ELECTRICAL GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS IN ALL CASES.
2. THE CONTRACTOR SHALL BRING ANY CONFLICTS IN THE DRAWINGS TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. IF NOT BROUGHT UP TO THE ENGINEER DURING THE BIDDING PROCESS THE MORE EXPENSIVE OPTION SHALL BE CHOSEN FOR BIDDING PURPOSES.
3. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY SHALL BE INSTALLED WITHIN 6" OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 3" FROM PIPE COVERS).
4. CUT CONDUIT ENDS SQUARE, REAM SMOOTH, PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
5. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED.
6. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2" SLABS OR IN TERRAZZO FLOOR FINISH.
7. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT FINAL CONNECTIONS.
8. PROVIDE NYLON FISH WIRE IN ALL EMPTY RACEWAYS OVER 10' LONG.
9. PROVIDE PULL BOXES EVERY 100' AND WHEREVER REQUIRED BY CODE FOR ALL EMPTY RACEWAY RUNS. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES IN FIELD.
10. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
11. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH ARCHITECT AND INSTALL SWITCH ON SIDE OPPOSITE HINGE. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.
12. COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
13. PROVIDE PULLBOXES WHERE INDICATED, WHERE REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES.
14. GENERALLY, DO NOT LOCATE JUNCTION AND PULL BOXES EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.
15. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE, WITH NO WEIGHT BEARING ON RACEWAYS.
16. EC IS RESPONSIBLE TO PROVIDE ACCESS PANELS FOR ANY CONCEALED ELECTRICAL WORK THAT MUST BE ACCESSIBLE EITHER BY CODE OR AS INDICATED IN THE DOCUMENTS. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF DEVICE REQUIRING THE ACCESS PANEL. ALL ACCESS DOORS MUST MATCH THE FIRE RATING AND CONSTRUCTION TYPE OF THE CEILING OR WALL PENETRATION AS DESIGNATED ON THE ARCHITECTURAL DRAWINGS.
17. ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO RACEWAYS, PULLBOXES, LUMINAIRES, ETC. SHALL BE HUNG FROM THE TOP CORD OR THE TOP OF A STEEL 'I' BEAM ONLY IN A STEEL STRUCTURE BUILDING.
18. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18" AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
19. PROVIDE 2#14 INDICATING PILOT LIGHT WIRES FROM PILOT LIGHT IN CONTROLLER TO LOAD SIDE OF DISCONNECT SWITCH. RUN WIRES IN BRANCH CIRCUIT CONDUIT AND INCREASE CONDUIT SIZE AS REQUIRED.
20. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES BELOW 32°F. PROVIDE CABLE SUPPORTS FOR WIRE
21. IN RISER CONDUITS AS REQUIRED BY CODE.. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. WHERE COMMON BOXES ARE USED, PROVIDE BARRIERS BETWEEN NORMAL AND EMERGENCY WIRING.
22. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. WHERE COMMON BOXES ARE USED, PROVIDE BARRIERS BETWEEN NORMAL AND EMERGENCY WIRING.
23. WIRE COLOR CODING SHALL BE AS PER CODE AND SPECIFICATION. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING, AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ALL ACCESSIBLE LOCATIONS. COLOR CODING MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
24. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ITS ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
25. CONNECT NEW WORK TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS ARE PERMISSIBLE ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
26. ELECTRICAL CONNECTIONS AND DISCONNECTS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND THE CONTRACTOR SHALL NOT BASE THEIR BID ON THE LOCATION OF THOSE CONNECTIONS AND/OR DISCONNECTS. SUBMISSION OF A BID INDICATES AN UNDERSTANDING THE CONTRACTOR WILL CONNECT THE ELECTRICAL CIRCUIT TO THE EQUIPMENT IN THE LOCATION SPECIFIED BY THE MANUFACTURE OR PER CONSTRUCTION RESTRICTIONS AT NO ADDITIONAL COST TO THE CLIENT.
27. FIRESTOPPING SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED PARTITIONS. REFER TO THE ARCHITECTURAL PLANS FOR FIRE RATED PARTITION LOCATIONS. THE FIRESTOPPING SHALL MATCH OR EXCEED THE FIRE RATING OF THE PARTITION PENETRATED. ALL FIRESTOPPING SHALL BE A UL LISTED ASSEMBLY.
28. THE CONTRACTOR SHALL NOTE THAT THE BRANCH AND FEEDER CIRCUITS MAY HAVE BEEN INCREASED IN SIZE FOR VOLTAGE DROP AND OTHER REASONS. THIS MAY RESULT IN THE CABLE NOT FITTING IN THE ELECTRICAL EQUIPMENTS LUG OR TERMINAL. IF THIS HAPPENS THE CONTRACTOR SHALL REDUCE THE WIRE SIZE TO THE MAXIMUM SIZE THAT WILL FIT UNDER THE ELECTRICAL EQUIPMENTS LUG OR TERMINAL. PROVIDE AN IRREVERSIBLE SPLICE(S) OR OTHER APPROVED METHOD. THE LENGTH OF CABLE SHALL BE MINIMIZED TO DIRECTLY OUTSIDE THE EQUIPMENT. THE SPLICE(S) SHALL NOT TAKE PLACE INSIDE THE EQUIPMENT UNLESS THE EQUIPMENT IS UL LISTED FOR THAT PURPOSE. FOR EQUIPMENT NOT UL LISTED PROVIDE A SPLICE BOX, SIZED AS REQUIRED, OUTSIDE THE EQUIPMENT FOR THE SPLICE(S). THE NEMA RATING OF THE SPLICE BOX SHALL MATCH THE NEMA RATING OF THE ELECTRICAL EQUIPMENT. AHJ APPROVED REDUCING ADAPTERS SUCH AS THOSE FROM BURNDY ARE ACCEPTABLE ALTERNATES. EC SHALL GET PERMISSION FROM THE AHJ TO USE THIS METHOD.
29. ALL DEVICE ELEVATIONS SHALL BE MOUNTED IN ACCORDANCE WITH ANSI A117. ALL CONTROL DEVICES (IE: SWITCHES, ETC.) SHALL BE MOUNTED NO HIGHER THAN 48" AFF TO TOP OF DEVICE. ALL INSERTION DEVICES (IE: POWER, TELEPHONE, DATA RECEPTACLES, ETC.) SHALL BE MOUNTED NO LOWER THAT 15" AFF TO BOTTOM OF JUNCTION BOX. ALL DEVICES MOUNTED ABOVE A COUNTER NOT DEEPER THAN 24" SHALL BE MOUNTED 46" AFF TO TOP DEVICE. OTHER MOUNTING HEIGHTS WILL BE AS NOTED ON THE DRAWINGS.
30. PANEL BOARDS SHALL ALL MEET UL67 REQUIREMENTS AND COME WITH SERVICE ENTRANCE BARRIERS.
31. UNLESS OTHERWISE NOTED, MOUNTING HEIGHTS FROM FLOOR TO CENTERLINE OF OUTLET:

    RECEPTACLES, DATA AND TELEPHONES:

    GENERALLY - 1'-6"
    OVER WORK BENCHES - 3'-6"

    WALL SWITCHES AND WALL TELEPHONES :
    4'-0"(TO TOP OF JUNCTION BOX)

    WALL FIXTURES - 7'-6"

    MOTOR CONTROLLERS - 5'-0"

    FA AUDIO DEVICE/ STROBES - 6-8" TO THE BOTTOM OF THE LENSE (OR 6" BELOW CEILING, WHICHEVER IS LOWER)

    FA STROBE LIGHTS - 6'-8" TO THE BOTTOM OF THE LENSE (OR 6" BELOW CEILING, WHICHEVER IS LOWER)

    FA PULL STATIONS NO LOWER THAN 3'-6"AFF OR HIGHER THAN 4'-0"AFF TO TOP OF DEVICE.

    CLOCKS - 7'-6"

    EXIT SIGN - MOUNT JUST ABOVE THE DOOR WHEN LOCATED AT A DOOR LOCATION, UNLESS OTHERWISE NOTED. WHEN NOT BY A DOOR 8'-0"AFF, UON.
32. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL FINAL UTILITY CONNECTIONS WITH THE UTILITY COMPANIES. FOR EXAMPLE: IF THE PROJECT HAS AN EXISTING OR NEW SERVICE THE CONTRACTOR SHALL CALL THE UTILITY COMPANY AND TAKE OVER AS THE LEAD CONTACT PERSON FOR THE ADDITIONAL LOAD APPLICATION AND BE THE NEW POINT OF CONTACT FOR ANY CHANGES OR COORDINATION REQUIRED. THIS INTRODUCTION AND CHANGE OF POINT CONTACT SHALL HAPPEN WITHIN THE FIRST TWO WEEKS OF STARTING THE PROJECT. IT IS THE EC'S RESPONSIBILITY TO COMMUNICATE WITH THE UTILITY COMPANY SERVICE START DATES AS TO NOT DELAY THE PROJECT WITH INADEQUATE UTILITY SERVICES.

