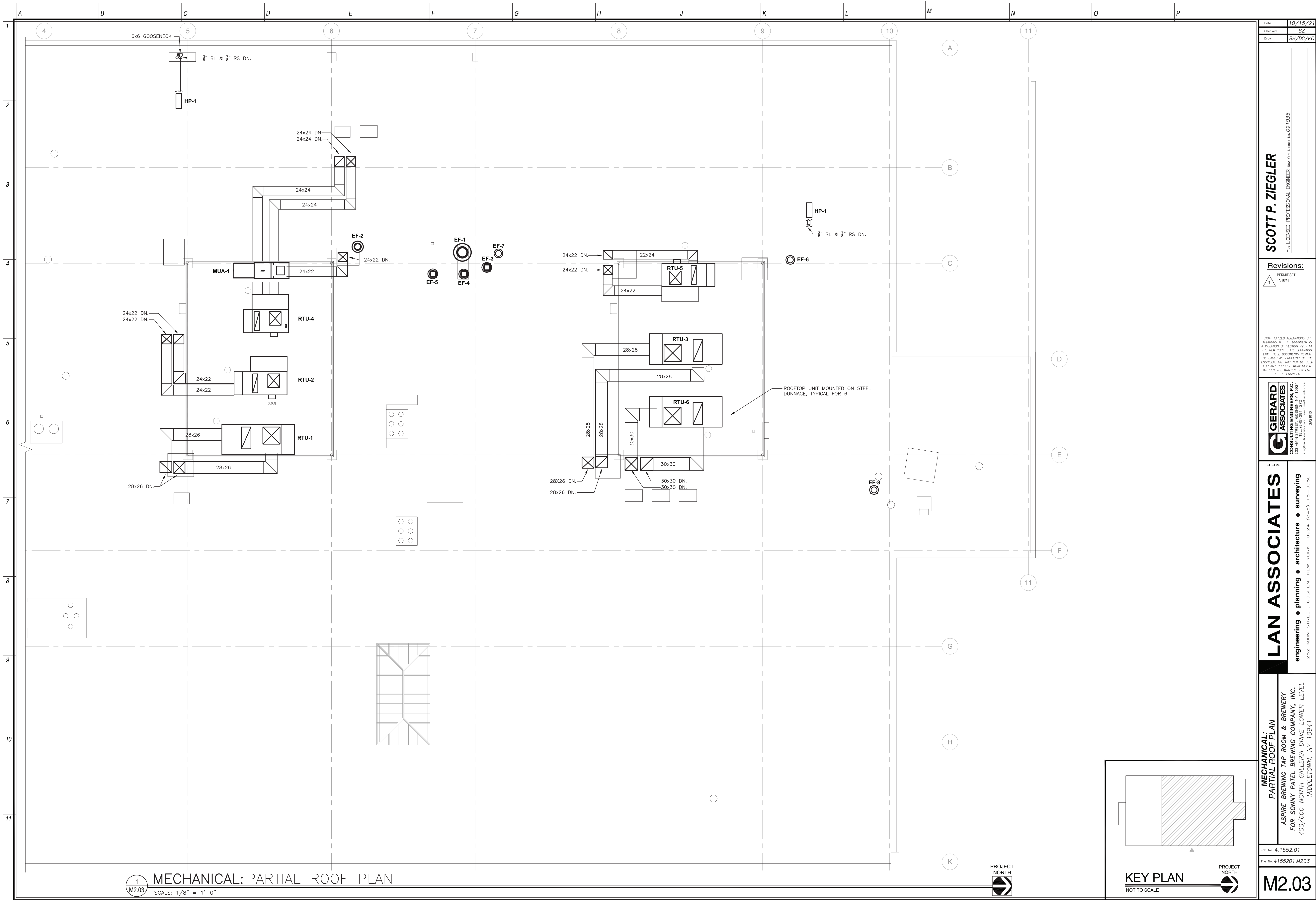
- NOTES:**
- 1. ALL EXPOSED ROUND DUCTWORK SHALL BE PREPARED, PRIMED AND PAINTED BY GENERAL CONTRACTOR.
 - 2. ALL EXPOSED ROUND DUCTWORK SHALL BE DOUBLE WALL SPIRAL LOCKSEAM SIMILAR TO UNITED MCGRILL ACQUST-K27 WITH 1" INSULATION THICKNESS AND SHEET-METAL INNER LINER. ALL FITTINGS AND TEES USED FOR DOUBLE WALL SPIRAL LOCKSEAM DUCTWORK SHALL BE LOW PRESSURE LOSS TYPE. DUCTWORK SERVING BREWERY SHALL BE TYPE 316 STAINLESS STEEL.
 - 3. ALL CONTROL WIRING SHALL BE IN CONDUIT.
 - 4. DUCTWORK SERVING BREWERY SHALL BE STAINLESS STEEL.

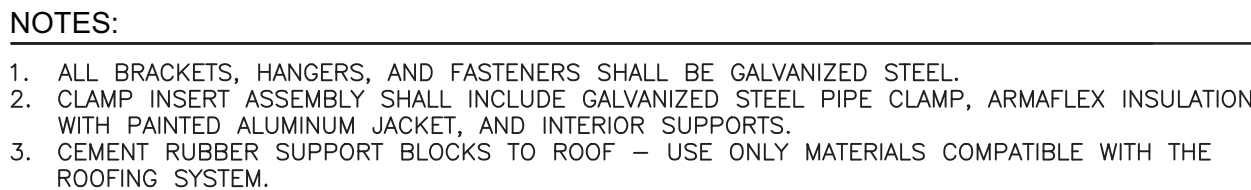


KEY PLAN
NOT TO SCALE

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SCOTT P. ZIEGLER THE LICENSED PROFESSIONAL ENGINEER NEW YORK LICENSE NO. 091035	
Revisions: 1 PERMIT SET 10/15/21	
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LAN ASSOCIATES engineering • planning • architecture • surveying 252 MAIN STREET, GOSHEN, NEW YORK 10924 (845) 619-0350	
MECHANICAL: PARTIAL FIRST FLOOR PLAN ASPIRE BREWING TAP ROOM & BREWERY FOR SONNY PATIL BREWING COMPANY, INC. 400/600 NORTH GALLERIA DRIVE LOWER LEVEL MIDDLETOWN, NY 10941	
Job No.	4.1552.01
File No.	4155201 M201
M2.01	







1
M6.01

CONCRETE ANCHOR HILTI-KWICK BOLT, SERIES HDI, OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.

BEAM CLAMP AS MANUFACTURED BY UNISTRUT.

STEEL RESTRAINING STRAP.

THREADED HANGER ROD. REFER TO SCHEDULE BELOW FOR SIZE.

CLEVIS HANGER TYPICAL

CARRIER PIPE

INSULATION SHALL RUN CONTINUOUSLY BETWEEN PIPE AND SHIELD.

PIPE INSULATION.

WELDED PIPE INSULATION SHIELD.

PIPE DIA.	3/4"-2"	2 1/2"-3"	4"-5"	6"	8"-12"
HANGER DIA.	3/8"	1/2"	5/8"	3/4"	7/8"

1. CLEVIS HANGERS WITH WELDED INSULATION SHIELDS SIMILAR TO RAUCH FIG. 1005H ON ALL PIPES LARGER THAN 1".
2. FOR PIPES 1" OR SMALLER, A BAND HANGER WITH INSULATION SHIELD MAY BE USED SIMILAR TO RAUCH FIG. NO. 1A5H.
3. FOR NON-INSULATED PIPE, INSULATION SHIELDS MAY BE OMITTED.
4. ALL PIPE HANGERS SHALL BE GALVANIZED STEEL OR FACTORY PAINTED BLACK WITH ENAMEL.
5. FOR NON FERROUS PIPING WITHOUT INSULATION, ALL HANGERS SHALL BE COPPER PLATED OR FURNISHED WITH A DI-ELECTRIC BETWEEN PIPE AND HANGERS.
6. WHERE EXISTING BUILDING STRUCTURAL COMPONENTS HAVE FIREPROOF MATERIAL, ANY AREA THAT IS DISTURBED OR DAMAGED AS A RESULT OF HANGER INSTALLATION SHALL BE PATCHED WITH UL FM APPROVED FIREPROOFING TO MATCH EXISTING.

4
M6.01

Diagram illustrating the supply duct assembly details:

- VOLUMETRIC DAMPER
- MAIN SUPPLY DUCT RIGID STEEL
- BRANCH DUCT RIGID STEEL
- FLEXMASTER USA -TYPE 1 M FLEXIBLE DUCT FOR FINAL CONNECTION SHALL NOT EXCEED 4'
- RIGID ELBOW
- INSULATE BACK OF SUPPLY DIFFUSER WITH 1" THICK INSULATION WITH VAPOR PROOF JACKET
- SUPPLY DIFFUSER SHALL BE SUPPORTED INDEPENDENT OF THE CEILING GRID.
- GRID CEILING

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M6.01

Diagram illustrating the fireproofing of a pipe with a sleeve. The diagram shows a cross-section of a pipe passing through a wall or partition. A sleeve is installed around the pipe, and the gaps between the sleeve and the wall, and between the sleeve and the pipe, are filled with fire-resistant material. Labels indicate the use of escutcheon on both sides, the requirement to pack all spaces with mineral wool or other fire-resistant material, and the instruction that sleeve clearances should not exceed 1/2 inch between pipes and sleeves. The sleeve is labeled as being cemented to any gaps between sleeves and the wall.

Labels in the diagram:

- ALL SPACES BETWEEN PIPES AND SLEEVES SHALL BE PACKED FULL DEPTH WITH MINERAL WOOL ROPE, MINERAL WOOL, OR OTHER EQUALLY FIRE RESISTIVE MATERIAL (FIBERGLASS SHALL NOT BE USED). SLEEVE CLEARANCES SHALL NOT EXCEED $\frac{1}{2}$ " BETWEEN PIPES AND SLEEVES.
- ESCUTHEON, BOTH SIDES
- PIPE SLEEVE (CEMENT ANY GAPS BETWEEN SLEEVES WALL)
- PIPE
- WALL OR PARTITION

2
M6.01

PENE

NOT TO SCALE

SQUARE HEAD BOLT WITH SLOTTED HEX NUT

RISER CLAMP SIMILAR TO PHD MANUFACTURING INC. MODEL 550/551 AND 553

PIPE SLEEVE

FLOOR SLAB

FIRE STOPPING INSULATION SIMILAR TO 3M CP-25 OR FS-135 FIRE BARRIER CAULK AND STRIPS

RISER PIPE

5
M6.01

Diagram illustrating a flexible duct connection between a main return duct and a support register. The main return duct is rigid steel. A volumetric damper is installed in the main return duct. The flexible duct for the final connection shall not exceed 4 feet. The flexible duct is connected to the main return duct and the support register. The support register and plenum box are independent of the ceiling. The flexible duct is acoustically lined and painted black. All metal surfaces are painted black.

Labels in the diagram:

- VOLUMETRIC DAMPER
- BRANCH DUCT RIGID STEEL
- FLEXMASTER USA - TYPE 1 M FLEXIBLE DUCT FOR FINAL CONNECTION SHALL NOT EXCEED 4'
- ACoustically LINE INTERIOR AND PAINT BLACK ALL METAL SURFACES
- CEILING
- SUPPORT REGISTER AND PLENUM BOX INDEPENDENT OF CEILING.
- MAIN RETURN DUCT RIGID STEEL

8
M6.01

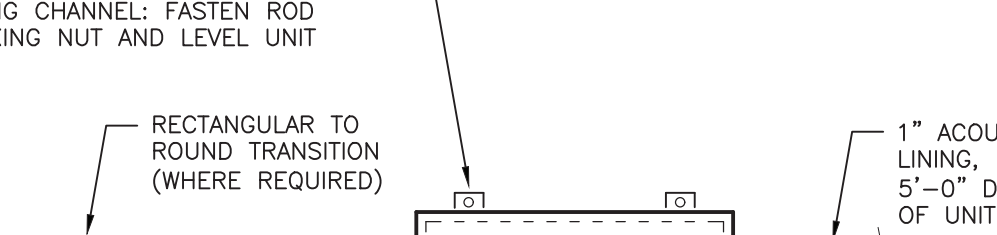


Diagram illustrating the installation of a VAV Box (Variable Air Volume Box) in a duct system. The diagram shows a duct with a VAV Box installed, with air flow indicated by an arrow labeled "AIR FLOW". The duct is labeled "3/8\"

3 VAV E
M6.01 NOT TO SCALE

Diagram illustrating a typical pipe saddle installation on a channel or angle. The diagram shows a cross-section of the assembly with various components labeled:

- TYPICAL 3/4" HANGER ROD TO STRUCTURE ABOVE
- PIPE
- TYPICAL PIPE ROLLER AND ROLLER CHAIR. SEE NOTE # 3
- PIPE - NO INSULATION
- TYPICAL LOCKING NUT AND WASHER
- TYPICAL SUPPORT NUT AND WASHER
- BOLT PIPE ROLLERS TO CHANNEL OR ANGLE (TYP.)
- MAX. SPAN 36"
- INSULATION
- PIPE
- 2" x 1 3/8" x 12 GA. CHANNEL SEE NOTE # 2
- PIPE SADDLE. SEE NOTE # 1 BELOW
- HIGH DENSITY INSULATION 12" LONG
- INSULATION SHIELD, 12" LONG. SEE NOTE # 1 BELOW

NOTES:

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M6.01

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M6.01

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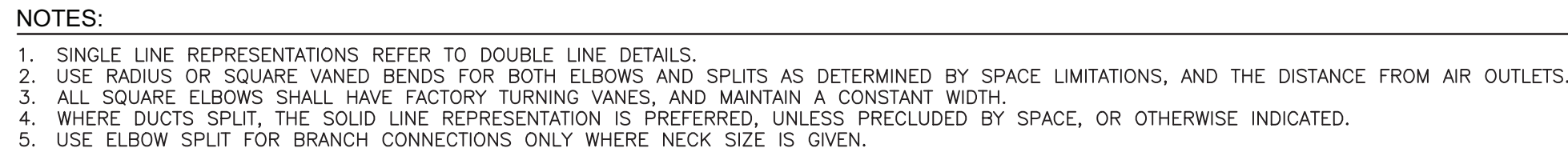
MECHANICAL:
DETAILS

ASPIRE BREWING TAP ROOM & BREWERY
FOR SONNY PATEL BREWING COMPANY, INC.
400/600 NORTH GALLERIA DRIVE LOWER LEVEL
MIDDLETOWN, NY 10941

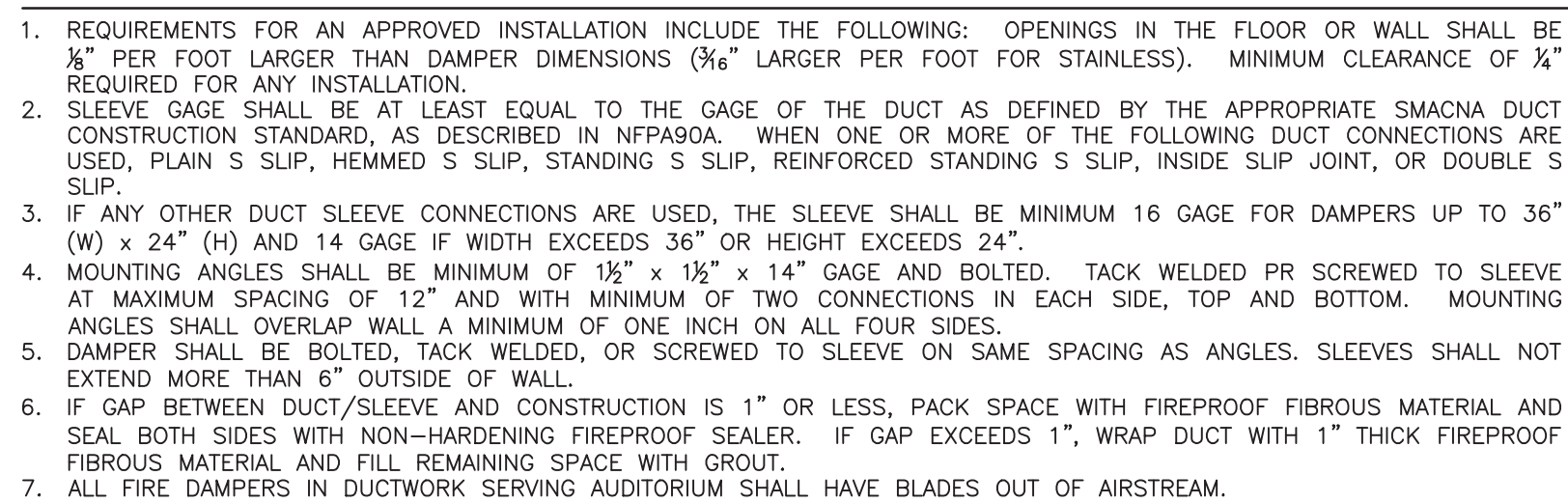
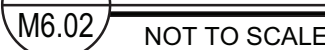
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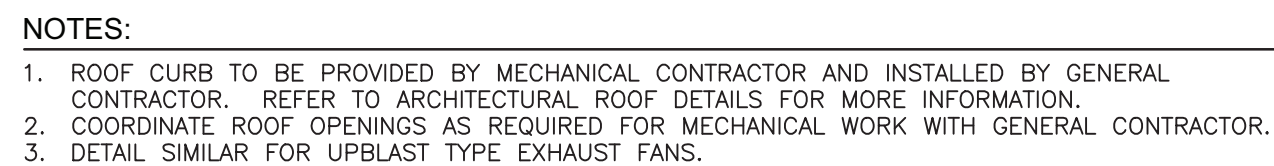
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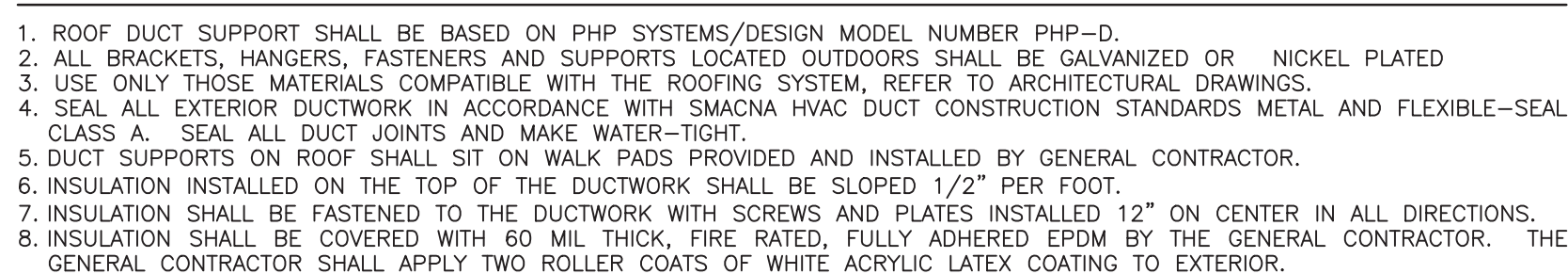
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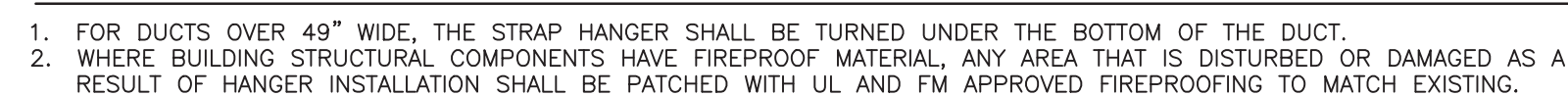
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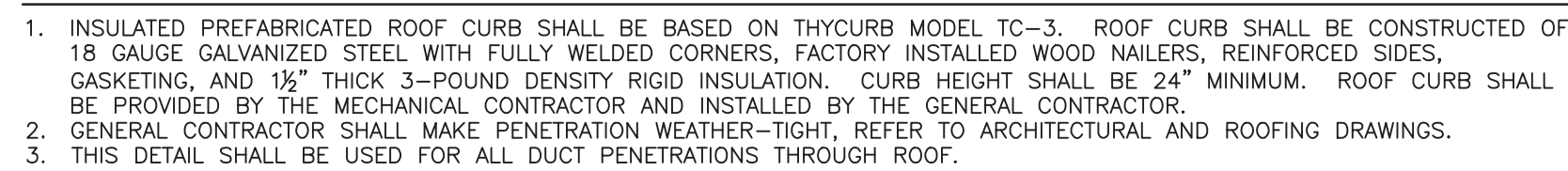
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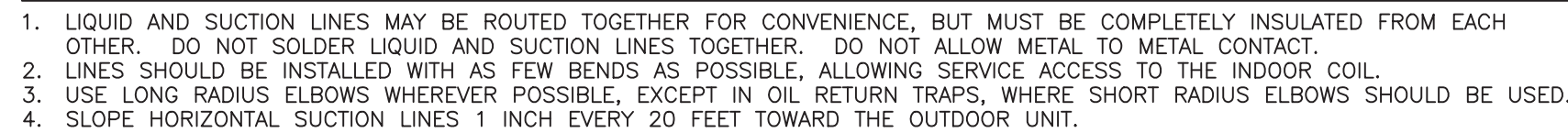
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M6.02