GENERAL NOTES

THE CONTRACTOR SHALL CONFORM TO THE LATEST BUILDING CODES:

2018 NEW JERSEY INTERNATIONAL BUILDING CODE

NEC 2017 WITH NEW JERSEY AMENDMENTS

APPLICABLE CODES

NEC 110-16

ALL SWITCHBOARDS (EACH SECTION), PANELBOARDS, ENCLOSED BREAKERS/SWITCHES, ATS'S, TRANSFORMERS, MOTOR STARTES, CONTRACTORS, INDUSTRIAL CONTROL PANELS, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED IN A CLEARLY VISIBLE LOCATION TO QUALIFIED PERSON BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

SYMBOL LEGENDS AND ABBREVIATIONS

POWER DEVICES

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- GFCI TYPE RECEPTACLE
- QUAD RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE, MATCH EQUIPMENT SERVED
- TAMPERPROOF DUPLEX RECEPTACLE
- EXPLOSION PROOF RECEPTACLE
- IG — ISOLATED GROUND RECEPTACLE
- SIMPLEX ISOLATED GROUND RECEPTACLE
- FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- FLOOR OUTLET WITH STUB UP, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- P — FIRE RATED FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- 1 — INDICATES CIRCUIT NUMBER
- WP — INDICATES DEVICE HAS A WEATHERPROOF WHILE IN USE COVER.
- + — INDICATES DEVICE IS MOUNTED ABOVE THE COUNTER.
- ENCLOSED CIRCUIT BREAKER
- UNFUSED DISCONNECT SWITCH
  30A/3P — INDICATES SIZE/NUMBER OF POLES OR SIZE PER CIRCUIT SIZE
- FUSED DISCONNECT SWITCH
  30A/30A/3P — INDICATES SWITCH SIZE/FUSE SIZE/NUMBER OF POLES OR SIZE PER CIRCUIT SIZE
- MOTOR STARTER
- MOTOR STARTER WITH CIRCUIT BREAKER
- MOTOR STARTER WITH NON-FUSED DISCONNECT SWITCH
- MOTOR STARTER WITH FUSED DISCONNECT SWITCH
- M — DISCONNECT SWITCH BY HVAC CONTRACTOR
- MOTOR
- EMERGENCY POWER OFF SWITCH
- S_t — MOTOR RATED SWITCH WITH THERMAL OVERLOADS
- J — CEILING MOUNTED DROP CORD, PROVIDE DEVICE AS SHOWN ON THE PLANS.

POWER DEVICES

- J — CONCEALED JUNCTION BOX
- J — SURFACE MOUNTED JUNCTION BOX
- 208V PANEL, U.O.N.
- 480V PANEL, U.O.N.
- SYSTEM PANEL
  FA = FIRE ALARM
  SEC = SECURITY
  LIGHT = LIGHTING CONTROL
- GROUND

LUMINAIRES

- AX — FIXTURE TYPE
- TYPICAL LUMINAIRE, REFER TO THE LUMINAIRE OR LIGHTING SCHEDULE FOR ADDITIONAL INFORMATION.
- XXX-XX a
- a — LOWER CASE LETTER INDICATES LOCAL SWITCH DESIGNATION.
- CIRCUIT NUMBER, REFER TO THE PANELSCHEDULES FOR ADDITIONAL INFORMATION.
- PANEL ID(NAME) UNLESS OTHERWISE NOTED.
- SERVICE LIGHT LUMINAIRE

FIRE ALARM DEVICES

- DH — SINGLE DOOR HOLDERS
- DH–DH — DOUBLE DOOR HOLDERS
- F — FIRE ALARM BELL:
  SS = SINGLE STROKE
  T = TROUBLE
  V = VIBRATING
  G = GONG
- F, C — FIRE ALARM STROBE
  UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.
  C = CEILING MOUNTED. TYPICAL ALL FIRE ALARM DEVICES.
- F, C — FIRE ALARM CHIME - ELECTRONIC TYPE
- F, H — FIRE ALARM HORN
- F, M — FIRE ALARM MINI HORN
- FIRE ALARM HORN/STROBE
  UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.

FIRE ALARM CONT.

- FIRE ALARM SPEAKER/STROBE
  UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.
  UNLESS OTHERWISE NOTED WATTAGE SHALL BE SET AT 1W.
- S — FIRE SPEAKER
  UNLESS OTHERWISE NOTED WATTAGE SHALL BE SET AT 1W.
- F — FIRE ALARM PULLSTATION
- S — DUCT DETECTOR - UNLESS COORDINATED DURING BIDDING WITH THE HVAC CONTRACTOR EC AND/OR FIRE ALARM CONTRACTOR SHALL PROVIDE THE TUBES IN THE DUCTWORK FOR THE DETECTOR. PROVIDE COLD WEATHER/WEATHERPROOF COVER FOR DETECTORS LOCATED OUTSIDE OR IN SPACES LOWER THAN 70 DEGREES FAHRENHEIT.
- RTS — REMOTE TEST SWITCH - LOCATE IN CEILING SPACE BELOW HVAC UNIT.
- S PE — FIRE SMOKE DETECTOR:
  PE = PHOTOELECTRIC TYPE
  IO = IONIZATION TYPE
  ID = IN DUCT
  AS = AIR SAMPLING
  R = RELAY BASE
- CO — GAS DETECTION DEVICE:
  CO2 = CARBON DIOXIDE DETECTOR
  CO = CARBON MONOXIDE DETECTOR
  HCL = HYDROGEN CHLORIDE DETECTOR
  CH4 = METHANE DETECTOR
  ** DETECTORS SHALL HAVE A SOUNDER BASE WITH DISTINCT AND SEPARATE SOUND FROM MAIN SYSTEM
- R/F — HEAT DETECTION DEVICE:
  R/F = COMBINATION RATE OF RISE/FIXED TEMPERATURE
  F = FIXED TEMPERATURE
  R/C = RATE COMPENSATION
  R = RATE OF RISE ONLY
  ** UNLESS OTHERWISE NOTED TEMPERATURE RATINGS SHALL BE 135 DEGREES FAHRENHEIT.
- AIM — ADDRESSABLE INPUT MONITOR MODULE
- AIO 2 — ADDRESSABLE INPUT MONITOR MODULE, # DENOTES NUMBER OF INPUTS AND OUTPUTS
- AOM — ADDRESSABLE OUTPUT CONTROL MODULE
- WF — INTERFACE AND SUPERVISORY DEVICE:
  WF = FLOW DETECTOR/SWITCH
  HT = HIGH TEMPERATURE SWITCH
  LS = LEVEL DETECTOR/SWITCH
  LT = LOW TEMPERATURE SWITCH
  PS = PRESSURE DETECTOR SWITCH
  VS = VALVE SUPERVISORY SWITCH

NOTES:

- X — DRAWING NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN.
- X — KEY NOTE - 'x' DENOTES NOTE NUMBER SHOWN FOR ALL ELECTRICAL PLANS.
- X — DEMOLITION NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN

COMMUNICATION DEVICES

- TELEPHONE OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- VOICE/DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- TV — TV OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- S — CEILING MOUNTED SPEAKER
- S — WALL MOUNTED SPEAKER
- V — VOLUME CONTROL
- M — MICROPHONE

WIRING DEVICES

- HOMERUN
- CONCEALED CIRCUIT
- CIRCUIT UNDER FLOOR OR GROUND
- BUZZER
- PUSH BUTTON
- CLOCK - DOTS INDICATE NUMBER OF FACES
- DS — SECURITY DEVICE
  DS = DOOR SWITCH
  CR = CARD READER
  KS = KEY SWITCH
  MD = MOTION DETECTOR
  ML = MAGNETIC LOCK
  PB = PANIC BUTTON
  KP = KEY PAD

LUMINAIRE SWITCHES

- S — LUMINAIRE SWITCH
- S_3 — 3-WAY LUMINAIRE SWITCH
- S_4 — 4-WAY LUMINAIRE SWITCH
- S_P — LUMINAIRE SWITCH WITH A PILOT LIGHT
- S_D — DIMMER TYPE LUMINAIRE SWITCH
- S_K — CAPTIVE KEY TYPE SWITCH
- S_a — LUMINAIRE SWITCH
  INDICATES LUMINAIRES IT WILL SWITCH
- S_{OR} — OVERRIDE SWITCH
- M_S — MOTION SENSOR TYPE LUMINAIRE SWITCH
  NOTE: THE MOTION SENSOR SHALL TURN OFF THE LUMINAIRE WITHIN 30 MINUTES OF AN OCCUPANT LEAVING THE SPACE.
- PC — PHOTOCELL

LUMINAIRE SWITCHES

- S_{LV} — LOW VOLTAGE SWITCH FOR MOTION SENSOR CONTROLLED LIGHTING.