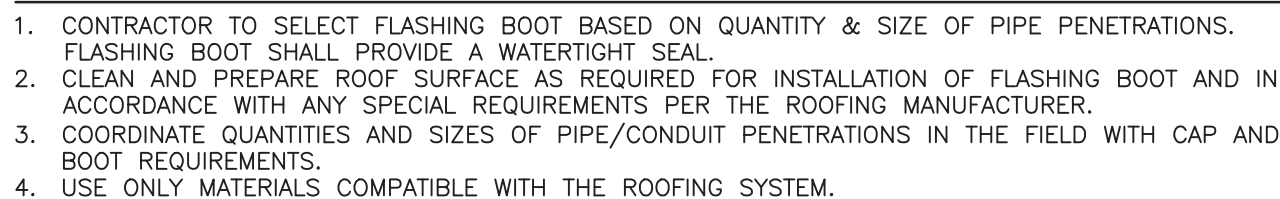


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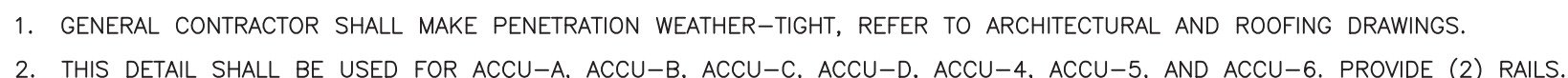
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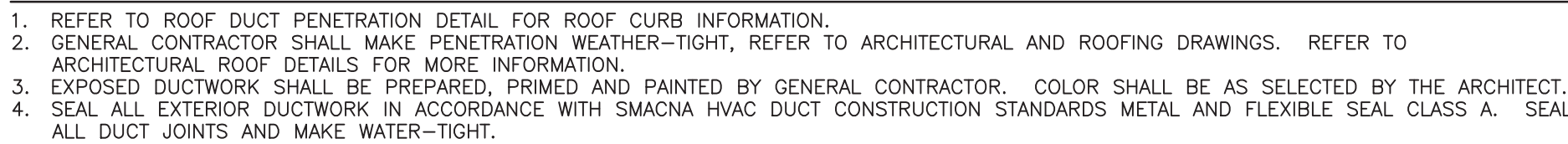
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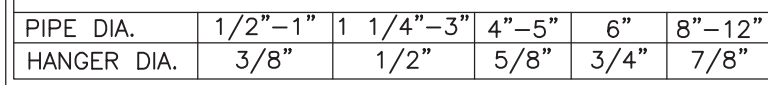
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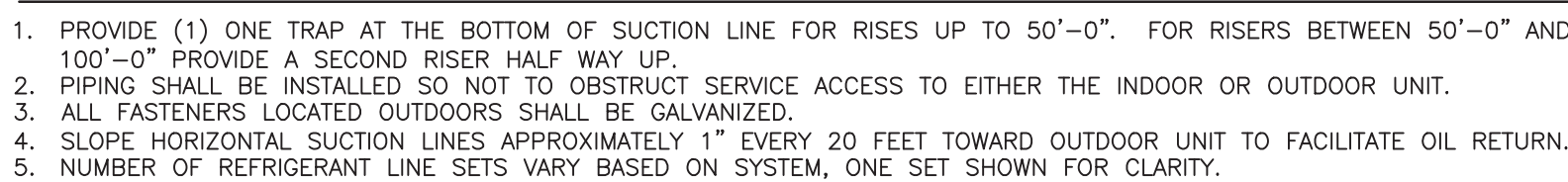
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1. PIPE SUPPORT SYSTEM SHALL BE BASED ON PHP SYSTEMS/DESIGN MODEL NUMBER PSE-CUSTOM OR PSE-2-2 DEPENDING ON NUMBER OF PIPES SUPPORTED.
2. CLEVIS HANGERS WITH WELDED INSULATION SHIELDS SHALL TO REACH FIG. 100SH ON ALL PIPES R4 LARGER THAN 1".
3. IF PIPE HANGERS WITH WELDED INSULATION SHIELDS ARE MINOR TO ABOVE GRADE, PIPING SHALL BE INSTALLED AS TO ELIMINATE ANY UNNECESSARY OFFSETS UP OR DOWN.
4. 1/2" OR SMALLER, A BAND HANGER WITH INSULATION SHIELD MAY BE USED SIMILAR TO REACH FIG. NO. 1ASH.
5. INSULATION SHIELDING INSULATION SHIELDS MAY BE OMITTED FOR NON FERROUS PIPING WITHOUT INSULATION, ALL HANGERS SHALL BE COPPER PLATED OR FURNISHED WITH A DI-ELECTRIC BETWEEN PIPE AND HANGERS.
6. ALL PIPE SUPPORT COMPONENTS SHALL BE GALVANIZED STEEL OR FACTORY PAINTED BLACK WITH ENAMEL.
7. THE SUPPORT AND HANGER FOR ALL PIPES TO BE SUPPORTED SHALL BE IDENTICAL TO THE PIPES TO BE SUPPORTED.
8. THIS DETAIL TO BE USED FOR STANDARD PIPE SUPPORT LOCATIONS. FOR PIPE GUIDES AND ANCHORS USE DETAIL ON M-4.

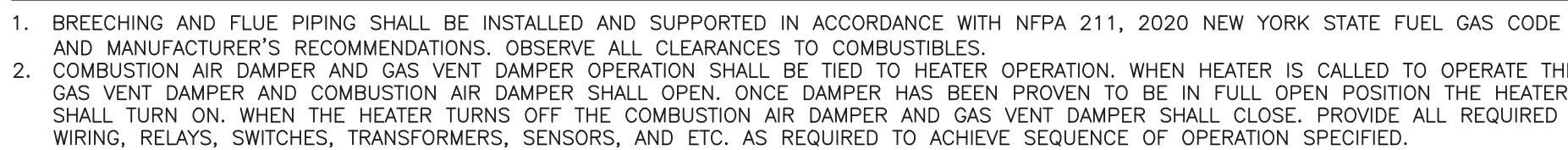
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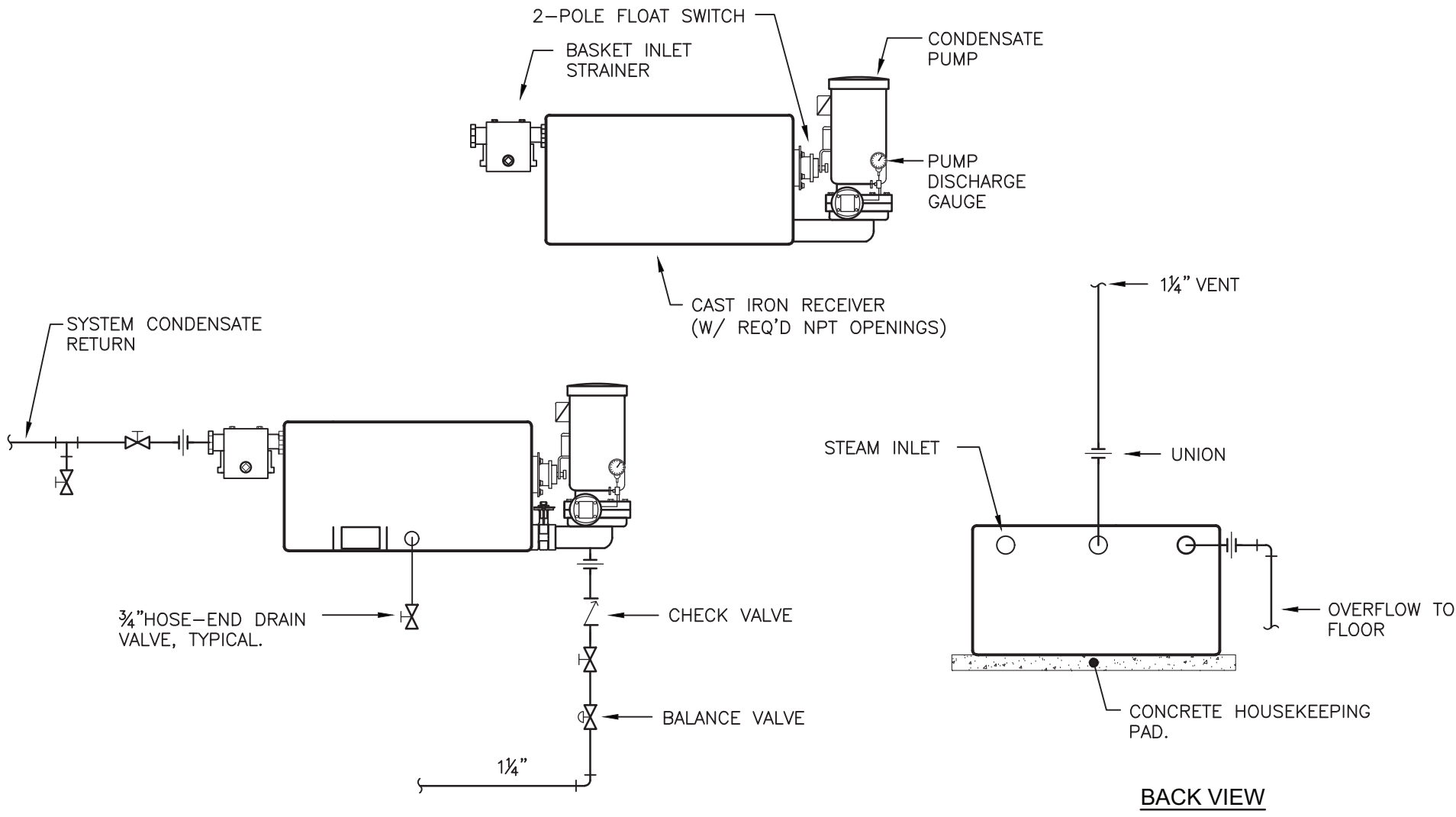
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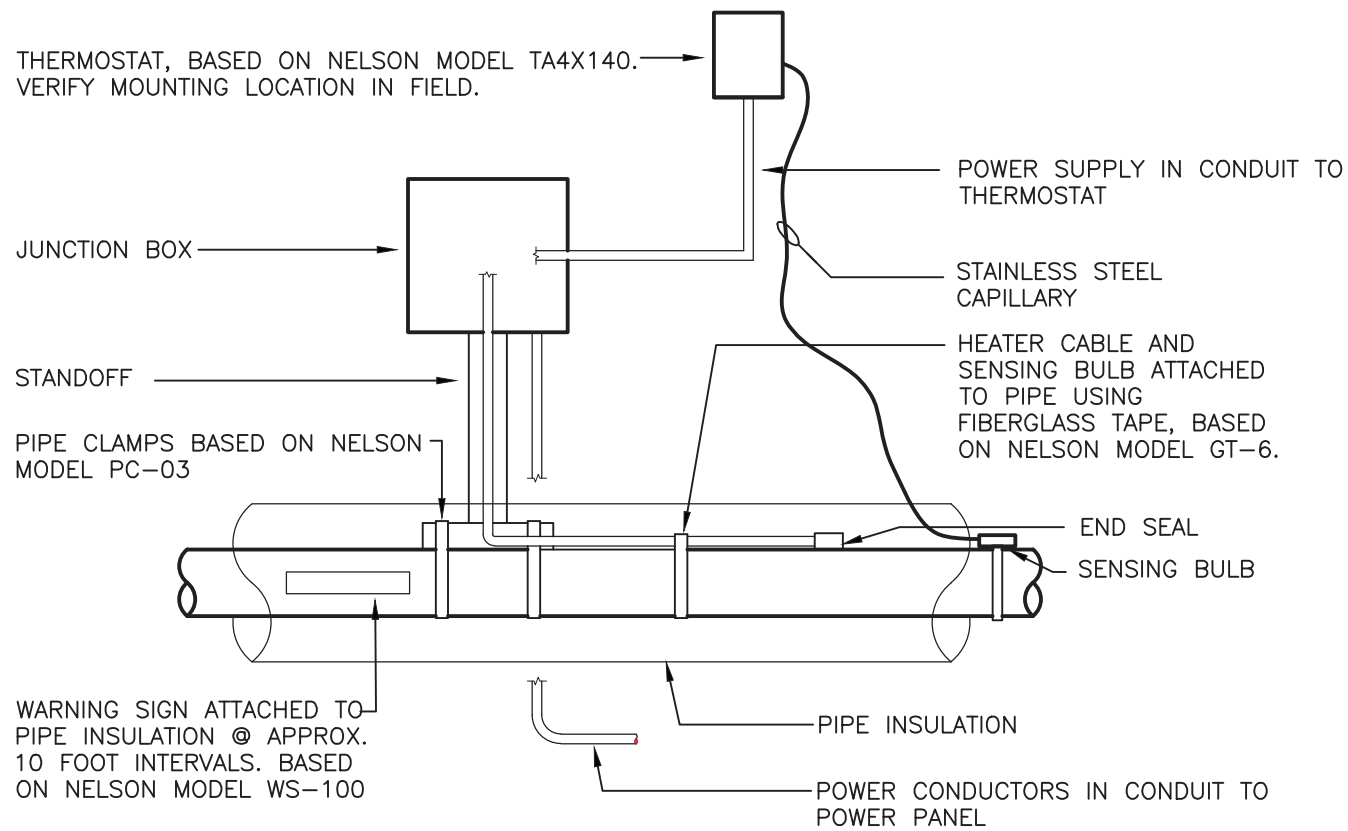




- NOTES:
1. PROVIDE PIPE HANGERS WITH MINIMUM 1/2" STATIC DEFLECTION SPRING TYPE VIBRATION ISOLATORS FOR HANGERS WITHIN 50 PIPE DIAMETERS OF PUMP DISCHARGE.

1 STEAM CONDENSATE PUMP PIPING DETAIL

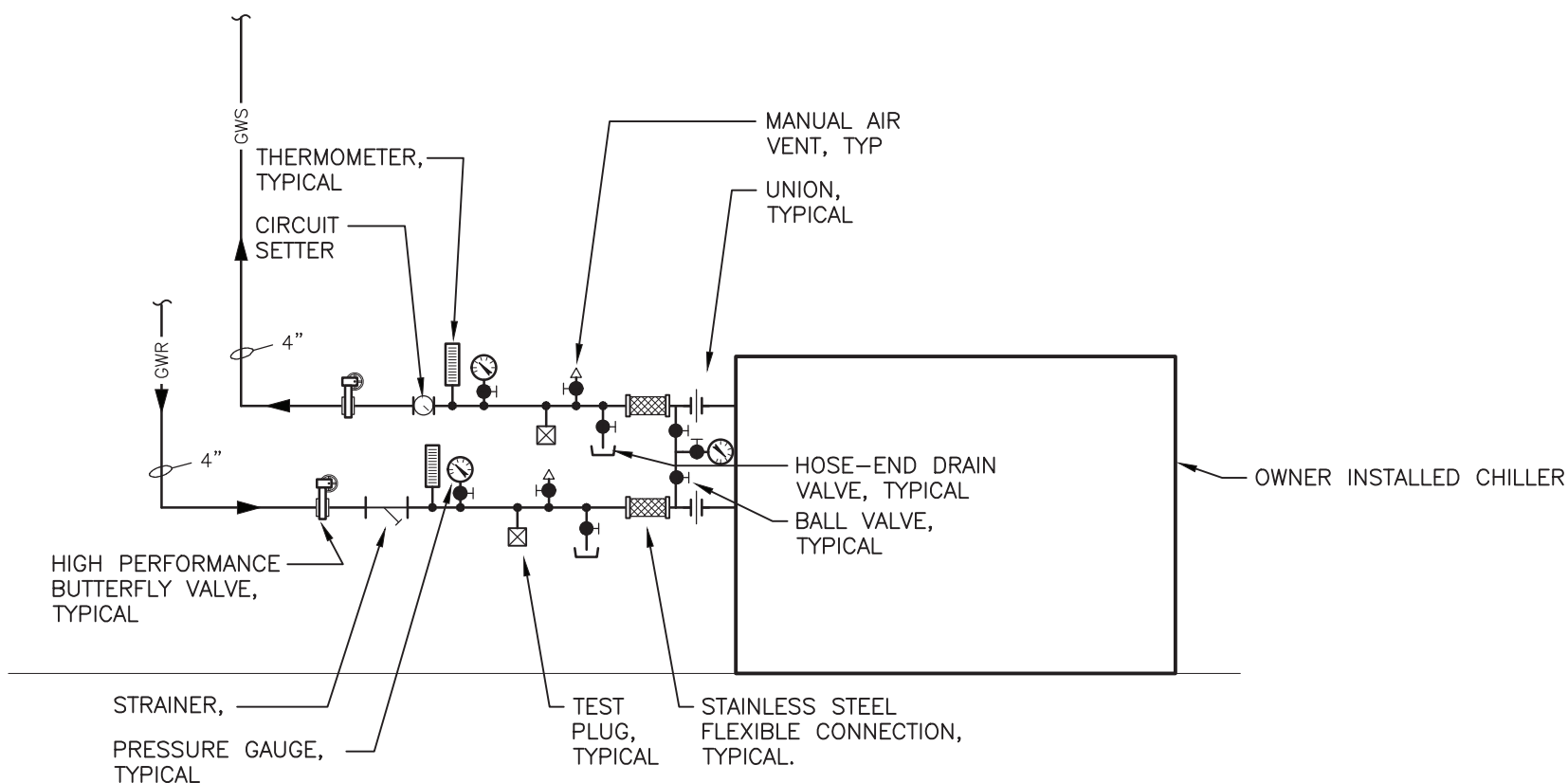
M6.05 NOT TO SCALE



- NOTES:
1. FREEZE PROTECTION ELECTRIC HEAT TRACING FOR ALL GLYCOL SUPPLY AND RETURN PIPING EXPOSED TO AMBIENT CONDITIONS ON EXTERIOR OF BUILDING SHALL BE BASED ON NELSON TYPE CLT25 SELF-REGULATING HEATER CABLE. HEATER CABLE PERFORMANCE SHALL BE 5 WATTS PER FOOT AT 208V/1Ø. SYSTEM SHALL BE UL LISTED.
 2. PROVIDE NELSON MODEL PLT-LPM CONNECTION KIT. CONNECTION KIT TO BE INSTALLED BY ELECTRICAL CONTRACTOR. HEATER CABLE, WARNING SIGNS, AND THERMOSTAT SENSING BULB SHALL BE ATTACHED TO PIPE BY ELECTRICAL CONTRACTOR.
 3. HEAT TRACING CABLE BASED ON FREEZE PROTECTION TO MAINTAIN TEMPERATURE OF 40°F AT -20°F AMBIENT TEMPERATURE.
 4. INSTALL CABLE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 5. INSTALL ALUMINUM FOIL TAPE CONTINUOUSLY ALONG ENTIRE CABLE LENGTH (ABOVE AND BELOW CABLE). TAPE BASED ON NELSON AT-50.

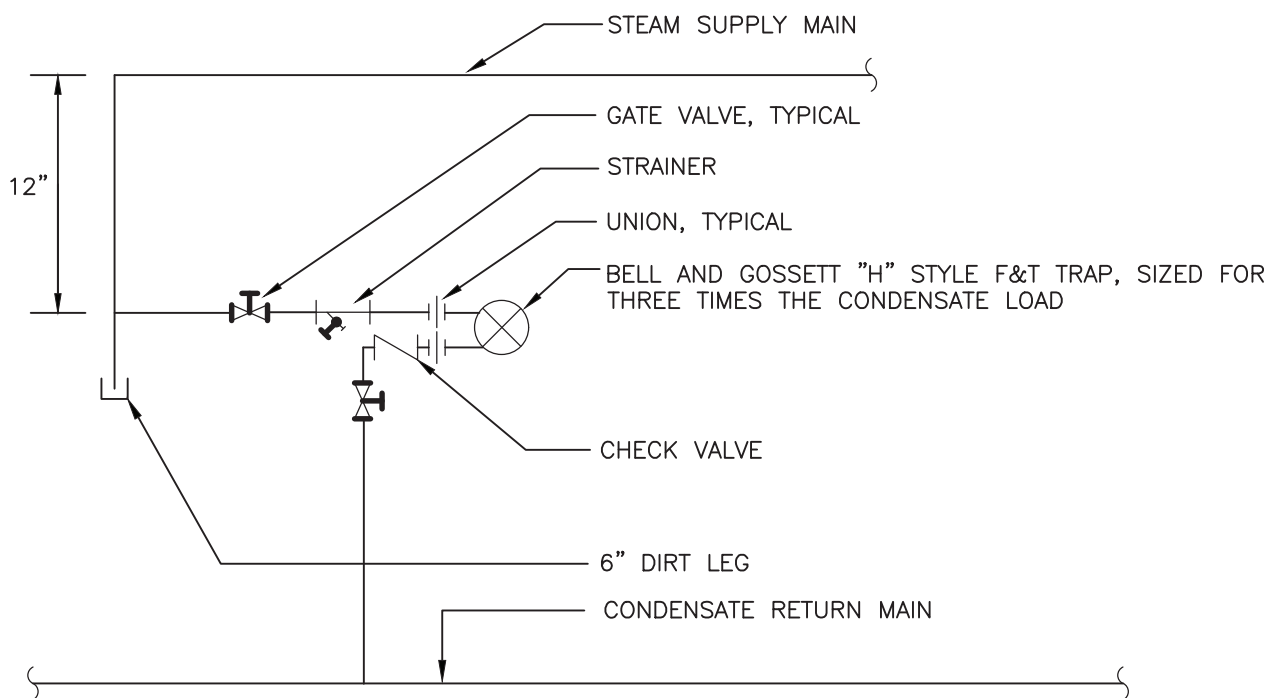
2 ELECTRIC HEAT TRACE DETAIL

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3 CHILLER PIPING DETAIL

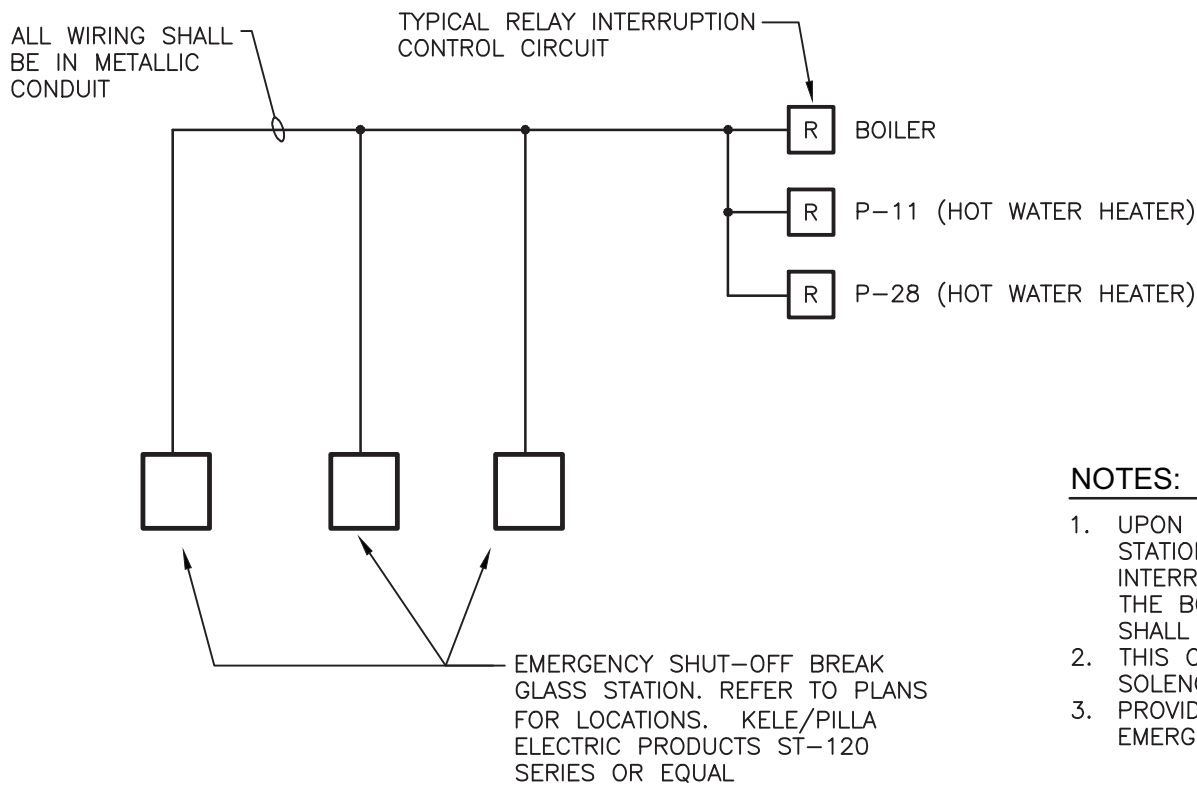
M6.05 NOT TO SCALE



- NOTES:
1. INSTALL STEAM MAIN DRIPS EVERY 120 FEET OF STRAIGHT PIPE RUN AND AT THE BOTTOM OF RISERS. STEAM MAIN DRIPS SHALL BE INSTALLED IN ANY LOCATION WHERE THERE IS A CHANCE OF CONDENSATE POOLING.
 2. TRAP SIZE SHALL BE MINIMUM OF 1".