ABBREVIATIONS

A - AMP
AF - AMP FRAME
AFC - AVAILABLE FAULT CURRENT
AFF - ABOVE FINISHED FLOOR
AIC - AMP INTERRUPTING CURRENT
AHJ - AUTHORITY HAVING JURISDICTION
AT - AMP TRIP
ATS - AUTOMATIC TRANSFER SWITCH
BFC - BELOW FINISHED CEILING
C - CONDUIT
CB, C/B - CIRCUIT BREAKER
CD - CANDELA
CT - CONTROL TRANSFORMER
DP - DISTRIBUTION PANEL
EC, E.C. - ELECTRICAL CONTRACTOR
EX - EXISTING TO REMAIN
EM - EMERGENCY
EMT - ELECTRICAL METALLIC TUBING
F - FOOT
G.B. - GLASS BREAK
GFCI, GFI - 5MA GROUND FAULT CIRCUIT INTERRUPTER
GFP - 30mA GROUND FAULT PROTECTION DEVICE
GND - GROUND
LTG - LIGHTING
MCC - MOTOR CONTROL CENTER
MDP - MAIN DISTRIBUTION PANEL
NL - NIGHT LIGHT
NTS, N.T.S. - NOT TO SCALE
PDU - POWER DISTRIBUTION UNIT
PNL - PANEL
PT - POTENTIAL TRANSFORMER
RE - REMOVE EXISTING
REC - RECEPTACLE
REX - RELOCATE EXISTING
RGC - RIGID GALVANIZED CONDUIT
RPP - REMOTE POWER PANEL
SA - SURGE ARRESTER
SLD - SINGLE LINE DIAGRAM
SPD - SURGE PROTECTIVE DEVICE
STC - STANDARD TEST CONDITIONS
TYP. - TYPICAL
UGE - UNDERGROUND ELECTRIC
UGT - UNDERGROUND TELECOMMUNICATIONS
U.O.N., UON - UNLESS OTHERWISE NOTED
V - VOLT
WP - WEATHERPROOF, WHILE IN USE **IN AN AREA WHERE DIRECT WATER HOSE SPRAY WILL OCCUR THIS WILL MEAN THE DEVICE IS NEMA 4X RATED FOR HOSE DOWN.
W - WALL MOUNTED
WD - WASHDOWN AREA DEVICES SHALL BE NEMA 4X HOSE POWER WASHER CAPABLE WHILE IN USE SUCH AS CALBRITE COVERS.
WG - WIRE GUARD
XFMR - TRANSFORMER
XP -EXPLOSION PROOF
3P - THREE(3) POLES
2P - TWO(2) POLES
1P - ONE(1) POLE
3R - NEMA 3R TYPE ENCLOSURE
4X - NEMA 4X TYPE ENCLOSURE

NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS PLAN ARE USED IN THE FOLLOWING DRAWINGS.

SINGLE LINE DIAGRAM

- XXXAF XXXAT — CIRCUIT BREAKER
- XXXAF XXXAT — DRAW OUT TYPE CIRCUIT BREAKER
- AER, GF — FOR 1200A AND GREATER ARC ENERGY REDUCTION (PER NEC 240.87)
  GFP CIRCUIT BREAKER
  GFSC
- DISCONNECT SWITCH
- FOR ALL SINGLE LINE DIAGRAM SYMBOLS, DEVICES SHOWN ENCLOSED BY BOX, AS SHOWN HERE, IS TO BE INSTALLED WITHIN AN ENCLOSURE. PROVIDE NEMA TYPE 1 ENCLOSURE, U.O.N.
- ENCLOSED DISCONNECT SWITCH
- AER — FOR 1200A AND GREATER ARC ENERGY REDUCTION (PER NEC 240.67)
  FUSED DISCONNECT SWITCH
- AER — FOR 1200A AND GREATER ARC ENERGY REDUCTION (PER NEC 240.67)
  ENCLOSED FUSED DISCONNECT SWITCH
- XO — TRANSFORMER
  XO = GROUNDING ELECTRODE CONDUCTOR
- CONTACTOR
- E N — ATS

SINGLE LINE DIAGRAM

- XO — ISOLATED GROUND TRANSFORMER
  XO = GROUNDING ELECTRODE CONDUCTOR
- ENCLOSED MOTOR STARTER
- ENCLOSED MOTOR STARTER WITH DISCONNECT SWITCH
- ENCLOSED MOTOR STARTER WITH FUSED DISCONNECT SWITCH
- E N — ATS WITH BYPASS
- DOUBLE LUGS
- LA — LIGHTNING ARRESTER
- RESISTIVE TYPE LOAD
- CT
- PT

SINGLE LINE DIAGRAM

- CONTROL PANEL — CONTROL PANEL WITH DISCONNECT SWITCH
- CONTROL PANEL — CONTROL PANEL
- M — CLIENT METER
- KWH — UTILITY METER
- PANEL NAME — PANELBOARD
  AP = APPLIANCE
  LP = LIGHTING
  PP = POWER PANEL
  EL = EMERGENCY LIFESAFETY
  EC = CRITICAL EMERGENCY
  EE = ESSENTIAL EQUIPMENT
- E — ELECTRIC INTERLOCK
- K — KEY INTERLOCK
- GENERATOR
- ? — FEEDER TAG
- ? — RELAY - NUMBER TO CORRESPOND TO IEEE STANDARDS
- GF, GFSC — GFP FUSED/SWITCH

HIRED PE NOTES:

THE CONTRACTOR SHALL BE AWARE THERE MAY BE NOTES ON THESE PLANS AND IN THE SPECIFICATIONS THAT REQUIRE THE CONTRACTOR TO HIRE A PROFESSIONAL ENGINEER TO SIGN AND SEAL VARIOUS STUDIES OR SUBMIT FINAL SHOP DRAWINGS FOR PERMIT PURPOSES. EXAMPLES ARE FIRE ALARM, SHORT CIRCUIT STUDY, ARC FLASH STUDY, COORDINATION STUDY, ETC. THE PROFESSIONAL ENGINEER SHALL BE LICENSED TO PROVIDE ENGINEERING SERVICES IN THE JURISDICTION THE PROJECT IS LOCATED. THE CONTRACTOR SHALL PROVIDE THE PROFESSIONAL ENGINEERS QUALIFICATIONS AS PART OF THE BID SUBMISSION.

PROJECT NOTES:

THE CONTRACTOR SHALL RECEIVE AND REVIEW ALL OF THE PROJECTS DRAWINGS AND SPECIFICATIONS SUCH AS ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, FIRE ALARM, SPRINKLER, SITE, ETC. TO UNDERSTAND THE FULL SCOPE OF WORK. FAILURE TO RECEIVE AND REVIEW THOSE PLANS DURING BIDDING WILL RESULT IN THE DENIAL OF EXTRA'S.

NEC 110-22

EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE UNLESS LOCATED AND ARRANGED SO THE PURPOSE IS EVIDENT. THE MARKINGS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.

WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURE, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATINGS.

THE MARKINGS SHALL BE READILY VISIBLE AND STATE THE INFORMATION LISTED ABOVE.

CAUTION - SERIES COMBINATION SYSTEM

RATED ___ AMPERES. IDENTIFIED

REPLACEMENT COMPONENTS REQUIRED.

ELECTRICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS DESCRIBED IN THE SPECIFICATIONS, WITH ALLOWANCES FOR EXPECTED OR UNFORSEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
2. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER SUPPLY.
3. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH A MINIMUM OF INTERFERENCE TO FUNCTIONING ELECTRICAL SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
4. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
5. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, ETC., FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.
6. ALL RACEWAYS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
7. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
8. PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING IN CABLE TYPE, AMPACITY, CONDUIT SIZE, ETC..
9. THE CONTRACTOR SHALL NOTIFY THE OWNER OF THE PROJECTED DEMOLITION ANS PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN FULL COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE, AND PROCEED IN THE APPROPRIATE, SPECIFIED SEQUENCE.
10. ALL EXISTING MATERIAL WHICH IS SPECIFIED TO BE REMOVED UNDER THIS CONTRACT, SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.
11. ALL EXISTING MATERIAL WHICH IS SPECIFIED TO BE REMOVED AND REUSED OR RETURNED TO THE OWNER SHALL BE CAREFULLY REMOVED AND PRESERVED, AND TURNED OVER TO THE OWNER IN OPERABLE CONDITION.
12. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS SHUTDOWNS WILL BE MINIMIZED, AND LIMITED TO THE TIME REQUIRED TO MAKE FINAL CONNECTIONS AND PERFORM NECESSARY TESTS TO ASSURE CORRECT INSTALLATION.
13. THE SHUTDOWN OF EXISTING BUILDING SERVICES SHALL BE COORDINATED WITH THE OWNER. ARRANGEMENTS SHALL BE MADE, IN WRITING, AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO ANY SCHEDULED SHUTDOWN.

SURGE PROTECTION REQUIREMENTS

CONTRACTOR SHALL PROVIDE SURGE PROTECTION DEVICES(SPD) ON ALL DISTRIBUTION PANELS AND BRANCH CIRCUIT PANELS. CONTRACTOR SHALL FOLLOW THE CHART BELOW. SURGE SUPPRESSORS SHALL BE CLOSE COUPLED TO THE PANEL TO ALLOW FOR THE SHORTEST WIRE RUN. IF WALL SPACE DOES NOT ALLOW FOR AN EXTERIOR SPD MANUFACTURE PANEL INTEGRATED SPD'S ARE ACCEPTABLE.

MINIMUM SURGE CURRENT CAPACITY BASED ON ANSI/IEEE C62.41 LOCATION CATEGORY	
CATEGORY	APPLICATION
C	SERVICE ENTRANCE LOCATIONS (SWITCHBOARDS, SWITCHGEAR, MCC, MAIN ENTRANCE)
B	HIGH EXPOSURE ROOF TOP LOCATIONS (DISTRIBUTION PANELBOARDS)
A	BRANCH LOCATIONS (PANELBOARDS, MCCS, BUSWAY)

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL COVER SHEET
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-100.00
DOB BARCODE:
Total

9/24/2021 2:56:44 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

ELECTRICAL WORK SPECIFICATIONS

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE PART OF THESE SPECIFICATIONS, AND THERE PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN COST.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM THE MANUFACTURE IN SECTIONS OF A SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM THE BUILDING OWNER AND TENANT AT WHAT TIMES OF THE DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS/HER PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. INSTALL WORK AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES, WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT OUR OR OWNER APPROVAL.

F. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSED.

G. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH A MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF THE EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

H. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

I. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

J. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

K. SEAL OPENING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL. ALL PENETRATIONS THROUGH NEW AND EXISTING RATED FIRE AND SMOKE PARTITIONS AND/OR FLOORS SHALL BE COMPLETELY SEALED USING MATERIALS AND METHODS DESCRIBED IN SUBSEQUENT "FIRE STOPPING" SPECIFICATIONS SECTIONS.

L. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

M. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

N. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

O. UNLESS OTHERWISE SPECIFICALLY NOTED OF SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

P. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

Q. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF ALL OF THE PLANS APPLICABLE FOR THE PROJECT AND NOT JUST THE HVAC PLANS AND IS FAMILIAR WITH ANY PROPOSED CONDITIONS THAT WILL NEED TO COORDINATED IN THE FIELD. FOR EXISTING BUILDINGS: THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS TOROUGHLY REVIEWED ALL OF THE DOCUMENTATION ASSOCIATED WITH THE PROJECT AND IF AN EXISTING BUILDING REVIEWED ALL OF THE EXISTING CONDITIONS. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION AND REVIEW. THE ON-SITE INSPECTION SHALL VERIFY EXISTING CONDUIT (SIZES, CLEARANCES, ETC.) AND CONDITIONS.

R. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

S. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

2. SCOPE OF WORK:

A. THE SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL ELECTRICAL CODE(NEC) AND ALL OTHER APPLICABLE INDUSTRY, STATE, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OF REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATED OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY THE OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BE DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES FOR, AND FURNISH TO THE OWNER BEFORE BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS:

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, THE CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF THE PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN X 17 IN OR SMALLER. IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN X 17 IN. SUBMIT TWO PRINTS AND ONE PAPER SEPA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) CIRCUIT BREAKERS

2) PANELBOARDS(INCLUDING DIMENSIONS, SCHEDULES AND CATALOG CUTS).

3) RACEWAYS

4) WIRE AND CABLE

5) WALL SWITCHES

6) INSERTION RECEPTACLES

7) LUMINAIRES

8) TRANSFORMERS

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS:

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THE CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS PREPARED IN COMPUTER AIDED DRAFTED (AUTO CAD) FORMAT SHALL BE PROVIDED TO THE OWNER INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. A COMPLETE "AS-BUILT" DRAWING FILE SHALL BE PROVIDED TO THE OWNER AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "SHALL BE", "FURNISH", "PROVIDE" "A", "THE", "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DEFINITIONS:

1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES

3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4) "WORK": LABOR, MATERIALS EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION

5) "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.

6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION. INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. GENERAL:

1) THE DRAWING SHOWS THE APPROXIMATE LOCATIONS OF ALL APPARATUS, THE EXACT LOCATIONS OF WHICH ARE SUBJECT TO THE APPROVAL OF THE OWNER, WHO RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES IN THE LOCATION INDICATED WITHOUT EXTRA COST. WHILE THE GENERAL RUN OF CONDUIT AND CABLES ARE INDICATED ON THE DRAWING. IT IS NOT INTENDED THAT THE EXACT ROUTING OR LOCATIONS OF CONDUIT AND CABLES BE DETERMINED THEREFROM.

2) THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED ENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.

3) THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH ALL TRADES.

4) WIRE ALL FIXTURES, DEVICES, ETC. TO RESPECTIVE PANEL AND CONTROLS AS SHOWN ON PLANS IN SYMBOL FORM.

5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP AND REMOVAL FROM THE SITE OF RESULTING DEBRIS UPON COMPLETION OF WORK UNDER THIS SECTION.

6) PROVIDE SEPARATE SYSTEMS AND ENCLOSURES FOR 120/208 AND 277/480 VOLT POWER AND CONTROL WIRING. COMMON PULL BOXES AND JUNCTION BOXES ARE NOT ACCEPTABLE.

7) NEUTRAL SHARING IS NOT ACCEPTABLE. EACH CIRCUIT, IF REQUIRED, SHALL HAVE A SEPARATE AND DEDICATED NEUTRAL CONDUCTOR.

8) LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO RELOCATIONS. AT OR NEAR DOORS INSTALL SWITCH INSIDE OPPOSITE HINGE, VERIFY FINAL DOOR HINGE. LOCATION IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.

9) HEIGHTS OF INSERTION AND CONTROL DEVICES. REFER TO THE ELECTRICAL GENERAL NOTES.

10) ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND. PROVIDE BARRIERS BETWEEN NORMAL ONLY AND NORMAL/EMERGENCY SWITCHES INSTALLED WITHIN A COMMON OUTLET BOX.

11) PANEL JUNCTION AND PULL BOXES LOCATED CLEAR OF OTHER TRADES, CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT, PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT AND WIRING, ADD BOX VOLUME WHERE REQUIRED.

D. TEMPORARY LIGHT AND POWER:

1) PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS OF ALL TRADES. COST OF ENERGY WILL BE PAID FOR BY OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

E. QUALITY ASSURANCE:

1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES INC. OR OTHER NATIONALLY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS AND IMPROPER VOLTAGES AND THOROUGH TEST SHALL BE MADE. FURNISH ALL LABOR AND MATERIALS AND INSTRUMENTS.

3) CURRENT CHARACTERISTICS:

a. SERVICE: 277/480 VOLT (AND 120/208 VOLT), 3 PHASE, 4 WIRE 60 HERTZ WITH GROUNDED NEUTRAL

b. DISTRIBUTION: 277/480 VOLT (AND 120/208 VOLT) 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

4) HEIGHTS OF OUTLETS:

a. REFER TO THE ELECTRICAL GENERAL NOTES.

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED

F. PRODUCT DELIVERY, STORAGE AND HANDLING:

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATIONS, MAINTENANCE AND REPAIR. MINOR DEVIATIONS SHALL BE PERMITTED. CHANGE OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

G. MATERIALS:

1) NAMEPLATES: PROVIDE BLACK LAMINATED SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

b. USE THREADED RODS AND UNISTRUT TYPE SUPPORTS DESIGNED TO CARRY THE WEIGHT REQUIRED.

c. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR VERIFY SUPPORT TYPES WITH OTHER MEANS. THE ARCHITECT AND/OR STRUCTURAL ENGINEER IF A STRUCTURAL ENGINEER IS NOT ON THE PROJECT THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING A QUALIFIED LICENSED STRUCTURAL ENGINEER.

d. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS

e. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW

H. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. RED LEAD OR ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARKED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC CHROMATE PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRON WORK.

I. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

J. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES, AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH IN.

K. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

6. DEMOLITION:

A. "SELECTIVE DEMOLITION" IS HEREBY DEFINED TO INCLUDE BUT IS NOT NECESSARY LIMITED TO THE REMOVAL OF THE FOLLOWING EXISTING MATERIALS, ITEMS AND EQUIPMENT.

1) REFER TO THE ELECTRICAL PLANS FOR THE EXTENT OF DEMOLITION.

2) REFER TO EXISTING DRAWINGS AND SITE CONDITIONS FOR ALL REMOVAL OF WORK NECESSARY FOR COMPLETION OF NEW WORK AS SHOWN. EACH BIDDER SHALL CAREFULLY EXAMINE THE PREMISES AND DOCUMENTS DURING THE BIDDING PERIOD AND ASCERTAIN THE EXTENT OF REMOVAL OF EXISTING WORK. IF ADDITIONAL WORK IS NOTED BY THE CONTRACTOR, CALL IT TO THE ATTENTION OF THE ARCHITECT PRIOR TO SUBMITTING BID. BY SUBMITTING A BID, THE CONTRACTOR WILL HAVE DEEMED TO HAVE MADE SUCH EXAMINATION TO HAVE ACCEPTED SUCH CONDITIONS AND TO HAVE MADE ALLOWANCES IN PREPARING HIS BID.

7. CUTTING AND PATCHING:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF THE EXISTING AND NEW CONSTRUCTION WORK, WHICH MAY BE REQUIRED FOR THE PROPER INSTALLATION OF THE ELECTRICAL WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP, AND FINISH AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK.

B. CORE BORING OF CONCRETE FLOORS AND/OR WALLS IF REQUIRED, IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

8. COORDINATION:

A. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS, IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIRE PROOFING AND PLASTERING. WINDOW AND DOOR TRIM, PANELING HUNG CEILINGS AND THE LIKE AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSES TO THE OWNER.

9. EQUIPMENT FURNISHED BY OTHERS:

A. THE CONTRACTOR SHALL FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON DRAWINGS, COORDINATE WITH ALL OTHER TRADES OR DETAILS FOR INSTALLATION. THE TERM "WIRING" AS USED HEREIN, INCLUDES BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING CONDUIT, WIRE, JUNCTION BOXES, DISCONNECTS AND MAKING CONNECTIONS. CONTRACTOR SHALL CHECK ARCHITECTURAL, MECHANICAL AND PLUMBING. DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE INSTALLED BY OTHERS, CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS TO EQUIPMENT TO CONFORM TO SPECIFIED REQUIREMENTS OF THE EQUIPMENT.

10. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS FROM ONE OF THE FOLLOWING APPROVED MANUFACTURE'S: SQUARE D, SIEMENS, CUTLER HAMMER, GE AND BUSSMAN.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI, DOE AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA, TYPE 1 EXCEPT AS NOTED. ACCEPTABLE MANUFACTURES ARE SQUARE D, SIEMENS, CUTLER HAMMER AND GE.

D. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, AS NOTED. FRAMES IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS:

a. CIRCUIT BREAKERS TO BE INSTALLED IN EXISTING PANEL BOARDS, SHALL BE OF THE SAME MANUFACTURE TYPE AND A.I.C. RATING AS PRESENTLY IN USE.

E. DISTRIBUTION PANELS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT-BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98 PERCENT CONDUCTIVITY, SILVER, OR TIN-PLATED JOINTS. PROVIDE A COPPER FULLY RATED GROUND BUS BAR. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180-DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5-3/4 IN SIDES, TOP AND BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC TRANSPARENT COVER. A TYPEWRITTEN LIST INDICATING FEEDER CABLE AND CONDUIT SIZE, CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED. PANELS SHALL MEET UL 67 REQUIREMENTS FOR SERVICE ENTRANCE BARRIERS.

F. BALANCE THE LOAD OVER PHASES WHEN NEW CIRCUITS ARE ADDED TO NEW OR EXISTING PANELS. PROVIDE MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING SHALL NOT BE PERMITTED, MOUNTING HEIGHT SHALL BE A MAXIMUM OF 6 FT-6 IN FROM FLOOR TO TOP SWITCH UNIT. UPDATE DIRECTORIES ON EXISTING PANELBOARDS WHERE CIRCUITING IS CHANGED.

G. TESTS: OPEN AND CLOSE LOAD BREAK SWITCHING DEVICES UNDER LOAD.

H. TRANSFORMERS SHALL MEET THE LATEST DOE(DEPARTMENT OF ENERGY), LOCAL AND/OR STATE REQUIREMENTS.

11. GROUNDING:

A. AN EQUIPMENT GROUNDING CONDUCTOR COMMONLY DESCRIBED AS A "GREEN WIRE" SHALL BE PROVIDED FOR ALL BRANCH CIRCUITS PROTECTED BY OVERCURRENT DEVICES. "GREEN GROUND" WIRE SHALL ALSO BE PROVIDED FOR FLEXIBLE CONDUIT AND MOTOR CIRCUITS.

12. RACEWAYS:

A. PROVIDE RACEWAYS COMPLETE WITH BOXES, FITTINGS AND ACCESSORIES. CONDUIT OR TUBING SIZES REFERRED TO IN SPECIFICATIONS AND ON DRAWINGS ARE NOMINAL DIAMETERS. MINIMUM DIAMETER SHALL BE 3/4IN.

B. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED THREADED.

b. ELECTROMETALLIC TUBING (EMT) THIN WALL PIPE, GALVANIZED THREADLESS. USE EXCLUSIVELY FOR EMERGENCY BRANCH CKT WIRING.

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS STEEL STRIP, GALVANIZED.

d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NUMBER 16GA STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW ON.

2) FITTING AND ACCESSORIES:

a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

b. ELECTROMETALLIC TUBING: COMPRESSION TYPE FOR 2" AND UNDER. SET SCREW TYPE FOR 2" AND LARGER. GALVANIZED RIGID STEEL ELBOWS FOR 2" OR LARGER. C. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

c. PROVIDE PLASTIC BUSHINGS AT THE END OF ALL CONDUITS WHERE A WIRE WILL PASS THROUGH.

3) BOXES:

a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION. DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3" DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4" DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH A MINIMUM 6 IN. SEPARATION.

b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES IN BETWEEN 120/208 VOLT AND 277/480 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL LIGHTING.

c. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

d. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

e. PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OR RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH -FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

f. SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED ON OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAW PLUGS OR WOOD PLUGS SHALL NOT BE

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	ELECTRICAL SPECIFICATION
scale:	12" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	E-101.00
DOB BARCODE:	Total

9/24/2021 2:56:44 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISH PLATES.

g. EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

h. MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

i. EMPTY RACEWAYS OVER 10' LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON PVC.

j. RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED.

k. EMT SHALL BE PERMITTED FOR FEEDER AND BRANCH CIRCUITS. IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS: HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS OR FOR VERTICLE RISERS THROUGH FLOORS IN A MULTI-STORY BUILDING.

l. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL- FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

m. CUT CONDUIT ENDS SQUARE REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

n. ALL COUPLINGS ON EMT RACEWAYS SHALL BE COMPRESSION TYPE UP TO AND INCLUDING 2" CONDUIT. SET SCREW TYPE FITTINGS SHALL BE USED ON EMT CONDUIT LARGER THAN 2".

o. EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED N EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

p. RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT TO MATCH THE FIRE RATING OF THE PARTITION. COORDINATE WITH THE ARCHITECT.

q. PROVIDE RACEWAYS PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING I CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

13. WIRE AND CABLE:

A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG AS NOTED.

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO.12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 277 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS INC OVER 200 FT CIRCUIT LENGTH, PROVIDE NO. 12 MINIMUM.

D. OTHER VOLTAGES AND PHASE- ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

E. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THHN/THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE XHHW SHALL BE USED FOR SERVICE ENTRANCE FEEDERS AND ALL UNDERGROUND CONDUCTORS. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C

F. PRE MANUFACTURED METAL CLAD CABLE SHALL BE UTILIZED FOR ALL NORMAL BRANCH CIRCUITS ONLY IN DRY HOLLOW STUD WALL LOCATIONS, ABOVE ACCESSIBLE CEILING AND WHERE PERMITTED BY ARTICLE 330 & 517 OF THE NATIONAL ELECTRICAL CODE. MINIMUM CONDUCTOR SIZE SHALL BE NO. 12 AWG COPPER WITH BARE BONDING CONDUCTOR IN DIRECT CONTACT WITH THE OUTER METAL JACKET.

G. THE INSULATION OF ALL CONDUCTORS SHALL BE 90C RATED THERMOPLASTIC WITH COLOR CODING AS FOLLOWS:

1) 208/120 VOLT SYSTEM:
   a. BLACK FOR 'A' PHASE
   b. RED FOR 'B' PHASE
   c. BLUE FOR 'C' PHASE
2) 480/277 VOLT SYSTEM:
   a. BROWN FOR 'A' PHASE
   b. ORANGE FOR 'B' PHASE
   c. YELLOW FOR 'C' PHASE
3) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.
4) WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

H. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE, POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING, INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE AND POINTS OF ORIGIN AND TERMINATIONS.

I. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO.10 AND SMALLER SHALL UTILIZE COMPRESSION TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH A MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

J. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 277/480 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

K. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

L. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

M. PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

14. POWER WIRING:

A. PROVIDE ALL POWER WIRING TO ALL MOTORS AND EQUIPMENT FURNISHED UNDER ALL CONTRACTS ON THE PROJECT. INCLUDE EXTENSIONS FROM CONTROLLERS TO MOTORS AND MOTOR CONNECTIONS. MOUNT AND WIRE ALL CONTACTORS AND POWER DEVICES FURNISHED UNDER ALL CONTRACTS.

15. CONTROL WIRING:

B. PROVIDE ALL CONTROL WIRING LINE AND LOW VOLTAGE FOR MOTORS, ACTUATORS AND EQUIPMENT FURNISHED UNDER ALL CONTRACTS AND AS SPECIFICALLY SHOWN ON THE DRAWINGS, EXCEPT AS NOTED. THE ELECTRICAL CONTRACTOR SHALL COORDINATED WITH THE OTHER TRADES DURING THE BIDDING PROCESS AND INDICATION OF THIS COORDINATION SHALL BE STATED ON THE CONTRACTORS PROPOSAL. FAILURE TO COORDINATE WITH THE OTHER CONTRACTORS DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF EXTRA'S FOR PROVIDING ALL NECESSARY CONTROL WIRING.

C. CONTROL WIRING LESS THAN 120 VOLTS FOR MOTORS, ALARMS FOR EQUIPMENT FURNISHED UNDER MECHANICAL/PLUMBING WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS COORDINATED WITH THE MECHANICAL AND PLUMBING CONTRACTOR DURING THE BIDDING PROCESS AND INDICATION OF THIS COORDINATION IS STATED ON THE CONTRACTORS PROPOSAL. FAILURE TO COORDINATE WITH THE MECHANICAL AND PLUMBING CONTRACTOR DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF EXTRA'S FOR PROVIDING ALL NECESSARY CONTROL WIRING.

16. DEVICES:

A. LOCAL SWITCHES:

1) CONVENTIONAL QUIET TOGGLE TYPE, RATED AT 20 AMP, 120/277 VOLT AC SIMILAR TO LEVITON 1122I-2, 1223-2, 1224-2 OR EQUAL BY HUBBELL OR PASS & SEYMOUR. TOGGLE COLOR SHALL BE SELECTED BY THE OWNER OR ARCHITECT.
2) PILOT LIGHT TOGGLE TYPE WITH NEON LAMP, RATED AT 20 AMP, 120/277 VOLT AC SIMILAR TO LEVITON 1122I-PLC.