5 STEAM MAIN DRIP DETAIL

NOT TO SCALE



- NOTES:
1. UPON ACTIVATION OF EMERGENCY SHUT-OFF BREAK GLASS STATION, POWER TO THE CONTROL CIRCUIT RELAY SHALL BE INTERRUPTED, DE-ENERGIZING THE PRIMARY CONTROL CIRCUIT TO THE BOILERS AND WATER HEATERS AND THE MAIN FUEL VALVES SHALL CLOSE.
 2. THIS CONTRACTOR SHALL PROVIDE ALL WIRING, CONDUIT, RELAYS, SOLENOID GAS VALVES, AND ETC AS REQUIRED FOR SHUT-DOWN.
 3. PROVIDE SIGNAGE AT EACH LOCATION CLEARLY IDENTIFYING EMERGENCY SHUT-OFF BREAK GLASS STATIONS.

8 EMERGENCY BREAK GLASS STATION SCHEMATIC

M6.05 NOT TO SCALE

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MECHANICAL: DETAILS
ASPIRE BREWING TAP ROOM & BREWERY
FOR SONNY PATEL BREWING COMPANY, INC.
400/600 NORTH GALLERIA DRIVE LOWER LEVEL
MIDDLETOWN, NY 10941

Job No. 4.1552.01
File No. 4155201 M605

M6.05

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GENERAL HVAC NOTES

1. ALL MECHANICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2020 MECHANICAL CODE, FIRE CODE, PLUMBING CODE, FUEL GAS CODE, BUILDING CODE, AND ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE, ALL LOCAL CODES AND GENERALLY ACCEPTED STANDARDS.

2. MECHANICAL CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, PIPING, VALVES, ACCESS DOORS, HANGERS, FITTINGS AND MISCELLANEOUS COMPONENTS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER THE MECHANICAL SYSTEMS COMPLETE, OPERABLE, AND IN ACCORDANCE WITH APPLICABLE CODES AND GENERALLY ACCEPTED INDUSTRY STANDARDS.

3. MECHANICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT TO OWNER'S REPRESENTATIVE FOR APPROVAL. DEMONSTRATE NEW MECHANICAL SYSTEMS TO OWNER'S REPRESENTATIVES AND REVIEW MAINTENANCE PROCEDURES.

4. MECHANICAL CONTRACTOR SHALL SEAL AROUND ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS AND CEILINGS WITH HILTI INTUMESCENT FIRE STOP MATERIALS TO MAINTAIN FIRE AND SMOKE RATINGS. DUCTS PENETRATING FIRE RATED WALLS, FLOORS AND CEILINGS SHALL BE INSTALLED WITH FIRE DAMPER AND ACCESS DOORS WHETHER SPECIFICALLY SHOWN ON THE DRAWINGS OR NOT.

5. MECHANICAL CONTRACTOR SHALL NOT DRILL OR CUT ANY STRUCTURAL MEMBERS WITHOUT PERMISSION OF ARCHITECT.

6. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

7. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL WIRING (120V AND 24V) FOR SYSTEMS SHOWN ON MECHANICAL DRAWINGS AND DESCRIBED IN MECHANICAL SPECIFICATIONS, INCLUDING ALL RELAYS, TRANSFORMERS, CONDUIT, JUNCTION BOXES, CONDUCTORS, THERMOSTATS, APPURTENANCES AND ALL NECESSARY EQUIPMENT TO MAKE SYSTEMS COMPLETE AND OPERABLE.

8. MECHANICAL CONTRACTOR SHALL PAY FOR ALL PERMITS AND INSPECTION FEES REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

9. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CUTTING, PATCHING, AND PAINTING ASSOCIATED WITH PLUMBING WORK WITH THE GENERAL CONTRACTOR, WHO SHALL PERFORM THE WORK.

10. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SHEET METAL AND AIR CONDITIONING MECHANICAL CONTRACTORS NATIONAL ASSOCIATION (SMACNA) DUCT STANDARDS. PROVIDE RADIUS TURNS OR TURNING VANES ON ALL CHANGES IN DIRECTION IN ACCORDANCE WITH SMACNA STANDARDS.

11. ALL CONTROL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (N.E.C.) AND ALL LOCAL CODES. ALL CONDUCTORS SHALL BE COPPER WITH THHN INSULATION IN EMT CONDUIT. 120V/1 – MINIMUM CONDUCTOR SIZE #12. 24V – MINIMUM CONDUCTOR SIZE #18. MINIMUM CONDUIT SIZE SHALL BE ¾". CONDUIT INSTALLED OUTDOORS SHALL BE GALVANIZED.

12. ALL DUCTWORK SHALL BE FABRICATED WITH MINIMUM 26 GAGE GALVANIZED STEEL INCLUDING ROUND DUCTS.

13. FINAL LOCATIONS OF ALL THERMOSTATS AND SENSORS SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION, COORDINATE IN FIELD. THERMOSTATS AND SENSORS SHALL BE LOCATED 4'-0" ABOVE FINISHED FLOOR.

14. MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS DOORS FOR ALL VALVES AND DUCT ACCESSORIES CONCEALED IN WALLS/CEILINGS. ACCESS DOORS SHALL HAVE APPROPRIATE FIRE RATING TO MAINTAIN INTEGRITY OF WALL/CEILING. ACCESS DOORS TO BE INSTALLED BY GENERAL CONTRACTOR.

15. MECHANICAL CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL PIPING IN FINISHED AREAS WITH GENERAL CONTRACTOR TO ENSURE CONCEALMENT OF ALL PIPING IN WALLS, FLOORS AND CEILINGS.

16. MECHANICAL CONTRACTOR SHALL PROVIDE ALL AIR BALANCING FOR ALL NEW MECHANICAL SYSTEMS. PROVIDE ALL NECESSARY MOTOR, DRIVE, BELT CHANGES AND ETC. SEE SPECIFICATIONS FOR BALANCE PROCEDURES AND ADDITIONAL REQUIREMENTS. CONTRACTOR SHALL COMFORT BALANCE ALL MECHANICAL SYSTEMS TO THE SATISFACTION OF ENGINEER/ARCHITECT.

17. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUPPLEMENTAL STRUCTURAL STEEL SUPPORT ASSOCIATED WITH NEW MECHANICAL EQUIPMENT HUNG OR SUPPORTED FROM OR ON THE BUILDING STRUCTURE. MECHANICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO STEEL FABRICATION AND INSTALLATION OF EQUIPMENT.

18. MECHANICAL CONTRACTOR SHALL SUBMIT PIPING AND DUCTWORK FULLY COORDINATED SHOP DRAWINGS FOR OWNER'S REPRESENTATIVE REVIEW.

19. MECHANICAL CONTRACTOR SHALL INCLUDE IN BID ALL MATERIALS, RIGGING AND LABOR REQUIRED FOR THE COMPLETE AND PROPER INSTALLATION OF THE MECHANICAL SYSTEM.

20. MECHANICAL CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK, AND COORDINATE WORK WITH ALL OTHER TRADES.

21. PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES.

22. PROVIDE VOLUME DAMPERS ON ALL EXHAUST, SUPPLY AND RETURN BRANCH DUCTWORK, WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT.

23. PROVIDE 1" ACOUSTIC LINING IN DUCTWORK A MINIMUM OF 25'-0" FROM INLET AND OUTLET OF ALL FANS. THE FIRST FIGURE OF DUCT SIZE INDICATE DIMENSION OF FACE SHOWN OR INDICATED. DUCT DIMENSIONS SHOWN ON DRAWINGS REFER TO INSIDE CLEAR DIMENSIONS. WHERE DUCTWORK IS LINED, THE CONTRACTOR SHALL INCREASE THE SIZE OF DUCT TO COMPENSATE FOR LINING.

24. ALL MOTOR STARTERS AND DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED. DISCONNECT SWITCHES FURNISHED BY THE MECHANICAL CONTRACTOR FOR MECHANICAL EQUIPMENT SHALL BE HEAVY DUTY TYPE AND SHALL BE NEMA 3R WHEN LOCATED OUTSIDE.

25. MECHANICAL CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIAL INSTALLED UNDER THIS CONTRACT FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION AND ACCEPTANCE BY THE OWNER AND AGREES TO REPLACE DEFECTIVE WORK (INCLUDING ALL REQUIRED LABOR AND MATERIAL) AT NO ADDITIONAL COST TO OWNER DURING THE GUARANTEE PERIOD.

26. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING START-UP OF ALL NEW EQUIPMENT, CONTROLS, AND ETC. TO ENSURE CORRECT OPERATION OF INSTALLED DEVICES.

27. MECHANICAL CONTRACTOR SHALL PROVIDE OWNER WITH CATALOG DATA, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, AND RECORD (AS-BUILT) DRAWINGS OF ALL COMPLETED WORK. MECHANICAL CONTRACTOR SHALL ENGAGE A FACTORY AUTHORIZED REPRESENTATIVE TO PERFORM START-UP PROCEDURES.

28. ALL PIPING SHALL BE TESTED AS HEREINAFTER SPECIFIED. TESTS SHALL BE MADE AFTER ERECTION AND BEFORE COVERING IS APPLIED OR PIPING PAINTED OR CONCEALED AND AS SECTIONS OF MAINS AND GROUPS OR RISERS ARE COMPLETED. WHERE CONTROLS AND ACCESSORIES ARE NOT DESIGNED TO WITHSTAND PIPE TEST PRESSURES, THEY SHALL BE PROPERLY PROTECTED AGAINST DAMAGE DURING SUCH TESTS.

1. REFRIGERANT PIPING – TESTS SHALL INCLUDE BOTH HIGH AND LOW PRESSURE SIDES OF EACH SYSTEM AT NOT LESS THAN THE LOWER OF THE DESIGN PRESSURE OR THE SETTING OF THE PRESSURE RELIEF DEVICES. DESIGN PRESSURES FOR TESTING SHALL BE THOSE LISTED ON THE CONDENSING UNITS, COMPRESSORS OR COMPRESSOR UNIT NAMEPLATE, AS REQUIRED BY ASHRAE 15-1994. TESTS SHALL BE PERFORMED WITH AN INERT DRIED GAS. PROVIDE CERTIFICATE OF TEST INDICATING NAME OF REFRIGERANT AND FIELD TEST PRESSURE.

29. MECHANICAL CONTRACTOR SHALL TRAIN STAFF ON USE OF MECHANICAL SYSTEMS. THE MECHANICAL CONTRACTOR SHALL ENGAGE A FACTORY AUTHORIZED REPRESENTATIVE TO PERFORM THE TRAINING.

30. ALL MECHANICAL SYSTEMS INDICATED ON DRAWINGS SHALL BE COMMISSIONED. MECHANICAL CONTRACTOR SHALL PROVIDE ALL SERVICES REQUIRED BY THE OWNER'S COMMISSIONING AGENT AS REQUIRED.

31. INSTALL ALL STEAM SUPPLY, RETURN AND PUMP DISCHARGE PIPING TO PERMIT COMPLETE DRAINAGE.

• PITCH HORIZONTAL STEAM MAINS, RETURN MAINS, AND BRANCHES DOWNWARD, ¼" PER 10 FEET IN DIRECTION OF FLOW.

• PITCH STEAM RUNOUTS UPWARD, ⅛" PER FOOT IN DIRECTION OF FLOW.

• PITCH RETURN BRANCHES AND RUNOUTS DOWNWARD, ¼" PER 10 FEET IN DIRECTION OF FLOW.