B. INSERTION RECEPTACLES:

1) COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLT, 2 POLE, 3 WIRE, 20 AMP WITH U GROUND SLOT GROUNDED, EXCEPT AS NOTED. DEVICE SHALL MEET OR EXCEED:
   a. NEMA WD-1 AND WD-6
   b. DEVICE SHALL BE SIMILAR TO HUBBELL 5362 DR EQUAL BY LEVITON, PASS & SEYMOUR OR GE. FACE COLOR SHALL BE SELECTED BY OWNER OR ARCHITECT. DEVICES USED ON EMERGENCY BRANCH CIRCUITS SHALL BE RED FACE ONLY.
2) 5MA GROUND FAULT INTERRUPTER WITH SELF-PROTECTION AND LED INDICATOR LIGHT, SIMILAR TO HUBBELL 5362-G OR EQUAL BY LEVITON AND PASS & SEYMOUR.
3) SPECIAL RECEPTACLES:
   a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE SPECIAL RECEPTACLES REQUIRED TO MATCH PROVIDED, EXISTING AND NEW EQUIPMENT PLUGS. COORDINATE RECEPTACLE TYPE PRIOR TO INSTALLATION.
4) RECEPTACLE ORIENTATION:
   a. CONTRACTOR SHALL COORDINATE ORIENTATION OF DEVICE WITH ARCHITECT.

C. DEVICE PLATES:

1) BRUSHED 302 STAINLESS STEEL. IF IT IS ASSOCIATED WITH AN EMERGENCY BRANCH CIRCUIT DEVICE THE PLATE SHALL BE ENGRAVED WITH THE CIRCUIT IDENTIFICATION FOR THAT DEVICE.

17. LUMINAIRES:

A. MANUFACTURE AND INSTALL LUMINAIRES IN ACCORDANCE WITH NEC ARTICLE 410.

B. PROVIDE ALL LUMINAIRES INDICATED, COMPLETE WITH LAMPS. INCLUDE ALL INTERIOR LUMINAIRES, AND ALL EXTERIOR FIXTURES MOUNTED ON THE BUILDING.

C. FURNISH ALL PLASTER FRAMES OR DRY WALL AND DELIVER TO PROJECT SITE FOR INSTALLATION UNDER FINISHES, COORDINATE WITH THE ARCHITECTURAL DRAWINGS.

D. USE FIXTURES CONFORMING TO UL STANDARDS, AND BEARING UL LABEL AND UNION LABEL WHERE A UNION LABEL IS REQUIRED.

E. ALL LED ELECTRONIC BALLASTS SHALL HAVE BUILT IN 0-10V DIMMING CAPABILITIES AND BE UL LISTED.

F. ALL FLUORESCENT ELECTRONIC BALLASTS SHALL MEET OR EXCEED THE REQUIREMENTS OF:

1) ANSI/IEEE C62.41 (AMERICAN NATIONAL STANDARDS INSTITUTE),
2) FCC PART 18 (RFI AND EMI).
3) CBM (CERTIFIED BALLAST MANUFACTURERS),
4) UL (UNDERWRITERS LABORATORIES).
5) PUBLIC LAW #100-357 (MINIMUM EFFICIENCY STANDARDS),
6) NAECA (NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS).
7) NEC (NATIONAL ELECTRIC CODE)

G. GENERAL CONSTRUCTION

PLASTICS: 100% VIRGIN ACRYLIC. REFER TO FIXTURE LIST FOR FURTHER DESCRIPTION.

METAL:

a. MATERIAL: STEEL, ALUMINUM OR OTHER TYPES MENTIONED.

b. B & S GAUGE: NO. 22 MINIMUM FOR HOUSINGS, WITH APPROPRIATE CROSS-SECTIONAL CONFIGURATION FOR FIXTURE HOUSING; THINNER SHEET METAL ACCEPTABLE FOR BALLAST ENCLOSURES AND INCIDENTAL PURPOSES.

FINISHES:

a. CORROSION PROTECTION: PLATING, BONDERIZING, PRIMING, ELECTROSTATIC PAINTING, OR OTHER APPROVED MEANS.

b. FINAL COATING: BAKED PAINT OR ENAMEL ON STEEL AND ALUMINUM; RAKED CLEAR LACQUER OR OTHER DURABLE TRANSPARENT FILM ON POLISHED METAL SURFACES.

H. EXTERIOR FIXTURES: ENCLOSED AND GASKETED. UNLESS OTHERWISE NOTED.

I. FLUORESCENT LAMP SOCKETS: WHITE FINISH, SILVER-PLATED CONTACT SURFACES.

J. LATCHES: QUICK-OPERATING TYPE WITHOUT NEED FOR TOOLS. UNLESS OTHERWISE NOTED; STAINLESS STEEL OR CADMIUM PLATED STEEL.

K. EXPOSED HARDWARE: NOT ACCEPTABLE ON VISIBLE SURFACES OF FIXTURES IN FINISHED AREAS UNLESS OTHERWISE NOTED.

L. OPERATING TEMPERATURE: NOT TO EXCEED 25 DEGREES C TEMPERATURE RISE OVER 40 DEGREES C A MAXIMUM 90 DEGREES C BALLAST HOT SPOT WHEN FLUORESCENT FIXTURE IS OPERATED IN 25 DEGREES C AMBIENT. MAXIMUM CASE TEMPERATURE SHALL NOT EXCEED 85 DEGREES C.

M. PROVIDE APPROPRIATE MOUNTING ACCESSORIES FOR EACH FIXTURE, COMPATIBLE WITH THE VARIOUS STRUCTURAL CONDITIONS THAT WILL BE ENCOUNTERED. PROVIDE FASTENING CLIPS (EARTHQUAKE CLIPS) AND AT LEAST TWO INDEPENDANT SUPPORT RODS OR WIRES FROM THE STRUCTURE TO A TAB ON THE LIGHTING FIXTURE. WIRE OR ROD SHALL HAVE A BREAKING STRENGTH OF THE WEIGHT OF THE FIXTURE AT A SAFETY FACTOR OF 3 FOR LUMINAIRES THAT ARE SUPPORTED FROM FRAMING MEMBERS OF SUSPENDED CEILINGS.

N. ASSEMBLE, WIRE AND INSTALL ALL LUMINAIRES AT THERE RESPECTIVE OUTLETS AS INDICATED AND ASSUME RESPONSIBILITY FOR THEIR CONDITION UNTIL ACCEPTANCE BY OWNER. INSTALL PROPER LAMPS IN EACH FIXTURE.

O. FIXTURE CONNECTIONS TO BRANCH CIRCUITS SHALL BE MADE USING STRANDED WIRE WITH INSULATION TEMPERATURE RATING EQUAL TO OR HIGHER THAN THAT OR WIRE SUPPLIED WITH THE FIXTURE OR SPECIFIED BY FIXTURE MANUFACTURER. FIXTURES ARE TO BE CONNECTED TO BRANCH CIRCUITS VIA JUNCTION BOX USING FLEXIBLE CONDUIT OF LENGTHS BETWEEN 4 FT MINIMUM AND 6 FT MAXIMUM.

P. THE USE OF FLEXIBLE CONDUIT. TO FIXTURES IN ANY LENGTH OVER 6FT IS PERMITTED ONLY WHEN A SEPARATE GROUND WIRE IS INSTALLED ALONG WITH THE CONDUCTORS INSIDE THE FLEXIBLE CONDUIT. IN THIS APPLICATION THE GROUND WIRE MUST BOND THE LIGHTING FIXTURE HOUSINGS TO EACH OTHER AND/OR TO THE JUNCTION BOX. ALL FLEXIBLE CONDUIT SHALL BE SUPPORTED AS REQUIRED BY NEC AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.

Q. NOTE THAT SPECIFICATIONS FOR RECESSED FIXTURES GENERALLY DO NOT INCLUDE MOUNTING ACCESSORIES. AND THAT EACH FIXTURE TYPE MAY BE USED IN SEVERAL DIFFERENT CEILINGS, SUCH AS LAY-IN EXPOSED GRID, CONCEALED SPUME TILE, OR DRYWALL. VERIFY MOUNTING DETAILS FOR EACH SPACE BEFORE ORDERING FIXTURES SO THAT PROPER QUANTITIES FOR EACH CONDITION WILL BE DELIVERED IN TIME TO AVOID CONSTRUCTION DELAYS.

R. SECURELY FASTEN LUMINAIRES TO FRAMING MEMBERS OF SUSPENDED CEILINGS WITH FASTENING CLIPS. AS SPECIFIED. CLIP EACH FIXTURE TO ALL ADJOINING FRAMING MEMBERS TO PREVENT MOVEMENT OF THE MEMBERS AWAY FROM THE FIXTURES.

S. SUPPORT EXIT SIGNS IN TILE CEILINGS WITH RAILS THAT SPAN BETWEEN RUNNERS OF CEILING SUSPENSION SYSTEM. USE FLANGED FIXTURES FOR FINISHED APPEARANCE.

T. SUPPORT FLUORESCENT FIXTURES IN DRYWALL CEILINGS FROM PLASTER FRAMES, WITH ADJUSTABLE LUGS ON 5106 OF FIXTURE OR YOKE MOUNTING AS RECOMMENDED BY FIXTURE MANUFACTURER. USE FLANGED FIXTURES FOR FINISHED APPEARANCE, UNLESS OTHERWISE NOTED.

U. LOCATE FIXTURE IN CENTER OF PANEL WHERE USED IN MODULAR TILE CEILINGS, UNLESS OTHERWISE NOTED. REFER TO REFLECTED CEILING PLAN.