PIPE HANGER SCHEDULE

PIPE SIZE (INCHES)	MAXIMUM HORIZONTAL SPACING (FEET)			SINGLE STEEL ROD HANGER SIZE (INCHES)		HANGER TYPE STEEL	MAXIMUM VERTICAL SPACING (FEET)		
	COPPER TUBE	STEEL PIPE	PVC PIPE	TUBING	PIPING		COPPER TUBE	STEEL PIPE	PVC PIPE
½"	6	8	4	¼"	⅜"	BAND	10	15	10
¾"	6	8	4	¼"	⅜"	BAND	10	15	10
1"	6	8	4	½"	⅝"	BAND	10	15	10
1¼"	6	9	4	¼"	⅜"	CLEVIS	10	15	10
1½"	6	9	4	¼"	⅜"	CLEVIS	10	15	10
2"	10	10	4	½"	⅝"	CLEVIS	10	15	10
2½"	10	12	4	⅝"	½"	CLEVIS	10	15	10
3"	10	12	4	⅝"	½"	CLEVIS	10	15	10
4"	—	12	4	½"	⅝"	CLEVIS OR ROLLER	—	15	10
6"	—	12	—	—	¾"	CLEVIS OR ROLLER	—	15	—

NOTES:

1. INSTALL HANGER OR SUPPORT CLOSE TO THE POINT OF CHANGE OF DIRECTION IN ALL PIPE RUNS.

2. INSTALL ADDITIONAL HANGERS ON SUPPORTS AT CONCENTRATED LOADS.

3. SUPPORT ALL BRANCH PIPING OVER 5'-0" IN LENGTH.

4. USE ROLLER TYPE HANGERS (MSS TYPE 41) WHERE PIPING IS SUBJECT TO MOVEMENT CAUSED BY EXPANSION AND CONTRACTION.

5. HANGERS AND ANCHORS SHALL BE ATTACHED TO THE BUILDING CONSTRUCTION IN AN APPROVED MANNER.

6. PIPING SHALL BE SUPPORTED AT DISTANCES NOT EXCEEDING THE SPACING SPECIFIED IN SCHEDULE OR IN ACCORDANCE WITH MSS SP-69.

MINIMUM HANGER SIZES FOR RECTANGULAR DUCT

MINIMUM HALF OF DUCT PERIMETER	PAIR AT 10FI SPACING		PAIR AT 8FI SPACING		PAIR AT 5FI SPACING		PAIR AT 4FI SPACING	
	STRAP	ROD	STRAP	ROD	STRAP	ROD	STRAP	ROD
P/2 = 30"	1" x 22ga	¼"	1" x 22ga	¼"	1" x 22ga	¼"	1" x 22ga	¼"
P/2 = 72"	1" x 18ga	⅝"	1" x 20ga	¼"	1" x 22ga	¼"	1" x 22ga	¼"
P/2 = 96"	1" x 16ga	⅝"	1" x 18ga	⅝"	1" x 20ga	⅝"	1" x 22ga	⅝"
P/2 = 120"	1½" x 16ga	½"	1" x 16ga	⅝"	1" x 18ga	⅝"	1" x 20ga	⅝"
P/2 = 168"	1½" x 16ga	—	1" x 16ga	½"	1" x 16ga	⅝"	1" x 18ga	⅝"
P/2 = 192"	—	—	1" x 16ga	½"	1" x 16ga	⅝"	1" x 18ga	⅝"

SINGLE HANGER MAXIMUM ALLOWABLE LOAD

WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:	STRAP		ROD (Dia.)
	1" x 18, 20, 22ga	ON ¼" BOLT	1" x 22ga – 260lbs. 1" x 20ga – 32lbs. 1" x 18ga – 420lbs. 1" x 16ga – 700lbs. 1½" x 16ga – 1100lbs.
1" x 22ga – 260lbs.	1" x 20ga – 32lbs.	1" x 18ga – 420lbs.	1" x 16ga – 700lbs.
1" x 18ga – 420lbs.	1" x 16ga – 700lbs.	1" x 16ga – 1100lbs.	1" x 16ga – 1100lbs.

PLACE FASTENERS IN SERIES, NOT SIDE BY SIDE.

NOTES:

1. DIMENSIONS OTHER THAN GAUGE ARE IN INCHES.

2. TABLES ALLOW FOR DUCT WEIGHT, 1 LB./SF. INSULATION WEIGHT AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT, BUT NO EXTERNAL LOADS.

3. STRAPS ARE GALVANIZED STEEL.

4. ALLOWABLE LOADS FOR P/2 ASSUME THAT DUCTS ARE 16 GA. MAXIMUM, EXCEPT WHEN MAXIMUM DUCT DIMENSION (W) IS OVER 60" THEN P/2 MAXIMUM IS 1.25 W.

MECHANICAL PIPING MATERIAL SCHEDULE

SERVICE	SIZE (IN)	MATERIAL	TYPE/WEIGHT	STANDARD
CONDENSATE DRAIN	ALL	PVC	SCHEDULE 40 DWV	ASTM D 2665
REFRIGERANT	ALL	COPPER	HARD OR ANNEALED TYPE ACR	ASTM B 280
STEAM	ALL	BLACK STEEL	SCHEDULE 40	ASTM A 53
STEAM CONDENSATE & STEAM VENT	ALL	BLACK STEEL	SCHEDULE 80	ASTM A 53
GLYCOL WATER	4" AND UP	BLACK STEEL	SCHED 40	ASTM A 53
GLYCOL WATER	3" & DOWN	COPPER	HARD DRAWN TYPE L TUBING	ASTM B 88

MECHANICAL PIPING FITTING SCHEDULE

SERVICE	SIZE (IN)	MATERIAL	TYPE/WEIGHT	STANDARD
CONDENSATE DRAIN	ALL	PVC	SCHEDULE 40 DWV SOLVENT CEMENT	ASTM D 3034 ASTM D 2855
REFRIGERANT	ALL	COPPER	SILVER SOLDER 300 PSI	ANSI B 16.22
STEAM	ALL	CARBON STEEL	STANDARD WEIGHT WELDING TYPE	ASME B 16.9
STEAM CONDENSATE & STEAM VENT	ALL	CAST IRON	EXTRA HEAVY WEIGHT SCREWED ENDS	ASME B 16.4
GLYCOL WATER	4" & UP	CARBON STEEL	BUTT WELDED OR FLANGED	ASME B 16.9 ASME B 234
GLYCOL WATER	3" & DOWN	WROUGHT COPPER	SOLDER	ASME B 16.22

SINGLE DUCT VAV BOX SCHEDULE

TAG	AREA SERVED	MODEL	SIZE		DESIGN CFM		CFM RANGE		ELECTRIC HEATING COIL					
			UNIT	INLET	MAX.	MIN.	MIN.	MAX.	KW	EAT/LAT	MAX. COIL AIR PD.	VOLTS	PHASE	NUMBER OF STEPS
VAV-1	CONFERENCE ROOM 115	DESV	16	16	2400	1600	300	3000	N/A	N/A	N/A	N/A	N/A	N/A
VAV-2	REFER TO PLANS	DESV	08	08	675	350	90	900	N/A	N/A	N/A	N/A	N/A	N/A
VAV-3	REFER TO PLANS	DESV	08	08	600	300	90	900	N/A	N/A	N/A	N/A	N/A	N/A
VAV-4	REFER TO PLANS	DESV	06	06	300	150	45	500	N/A	N/A	N/A	N/A	N/A	N/A
VAV-5	TAPROOM 103	DESV	14	14	1700	1700	300	3000	N/A	N/A	N/A	N/A	N/A	N/A
VAV-6	TAPROOM 103	DESV	12	12	1100	1100	190	2000	N/A	N/A	N/A	N/A	N/A	N/A
VAV-7	LOBBY 102	DESV	14	14	1450	950	300	3000	13	55/98	0.38"	480	3	2
VAV-8	TAPROOM 103	DESV	14	14	1800	150	300	3000	N/A	N/A	N/A	N/A	N/A	N/A
VAV-9	MEN 127 & WOMEN 130	DESV	06	06	350	150	45	500	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:

1. VAV BOXES BASED ON TITUS.

2. ALL VAV BOXES SHALL BE COMPLETE WITH FACTORY MOUNTED SHEET-METAL CONTROL ENCLOSURE, 24 VOLT CONTROL TRANSFORMER, DISCONNECT SWITCH, HANGER BRACKETS, AND FIBER-FREE CLOSED-CELL POLYMER FOAM INSULATION.

3. AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR SHALL FURNISH AND INSTALL ALL VAV BOX CONTROLS WITHIN FACTORY CONTROL ENCLOSURE.

4. CONTRACTOR SHALL VERIFY LEFT OR RIGHT HAND CONTROL ENCLOSURE MOUNTING AND PIPING CONNECTIONS PRIOR TO ORDERING.

5. MAXIMUM ALLOWANCE STATIC PRESSURE DROP FOR BOX SHALL BE 0.5".

6. MAXIMUM DISCHARGE NC<28 AND MAXIMUM RATED NC<30.

7. VAV BOXES WITH ELECTRIC REHEAT COILS SHALL BE COMPLETE WITH: INTEGRAL CONTROL PANEL HOUSED IN NEMA 1 ENCLOSURE, PRIMARY AUTOMATIC RESET THERMAL CUT-OUT, SECONDARY MANUAL RESET THERMAL CUT-OUT, DIFFERENTIAL PRESSURE AIRFLOW SWITCH, LINE TERMINAL BLOCK, INTEGRAL DOOR INTERLOCK DISCONNECT SWITCH, AND MERCURY CONTACTORS.

HEATING AND COOLING MINIMUM PIPE INSULATION COMMERCIAL (THICKNESS IN INCHES)

FLUID	NOMINAL PIPE DIAMETER			
	< 1-1/2"	1-1/2" < 4.0"	4.0" to 8.0"	≥ 8.0"
REFRIGERANT	1.0	1.0	1.0	1.0
CONDENSATE	1.0	1.0	1.0	1.0
GLYCOL WATER	1.5	1.5	1.5	1.5
STEAM	2.5	2.5	3.0	3.0
STEAM CONDENSATE	2.5	2.5	3.0	3.0

NOTES:

1. PIPE COVERING SHALL BE FIBERGLASS PREFORMED PIPE AND PREMOLDED FITTING INSULATION WITH: FIRE RETARDANT VAPOR BARRIER JACKET, 0.23 K-FACTOR AT 75°F MEAN TEMPERATURE, FLAME SPREAD = 25, SMOKE DEVELOPED = 50.

2. ALL INTERIOR AND EXTERIOR PIPING, FITTINGS, AND VALVES SHALL BE INSTALLED WITH 20 MIL THICK, WHITE PVC JACKETING. PVC JACKETING SHALL BE HIGH IMPACT RESISTANT, UV RESISTANT COMPLYING WITH ASTM D 1784, CLASS 16354-C. PROVIDE FACTORY FABRICATED FITTING AND VALVE COVERS WHERE AVAILABLE.

3. REFRIGERANT AND CONDENSATE PIPE INSULATION SHALL BE FLEXIBLE ELASTOMERIC FOAM SIMILAR TO ARMAFLEX. EXTERIOR INSULATIONS TO BE COATED WITH ARMAFLEX WB OR BE INSTALLED WITH PVC JACKETING.

MINIMUM HANGER SIZES FOR ROUND DUCT

DIAMETER	MAXIMUM SPACING	WIRE DIAMETER	ROD	STRAP
≤ 10"	12'	—	1/4"	1" X 22 ga.
11" – 18"	12'	—	1/4"	1" X 22 ga.
19" – 24"	12'	—	1/4"	1" X 22 ga.
25" – 36"	12'	—	3/8"	1" X 20 ga.
37" – 50"	12'	—	TWO 3/8"	TWO 1" X 20 ga.
51" – 60"	12'	—	TWO 3/8"	TWO 1" X 18 ga.
61" – 84"	12'	—	TWO 3/8"	TWO 1" X 16 ga.

NOTES:

1. STRAPS AND RODS ARE GALVANIZED STEEL.

2. TABLE ALLOWS FOR CONVENTIONAL WALL THICKNESS, AND JOINT SYSTEMS PLUS ONE lb/sf OF INSULATION WEIGHT. IF HEAVIER DUCTS ARE TO BE INSTALLED, ADJUST HANGER SIZES TO BE WITHIN THEIR LOAD LIMITS.

SCOTT P. ZIEGLER

THE LICENSED PROFESSIONAL ENGINEER NEW YORK LICENSE NO. 091035

Revisions:

1101921

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MECHANICAL: EQUIPMENT SCHEDULES

ASPIRE BREWING TAP ROOM & BREWERY

FOR SONNY PATIL BREWING COMPANY, INC.

400/600 NORTH GALLERIA DRIVE LOWER LEVEL MIDDLETOWN, NY 10941

Job No. 4.1552.01

File No. 4155201 M701

M7.01

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Date 10/15/21	
Checked SZ	
Drawn BH/DC/KC	
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<h1 style="margin: 0;">M7.02</h1>	

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
1	SEQUENCE OF OPERATIONS:														
	1. GENERAL:														
	A. THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROL ELEMENTS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM INCLUDING BUT NOT LIMITED TO CONTACTS, RELAYS, WIRING (24V AND 120V), CONDUIT, CONTROL PANELS, TRANSFORMERS, THERMOSTATS, SENSORS, ACTUATORS, DAMPERS, TIME CLOCKS, SPEED CONTROLLERS, AND ETC.														
	2. DISHWASHER EXHAUST FAN (EF-2):														
2	A. EXHAUST FAN SHALL OPERATE WHEN THE DISHWASHER IS ACTIVATED. LOCAL CONTROLS WITHIN THE DISHWASHER ASSEMBLY SHALL TURN ON/OFF THE EXHAUST FAN. WHEN THE EXHAUST FAN IS CALLED TO RUN, THE ASSOCIATED MOTORIZED BACKDRAFT DAMPER SHALL OPEN AND THEN THE FAN SHALL TURN ON. WHENEVER THE EXHAUST FAN IS SHUT-DOWN THE ASSOCIATED MOTORIZED DAMPER SHALL CLOSE. PROVIDE ALL CONTROLS REQUIRED TO INTERLOCK EXHAUST FAN OPERATION WITH DISHWASHER ASSEMBLY.														
	3. TOILET AND GENERAL EXHAUST FANS (EF-3, EF-4 AND EF-5):														
	A. THE EXHAUST FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS AS PROGRAMMED THROUGH A 24-HOUR TIME CLOCK. COORDINATE OCCUPIED HOURS WITH OWNER'S REPRESENTATIVE. WHEN THE EXHAUST FAN IS CALLED TO RUN, THE ASSOCIATED MOTORIZED BACKDRAFT DAMPER SHALL OPEN AND THEN THE FAN SHALL TURN ON. WHENEVER THE EXHAUST FAN IS SHUT-DOWN THE ASSOCIATED MOTORIZED DAMPER SHALL CLOSE.														
	4. LAB EXHAUST FAN (EF-6):														
	A. A MANUAL WALL MOUNTED SWITCH, LOCATED IN THE SPACE, SHALL TURN THE FAN ON AND OFF. WHEN THE EXHAUST FAN IS CALLED TO RUN, THE ASSOCIATED MOTORIZED BACKDRAFT DAMPER SHALL OPEN AND THEN THE FAN SHALL TURN ON. WHENEVER THE EXHAUST FAN IS SHUT-DOWN THE ASSOCIATED MOTORIZED DAMPER SHALL CLOSE.														
3	5. EXHAUST FANS (EF-7 AND EF-8):														
	A. EXHAUST SHALL BE COMMANDED ON/OFF BASED ON SPACE TEMPERATURE. ON A RISE IN SPACE TEMPERATURE ABOVE SET-POINT THE MOTORIZED DAMPER ASSOCIATED WITH THE EXHAUST FAN SHALL OPEN AND THEN THE EXHAUST FAN SHALL TURN ON. THE EXHAUST FAN SHALL CONTINUE TO RUN UNTIL THE SPACE TEMPERATURE DROPS BELOW SET-POINT, AT WHICH POINT THE FAN SHALL STOP AND THE MOTORIZED DAMPER SHALL CLOSE. WHENEVER THE EXHAUST FAN IS SHUT-DOWN THE ASSOCIATED MOTORIZED DAMPER SHALL CLOSE.														
	6. KITCHEN EXHAUST HOOD EXHAUST FAN AND MAKE-UP AIR UNIT (EF-1 AND MUA-1):														
	A. THE EXHAUST FAN AND MAKE-UP AIR UNIT OPERATION SHALL BE OPERATED BY A FACTORY CONTROL PANEL MOUNTED WITHIN THE KITCHEN EXHAUST HOOD ASSEMBLY. WHENEVER THE HOOD PANEL IS INDEXED ON THE EXHAUST FAN AND THE MAKE-UP AIR UNIT SHALL OPERATE. THE GAS BURNER IN THE MAKE-UP AIR UNIT SHALL FIRE TO MAINTAIN DISCHARGE AIR SET-POINT. WHEN THE MAKE-UP AIR UNIT IS ON, ITS ASSOCIATED INTAKE MOTORIZED DAMPER SHALL BE OPEN. WHEN THE MAKE-UP AIR UNIT IS OFF, ITS ASSOCIATED INTAKE MOTORIZED DAMPER SHALL BE CLOSED. WHENEVER THE SYSTEM IS SHUT-DOWN THE OUTSIDE AIR INTAKE DAMPER SHALL REMAIN CLOSED. PROVIDE ALL CONTROLS REQUIRED TO INTERLOCK EXHAUST FAN AND MAKE-UP AIR UNIT OPERATION TO THE EXHAUST HOOD OPERATION.														
4	B. PROVIDE A LOW LIMIT SENSOR IN THE MAKE-UP AIR UNIT DISCHARGE ARRANGED TO PREVENT WINTER DISCHARGE TEMPERATURE FROM DROPPING BELOW 50°F (ADJUSTABLE).														
	C. PROVIDE A HIGH LIMIT SENSOR IN THE MAKE-UP AIR UNIT DISCHARGE ARRANGED TO PREVENT WINTER DISCHARGE TEMPERATURE FROM RISING ABOVE 120°F (ADJUSTABLE).														
	7. ELECTRIC HEATERS (EH-1, EH-3, EH-4 AND EH-5):														
	A. ELECTRIC HEATERS SHALL BE OPERATED THROUGH FACTORY CONTROLS. A FACTORY THERMOSTAT SHALL ENERGIZE THE ELECTRIC HEATING ELEMENT AS REQUIRED TO MAINTAIN SPACE SET-POINT. WHENEVER ELECTRIC HEATING ELEMENT IS ENERGIZED THE UNIT FAN SHALL BE OPERATIONAL.														
5	8. ELECTRIC HEATER (EH-2):														
	A. ELECTRIC HEATER SHALL BE MANUALLY CONTROLLED VIA LOCAL CONTROLS PROVIDED WITH ELECTRIC HEATERS.														
	9. CONSTANT VOLUME GAS FIRED PACKAGED ROOFTOP UNITS (RTU-1, RTU-2, RTU-4 AND RTU-6):														
	A. GENERAL: UNIT SHALL BE PROVIDED WITH, AND OPERATED THROUGH, A 24-7 PROGRAMMABLE THERMOSTAT WITH NIGHT SET-BACK AND UNIT MOUNTED CONTROLS CAPABLE OF PROVIDING AUTOMATIC OPERATION, SET-POINT ADJUSTMENT AND ALL SEQUENCES INDICATED BELOW.														
	B. SUMMER OCCUPIED OPERATION: UPON START-UP, THE CONTROL CIRCUITS SHALL BE ENERGIZED. DURING OCCUPIED MODE THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL OPEN TO THE MINIMUM POSITION AND THE RETURN DAMPER SHALL BE OPEN. A TEMPERATURE SENSOR LOCATED IN THE SUPPLY AIR DUCTWORK SHALL BE ARRANGED TO CYCLE DX COOLING ON/OFF IN STAGES AS REQUIRED TO MAINTAIN A CONSTANT DISCHARGE SET-POINT.														
	C. WINTER OCCUPIED OPERATION: UPON START-UP, THE CONTROL CIRCUITS SHALL BE ENERGIZED. DURING OCCUPIED MODE THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL OPEN TO THE MINIMUM POSITION AND THE RETURN DAMPER SHALL BE OPEN. A TEMPERATURE SENSOR LOCATED IN THE SUPPLY AIR DUCTWORK SHALL BE ARRANGED TO MODULATE GAS HEAT AS REQUIRED TO MAINTAIN A CONSTANT DISCHARGE AIR TEMPERATURE.														
6	D. ECONOMIZER OPERATION: ON A CALL FOR COOLING WHEN THE AMBIENT OUTDOOR AIR CONDITIONS PERMIT (AS DETERMINED BY DIFFERENTIAL ENTHALPY CONTROLS) THE UNIT CONTROLS SHALL MODULATE THE OUTSIDE AIR, RELIEF AIR AND RETURN AS REQUIRED TO PROVIDE "FREE COOLING" AND MAINTAIN DISCHARGE SET-POINT. DURING ECONOMIZER OPERATION THE DX COOLING AND GAS HEATING SHALL NOT BE OPERATIONAL. CONTROL ACTION SHALL BE THAT AN INCREASE IN SUPPLY AIR TEMPERATURE WILL CAUSE THE OUTSIDE AIR AND RELIEF AIR DAMPERS TO MODULATE TOWARDS THE OPEN POSITION AND THE RETURN AIR DAMPER TO MODULATE TOWARDS THE CLOSED POSITION. A DROP IN TEMPERATURE BELOW SET-POINT WILL CAUSE THE REVERSE TO OCCUR. WHEN THE OUTSIDE AIR AND RELIEF AIR DAMPER OPEN TO FULL POSITION AND A FURTHER CALL FOR COOLING OCCURS THE DX COOLING SYSTEM SHALL OPERATE. WHEN AMBIENT AIR CONDITIONS ARE NO LONGER SUITABLE FOR ECONOMIZER OPERATION THE UNIT CONTROLS SHALL REVERT TO NORMAL OPERATION.														
	E. MORNING WARM-UP OPERATION: THE UNIT SHALL START AND OPERATE FOR A PREDETERMINED PERIOD AS PROGRAMMED INTO THE UNIT CONTROLLER. DURING THIS CYCLE, THE OUTSIDE AIR AND RELIEF AIR DAMPER SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN. THE GAS HEATING SHALL MODULATE TO MAINTAIN SET-POINT. WHEN ZONE TEMPERATURES ARE WITHIN 2 DEGREES OF SET-POINT THE UNIT SHALL OPERATE IN OCCUPIED MODE.														
	F. MORNING COOL-DOWN OPERATION: UNIT SHALL START AND OPERATE FOR A PREDETERMINED PERIOD AS PROGRAMMED INTO THE UNIT CONTROLLER. DURING THIS CYCLE, THE OUTSIDE AIR AND RELIEF AIR DAMPER SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN. DX COOLING SHALL CYCLE TO MAINTAIN SET-POINT. WHEN ZONE TEMPERATURES ARE WITHIN 2 DEGREES OF SET-POINT THE UNIT SHALL OPERATE IN OCCUPIED MODE.														
	G. UNOCCUPIED OPERATION: UNIT SUPPLY FAN, GAS HEATING AND DX COOLING SHALL CYCLE AS REQUIRED ON A CALL FOR HEATING OR COOLING. DURING THIS MODE, THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL BE FULL CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN.														