V. FLUORESCENT BALLASTS SHALL BE HIGH EFFICIENCY ELECTRONIC TYPE WITH A MAXIMUM 10% HARMONIC DISTORTION.

W. FLUORESCENT LAMPS SHALL HAVE A COLOR OF 4,100 KELVIN, UNLESS OTHERWISE NOTED.

X. HID(HIGH INTENSITY DISCHARGE) BALLASTS SHALL BE CONSTANT WATTAGE AUTO-TRANSFORMER TYPE.

Y. THE LUMINAIRES SHALL BE HUNG FROM THE TOP CORD OF THE STRUCTURE ABOVE. PROVIDE UNISTRUT STRATTALED AND SECURED TO THE TOP CORD OF THE STRUCTURE AS REQUIRED TO ENSURE THE LUMINAIRE HANGING DEVICE IS PERPENDICULAR TO THE FIXTURE AND THE ROOF OR FLOOR ABOVE.

18. EMPTY RACEWAY SYSTEMS:

A. A COMPLETE EMPTY RACEWAY SYSTEM CONSISTING OF BLANK 4-11/16IN. X 2-1/2IN. DEEP OUTLET BOXES WITH SINGLE OR DOUBLE GANG DRYWALL FINISH COLLAR AS NOTED. METALLIC RACEWAY WITH PULL STRING SHALL BE PROVIDED AND INSTALLED WHERE SHOWN FOR THE FOLLOWING SYSTEMS 1) TELEPHONE/DATA (SINGLE GANG) 2) CABLE TELEVISION (SINGLE GANG)

B. RACEWAY SIZE SHALL BE A MINIMUM OF 3/4IN. OR AS DOCUMENTED IN PLANS AND DETAILS.

C. ALL METALLIC RACEWAY SYSTEMS SHALL BE STUBBED UP AND TERMINATE IN ACCESSIBLE CEILING. END BUSHINGS AND PULL WIRES SHALL BE PROVIDED. BONDING OF ALL RACEWAY SYSTEMS TO PROVIDE A COMMON GROUND PATH SHALL BE PROVIDED.

D. ACTUAL DEVICES. CONNECTORS, WIRING COMPLETE WITH TERMINATIONS AND BOX COVERS SHALL BE PROVIDED BY THE OWNER.

19. FIRE STOPPING:

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT. INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

B. PROVIDE ALL REQUIRED FIRE-STOPPING, WORK INCLUDES FIRE STOPPING PENETRATIONS OF FIRE-RESISTANCE RATED FLOORS, WALLS AND PARTITIONS IN NEW CONSTRUCTION, AS WELL AS PRE-EXISTING PENETRATIONS IN RENOVATION AREAS OF EXISTING CONSTRUCTION.

C. PRODUCT DATA. SUBMIT MANUFACTURER'S PRODUCT DATA FOR EACH FIRE-STOPPING PRODUCT REQUIRED, INCLUDING INSTRUCTIONS FOR SUBSTRATE PREPARATION AND FIRE-STOPPING INSTALLATION.

D. FIRE RESISTANT JOINT SEALERS; PROVIDE MANUFACTURER'S STANDARD FIRE-STOPPING SEALANT WITH ACCESSORY MATERIALS HAVING FIRE RESISTANCE RATINGS INDICATED AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES BY UNDERWRITERS LABORATORY, OR OTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

E. THE RATING OF THE FIRE SEALANT SHALL MEET OR EXCEED THE FIRE RATING OF THE FIRE RATED PARTITION.

20. TESTS:

A. BEFORE MAKING TESTS, COMPLETE ALL CONNECTIONS AT PANELS, FIXTURES AND OTHER EQUIPMENT. INSTALL FUSES AND HAVE ALL WIRING CONTINUOUS FROM SERVICE EQUIPMENT TO UTILIZATION OUTLETS. CORRECT ALL UNDESIRABLE GROUND. OPEN AND SHORT CIRCUIT CONDITIONS.

B. PROVIDE A SOURCE OF TEMPORARY POWER FOR MAKING TESTS IF NORMAL BUILDING POWER IS NOT AVAILABLE AT THE TIME.

C. TAKE AND RECORD THE FOLLOWING READINGS ON SYSTEMS 600 VOLTS AND BELOW:

1) MEGGER TESTS OF ALL FEEDER CIRCUIT CONDUCTORS, GROUND CONDUCTORS AND CONDUIT GROUND.
2) AMMETER READINGS ON ALL PHASES AND NEUTRAL OF EACH FEEDER TO INDICATE BALANCE.
3) AMMETER READINGS ON ALL PHASES OF EACH POLYPHASE MOTOR. INCLUDE NAMEPLATE FULL LOAD CURRENT OF EACH MOTOR ON DATA SHEET.
4) CERTIFY THAT ALL OVERLOAD DEVICES HAVE BEEN SET IN ACCORDANCE WITH DATA SHOWN ON THE DRAWINGS AND/OR MANUFACTURER'S RECOMMENDED SETTING.

D. SEND FINAL CERTIFIED TEST REPORTS AND CERTIFICATIONS TO THE ARCHITECT FOR APPROVAL AND TRANSMITTAL TO THE OWNER.

21. DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEMS:

A. SUBMIT WRITTEN CERTIFICATION THAT ELECTRICAL SYSTEMS ARE COMPLETE AND OPERATIONAL. SUBMIT CERTIFICATION WITH CONTRACTOR'S REQUEST FOR FINAL REVIEW.

1) AT THE TIME OF FINAL REVIEW OF ELECTRICAL WORK, DEMONSTRATE THE OPERATION OF ELECTRICAL SYSTEMS. FURNISH LABOR, APPARATUS AND EQUIPMENT FOR SYSTEMS' DEMONSTRATION. THE VARIOUS TEST SHALL BE WITNESSED BY AND THE OWNER OR HIS REPRESENTATIVE.

B. THE CONTRACTOR SHALL FURNISH ALL TEST EQUIPMENT, MATERIALS, LABOR, AND TEMPORARY POWER HOOK-UPS TO PERFORM START-UP AND ALL TESTS AS REQUIRED TO OBTAIN FINAL FIELD ACCEPTANCE FROM OWNER. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE. ALL TEST PROCEDURES SHALL CONFORM TO THIS SPECIFICATION AND APPLICABLE STANDARDS THE ANSI, IEEE. NEMA, OSHA, NEPA, ETC.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTS AND TEST RECORD. TESTING SHALL BE PERFORMED BY AND UNDER THE IMMEDIATE SUPERVISION OF THE CONTRACTOR. TEST RECORD SHALL BE KEPT FOR EACH PIECE OF EQUIPMENT. COPIES SHALL BE FURNISHED TO THE ENGINEER FOR REVIEW AND/OR APPROVAL.

D. A VISUAL INSPECTION OF ALL ELECTRICAL EQUIPMENT, TO CHECK FOR THE FOREIGN MATERIAL, TIGHTNESS OR WIRING AND CONNECTION. PROPER GROUNDING, MATCHING NAMEPLATE CHARTS WITH SPECIFICATION, ETC., SHALL BE MADE PRIOR TO ACTUAL TESTING.

E. A COMPLETE OPERATIONAL TEST SHALL BE MADE ON THE LIFE SAFETY FIRE ALARM SYSTEM. THIS COMPLETER OPERATIONAL TEST SHALL ALSO BE PROVIDED ON ANY EXISTING DEVICES AND SYSTEMS IF THIS IS A RENOVATION PROJECT. THE CONTRACTOR SHALL CONSULT WITH THE EQUIPMENT VENDORS AND THEN SUBMIT FOR APPROVAL A STEP-BY-STEP PROCEDURE DESCRIBING THE METHOD OF MAKING THE TESTS. THE EQUIPMENT TO BE UTILIZED AND THE FEATURE TO BE CHECKED BY THE TEST. ALL INTERLOCKS AND PROTECTIVE FEATURES SHALL BE CHECKED.

22. SPECIAL ENGINEERING SERVICES:

A. IN THE INSTANCE OF COMPLEX OR SPECIALIZED ELECTRICAL SYSTEMS SUCH AS EMERGENCY SYSTEM FIRE ALARM OR SIMILAR MISCELLANEOUS SYSTEMS. THE INSTALLATION, FINAL CONNECTIONS AND TESTING OF SUCH SYSTEMS SHALL BE MADE UNDER THE DIRECT SUPERVISION OF COMPETENT AUTHORIZED SERVICE ENGINEERS WHO SHALL BE IN THE EMPLOY OF THE RESPECTIVE EQUIPMENT MANUFACTURER.