7	H. LIMIT CONTROLS: PROVIDE HIGH/LOW LIMIT CONTROL SENSORS IN THE SUPPLY FAN DISCHARGE ARRANGED TO OVERRIDE TEMPERATURE CONTROLS AND PREVENT DISCHARGE TEMPERATURE FROM DROPPING BELOW 50 DEGREES F OR RISING ABOVE 110 DEGREES F (ADJUSTABLE).														
	I. MISCELLANEOUS:														
	• WHENEVER THE UNITS ARE SHUT-DOWN THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN.														
	• UNIT SHALL SHUT-DOWN UPON DETECTION OF SMOKE AS SENSED BY DUCT MOUNTED SMOKE DETECTOR.														
	• PROVIDE A FIRESTAT MOUNTED IN THE SUPPLY AIR DUCTWORK ARRANGED TO SHUT-DOWN THE UNIT WHEN SUPPLY AIR TEMPERATURE EXCEEDS 140° (ADJUSTABLE). FIRESTAT SHALL BE MANUALLY RESET TYPE.														
	10. DUCTLESS SPLIT SYSTEM CEILING CASSETTE UNIT AND HEAT PUMP (AC-1 AND HP-1):														
	A. SYSTEM SHALL BE OPERATED THROUGH A FACTORY PROVIDED WIRED REMOTE CONTROLLER, CAPABLE OF PROVIDING SET-POINT ADJUSTMENTS AND ALL PROGRAMMING FOR CONTROL SEQUENCES. THE SYSTEM SHALL CYCLE ON/OFF AS REQUIRED TO MAINTAIN SPACE SET-POINT. THE FACTORY INSTALLED CONTROLS SHALL BE CONFIGURED SUCH THAT A LEAK DETECTOR MOUNTED IN THE INDOOR UNIT DRAIN PAN SHALL BE ARRANGED TO SHUT-DOWN THE SYSTEM WHEN WATER IS DETECTED.														
8	11. VARIABLE AIR VOLUME GAS FIRED PACKAGED ROOFTOP UNITS (RTU-3 AND RTU-5):														
	A. GENERAL: UNIT SHALL BE PROVIDED WITH, AND OPERATED THROUGH, A 24-7 PROGRAMMABLE THERMOSTAT WITH NIGHT SET-BACK AND UNIT MOUNTED CONTROLS CAPABLE OF PROVIDING AUTOMATIC OPERATION, SET-POINT ADJUSTMENT AND ALL SEQUENCES INDICATED BELOW.														
	B. SUMMER OCCUPIED OPERATION: UPON START-UP, THE CONTROL CIRCUITS SHALL BE ENERGIZED. DURING OCCUPIED MODE THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL OPEN TO THE MINIMUM POSITION AND THE RETURN DAMPER SHALL BE OPEN. A TEMPERATURE SENSOR LOCATED IN THE SUPPLY AIR DUCTWORK SHALL BE ARRANGED TO CYCLE DX COOLING ON/OFF IN STAGES AS REQUIRED TO MAINTAIN A CONSTANT DISCHARGE SET-POINT.														
	C. WINTER OCCUPIED OPERATION: UPON START-UP, THE CONTROL CIRCUITS SHALL BE ENERGIZED. DURING OCCUPIED MODE THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL OPEN TO THE MINIMUM POSITION AND THE RETURN DAMPER SHALL BE OPEN. A TEMPERATURE SENSOR LOCATED IN THE SUPPLY AIR DUCTWORK SHALL BE ARRANGED TO MODULATE GAS HEAT AS REQUIRED TO MAINTAIN A CONSTANT DISCHARGE AIR TEMPERATURE.														
	D. ECONOMIZER OPERATION: ON A CALL FOR COOLING WHEN THE AMBIENT OUTDOOR AIR CONDITIONS PERMIT (AS DETERMINED BY DIFFERENTIAL ENTHALPY CONTROLS) THE UNIT CONTROLS SHALL MODULATE THE OUTSIDE AIR, RELIEF AIR AND RETURN AS REQUIRED TO PROVIDE "FREE COOLING" AND MAINTAIN DISCHARGE SET-POINT. DURING ECONOMIZER OPERATION THE DX COOLING AND GAS HEATING SHALL NOT BE OPERATIONAL. CONTROL ACTION SHALL BE THAT AN INCREASE IN SUPPLY AIR TEMPERATURE WILL CAUSE THE OUTSIDE AIR AND RELIEF AIR DAMPERS TO MODULATE TOWARDS THE OPEN POSITION AND THE RETURN AIR DAMPER TO MODULATE TOWARDS THE CLOSED POSITION. A DROP IN TEMPERATURE BELOW SET-POINT WILL CAUSE THE REVERSE TO OCCUR. WHEN THE OUTSIDE AIR AND RELIEF AIR DAMPER OPEN TO FULL POSITION AND A FURTHER CALL FOR COOLING OCCURS THE DX COOLING SYSTEM SHALL OPERATE. WHEN AMBIENT AIR CONDITIONS ARE NO LONGER SUITABLE FOR ECONOMIZER OPERATION THE UNIT CONTROLS SHALL REVERT TO NORMAL OPERATION.														
9	E. MORNING WARM-UP OPERATION: THE UNIT SHALL START AND OPERATE FOR A PREDETERMINED PERIOD AS PROGRAMMED INTO THE UNIT CONTROLLER. DURING THIS CYCLE, THE OUTSIDE AIR AND RELIEF AIR DAMPER SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN. THE GAS HEATING SHALL MODULATE TO MAINTAIN SET-POINT.														
	F. MORNING COOL-DOWN OPERATION: UNIT SHALL START AND OPERATE FOR A PREDETERMINED PERIOD AS PROGRAMMED INTO THE UNIT CONTROLLER. DURING THIS CYCLE, THE OUTSIDE AIR AND RELIEF AIR DAMPER SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN. DX COOLING SHALL CYCLE TO MAINTAIN SET-POINT. VARIABLE AIR VOLUME BOXES SHALL BE OPEN. WHEN ZONE TEMPERATURES ARE WITHIN 2 DEGREES OF SET-POINT THE UNIT SHALL OPERATE IN OCCUPIED MODE.														
	G. UNOCCUPIED OPERATION: UNIT SUPPLY FAN, GAS HEATING AND DX COOLING SHALL CYCLE AS REQUIRED ON A CALL FOR HEATING OR COOLING. DURING THIS MODE, THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL BE FULL CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN. DURING UNOCCUPIED MODE VARIABLE AIR VOLUME BOXES SHALL BE OPEN.														
	H. STATIC PRESSURE CONTROLS: PROVIDE A STATIC PRESSURE SENSOR LOCATED IN THE MAIN SUPPLY DUCT APPROXIMATELY TWO-THIRDS (2/3) DOWNSTREAM ALONG THE LONGEST RUN. CONTROLS SHALL BE ARRANGED TO MODULATE THE UNIT VARIABLE FREQUENCY DRIVE ON THE SUPPLY FAN TO MAINTAIN A CONSTANT STATIC PRESSURE. A RISE IN PRESSURE SHALL CAUSE THE VARIABLE FREQUENCY DRIVE TO REDUCE FAN SPEED. A DROP IN STATIC PRESSURE SHALL CAUSE THE REVERSE TO TAKE PLACE.														
	I. LIMIT CONTROLS: PROVIDE HIGH/LOW LIMIT CONTROL SENSORS IN THE SUPPLY FAN DISCHARGE ARRANGED TO OVERRIDE TEMPERATURE CONTROLS AND PREVENT DISCHARGE TEMPERATURE FROM DROPPING BELOW 50 DEGREES F OR RISING ABOVE 110 DEGREES F (ADJUSTABLE).														
10	J. MISCELLANEOUS:														
	• WHENEVER THE UNITS ARE SHUT-DOWN THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE FULL OPEN.														
	• UNIT SHALL SHUT-DOWN UPON DETECTION OF SMOKE AS SENSED BY DUCT MOUNTED SMOKE DETECTOR.														
	• PROVIDE A FIRESTAT MOUNTED IN THE SUPPLY AIR DUCTWORK ARRANGED TO SHUT-DOWN THE UNIT WHEN SUPPLY AIR TEMPERATURE EXCEEDS 140° (ADJUSTABLE). FIRESTAT SHALL BE MANUALLY RESET TYPE.														
	12. VARIABLE AIR VOLUME BOXES:														
	A. IN OCCUPIED MODE THE SPACE SENSOR SHALL MODULATE THE VAV BOX DAMPER ASSEMBLY TO MAINTAIN SET-POINT. IN SUMMER MODE A RISE IN SPACE TEMPERATURE SHALL CAUSE THE VAV DAMPER TO MODULATE OPEN, AS THE SPACE APPROACHES SET-POINT, THE DAMPER SHALL MODULATE TO THE MINIMUM POSITION. IN THE WINTER MODE A DROP IN SPACE TEMPERATURE SHALL CAUSE THE VAV DAMPER TO MODULATE OPEN, AS THE SPACE APPROACHES SET-POINT, THE DAMPER SHALL MODULATE TO THE MINIMUM POSITION.														
	B. THE DDC CONTROLLER IN THE ROOFTOP UNIT SHALL RESET THE SUPPLY AIR TEMPERATURE BASED ON SATISFYING THE VAV ZONE THAT IS EITHER FURTHEST FROM SET-POINT OR THE VAV ZONE THAT HAS THE HIGHEST AIR-FLOW WHILE MAINTAINING SET-POINT.														
	C. WHEN THE ROOFTOP UNIT IS OPERATING IN THE UNOCCUPIED, MORNING COOL-DOWN OR MORNING WARM-UP MODE THE VAV BOXES SHALL REMAIN IN THE FULL OPEN POSITION.														
	D. FOR VAV-7 ONLY WITH ELECTRIC REHEAT COIL, UPON A FURTHER CALL FOR SPACE HEATING THE ELECTRIC REHEAT COIL SHALL BE ENERGIZED IN STAGES AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SET-POINT.														
11	13. AIR HANDLER UNIT AND HEAT PUMP (HVAC-1 AND HP-1):														
	A. SYSTEM SHALL BE OPERATED THROUGH A FACTORY PROVIDED WIRED REMOTE CONTROLLER, CAPABLE OF PROVIDING SET-POINT ADJUSTMENTS AND ALL PROGRAMMING FOR CONTROL SEQUENCES. THE SYSTEM SHALL CYCLE ON/OFF AS REQUIRED TO MAINTAIN SPACE SET-POINT. THE FACTORY INSTALLED CONTROLS SHALL BE CONFIGURED SUCH THAT A LEAK DETECTOR MOUNTED IN THE INDOOR UNIT DRAIN PAN SHALL BE ARRANGED TO SHUT-DOWN THE SYSTEM WHEN WATER IS DETECTED.														
	B. WHENEVER THE SYSTEM IS OPERATING IN THE OCCUPIED MODE THE MOTORIZED OUTSIDE AIR INTAKE DAMPER SHALL BE OPEN. WHENEVER THE SYSTEM IS OPERATING IN THE UNOCCUPIED MODE THE MOTORIZED OUTSIDE AIR INTAKE DAMPER SHALL BE CLOSED.														
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	MECHANICAL: EQUIPMENT SCHEDULES ASPIRE BREWING TAP ROOM & BREWERY FOR SONNY PATEL BREWERY COMPANY, INC. 400/600 NORTH GALLERIA DRIVE LOWER LEVEL MIDDLETOWN, NY 10941														
	JOB No. 4.1552.01														
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MECHANICAL: EQUIPMENT SCHEDULES

ASPIRE BREWING TAP ROOM & BREWERY

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