B. ANY AND ALL EXPENSES INCURRED BY THE EQUIPMENT MANUFACTURERS' REPRESENTATIVES RELATED TO THIS PROJECT SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

23. DESIGN MODIFICATIONS:

A. THE DRAWINGS SHOW ELECTRICAL SYSTEMS WHICH SUPPLY, CONTROL. AND/OR MONITOR SYSTEMS SPECIFIED ELSEWHERE. THE ELECTRICAL SYSTEM SHOWN HAS BEEN BASED ON SPECIFIC MANUFACTURERS DATA OR INFORMATION CONVEYED TO THE ELECTRICAL DESIGNER. WHERE ANY AGREEMENT OR CHANGE IS MADE TO SUPPLY EQUIPMENT OF LARGER CAPACITY OR DIFFERENT ELECTRICAL CHARACTERISTICS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE ELECTRICAL SYSTEM TO EFFECT SUCH CHANGES WITHIN THE INTENT OF THESE SPECIFICATIONS AND TO INFORM THE ENGINEER, IN WRITING, OF SUCH CHANGE. FOR EXAMPLE. IF HVAC COMPRESSORS AND/OR MOTORS ARE ALLOWED TO BE CHANGED TO 230 VOLTS RATHER THAN THE ORIGINALLY SPECIFIED 208 VOLTS. BOOSTING OR BUCKING TRANSFORMERS SHALL BE SUPPLIED. INSTALLED, AND WIRED TO ACCOMMODATE THE CHANGE AT NO ADDITIONAL COST.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN THEREON, **ARE AND SHALL** REMAIN THE PROPERTY OF THE ENGINEER AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT. THE ENGINEER RESERVES THE RIGHT TO HAVE THIS WORK REPRODUCED, PUBLISHED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL PLANS, SPECIFICATIONS AND CONTRACTS HAVE BEEN FULLY EXECUTED AND HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND MATERIALS SPECIFIED ARE SUITABLE FOR THE CONDITIONS ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

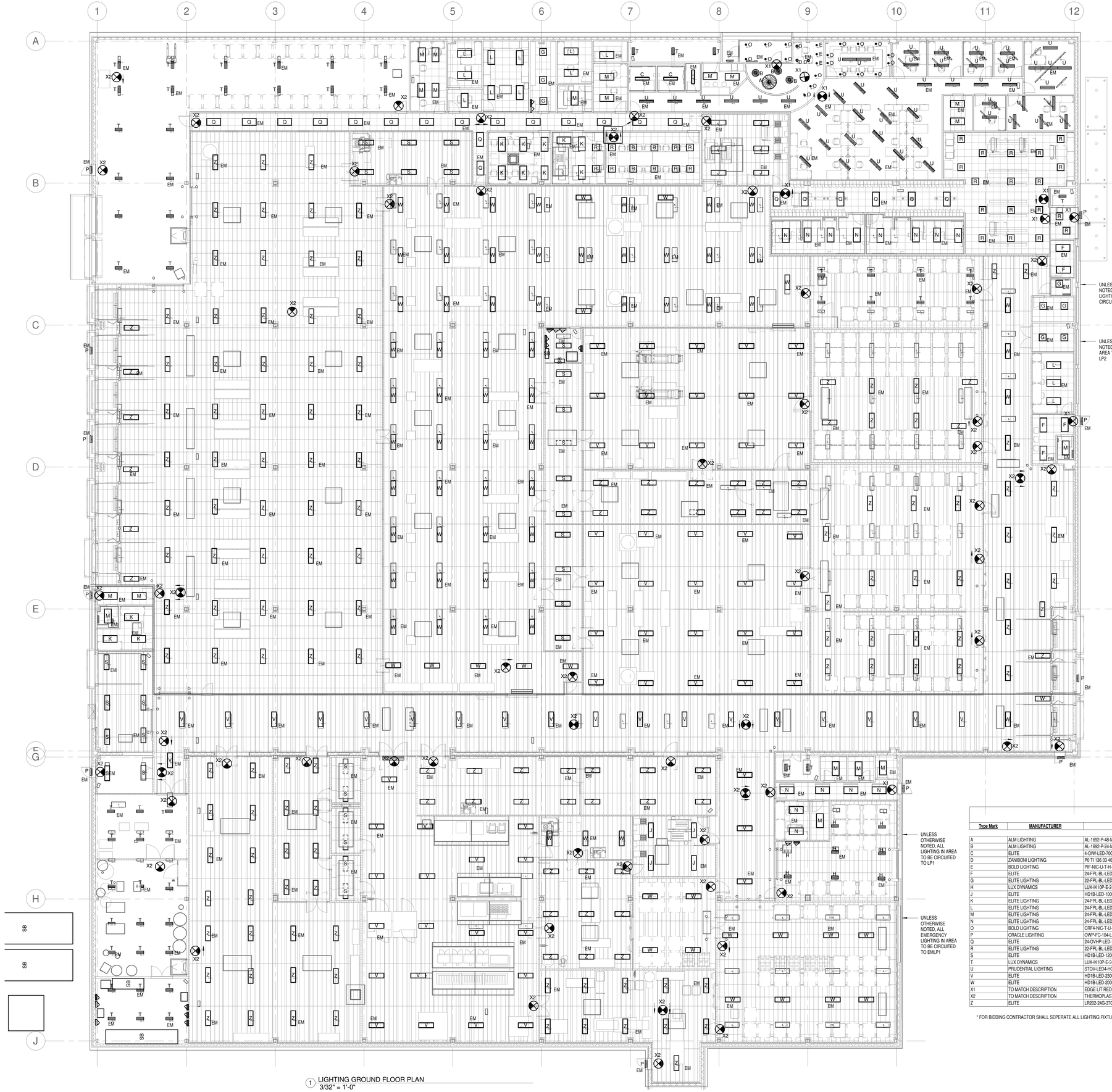
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL SPECIFICATION
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-102.00
DOB BARCODE:
Total

9/24/2021 2:56:45 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 LIGHTING GROUND FLOOR PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 10 ADDITIONAL EXIT SIGNS PER INSPECTOR COMMENTS. LOCATE EXIT SIGNS PER INSPECTOR COMMENTS, CIRCUIT TO NEAREST AVAILABLE LIGHTING CIRCUIT, PROVIDE 2 #12 & #12G, 3/4"C
2. UNLESS OTHERWISE NOTED ALL LIGHTING FIXTURES LABELED "EM" SHALL BE CIRCUITED TO EMERGENCY LIGHTING PANEL.
3. UNLESS OTHERWISE NOTED, ALL LIGHTING TO BE CIRCUITED TO 20 A/1P CIRCUIT BREAKER. CIRCUIT SHALL NOT EXCEED 3300 WATTS
4. CONTRACTOR SHALL SIZE WIRES FOR LIGHTING CIRCUITS USING FOLLOWING DIRECTION
   - 0-199: 2 #12 & #12G, 3/4"C
   - 200'-ABOVE: 2 #10 & #10G, 3/4"C
5. FOR EMERGENCY LIGHTS CONTROLLED ON SAME CONTROLLER AS THE NORMAL LIGHTING IN THE AREA, PROVIDE LISTED TRANSFER RELAY. EMERGENCY CIRCUIT SHOWN IS TO BE THE BACKUP CIRCUIT FOR THE RELAY. LUMINAIRE WILL BE NORMALLY CONTROLLED USING.

ELECTRICAL LIGHTING FIXTURES

Type Mark	MANUFACTURER	Model	VOLTAGE	WATTAGE
A	ALM LIGHTING	AL-1692-P-48-MD-840-LI-840-U-S-SW-SA-19-XX	277	105 VA
B	ALM LIGHTING	AL-1692-P-24-MD-840-LI-840-U-S-SW-SA-19-XX	277	105 VA
C	ELITE	4-OIW-LED-7000L-DIM10-MVOLT-40K-85	277	58 VA
D	ZANIBONI LIGHTING	P0 TI 136 03 40 B 3 N BK Z0 DW 0D	277	3 VA
E	BOLD LIGHTING	PIF-NIC-U-T-H-840-W-X-X-X-1	277	13 VA
F	ELITE	24-FPL-BL-LED-5000L-400OL-5000L-DIM10-MVOLT-35K-40K-50K-85(5000L)	277	49 VA
G	ELITE LIGHTING	22-FPL-BL-LED-4000L-5000L-6000L-DIM10-120-347V-35K-40K-50K-85(5000L)	277	42 VA
H	LUX DYNAMICS	LUX-IK10P-E-2-SA-HO3-840-2-U10-CA2	277	78 VA
J	ELITE	HD1B-LED-10000L-DIM10-MVOLT-40K-85	277	71 VA
K	ELITE LIGHTING	24-FPL-BL-LED-3000L-4000L-5000L-DIM10-MVOLT-35K-40K-50K-85(4000L)	277	39 VA
L	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(8000L)	277	55 VA
M	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(6000L)	277	45 VA
N	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(7000L)	277	53 VA
O	BOLD LIGHTING	CRF4-NIC-T-U-S-940-M-WF-W-11	277	17 VA
P	ORACLE LIGHTING	OWP-FC-104-LED-1600L-MVOLT-40K	277	17 VA
Q	ELITE	24-OVHP-LED-10000L-DIM10-MVOLT-40K-85	277	83 VA
R	ELITE LIGHTING	22-FPL-BL-LED-4000L-5000L-6000L-DIM10-120-347V-35K-40K-50K-85(4000L)	277	31 VA
S	ELITE	HD1B-LED-12000L-DIM10-MVOLT-40K-85	277	83 VA
T	LUX DYNAMICS	LUX-IK10P-E-3-DA-HO3-840-2-U10-CA2	277	117 VA
U	PRUDENTIAL LIGHTING	STOV-LED4-HO-HO-D1-SG	277	62 VA
V	ELITE	HD1B-LED-23000L-DIM10-MVOLT-40K-85	277	212 VA
W	ELITE	HD1B-LED-20000L-DIM10-MVOLT-40K-85	277	179 VA
X1	TO MATCH DESCRIPTION	EDGE LIT RED LED EXIT SIGN, FACES AND ARROWS AS INDICATED	277	5 VA
X2	TO MATCH DESCRIPTION	THERMOPLASTIC IP65 RED LED EXIT SIGN, FACES AND ARROWS AS INDICATED	277	5 VA
Z	ELITE	LR202-2xG-3700-35K-A40-UNI	277	104 VA

* FOR BIDDING CONTRACTOR SHALL SEPERATE ALL LIGHTING FIXTURES INTO INDIVIDUAL LINE ITEMS

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

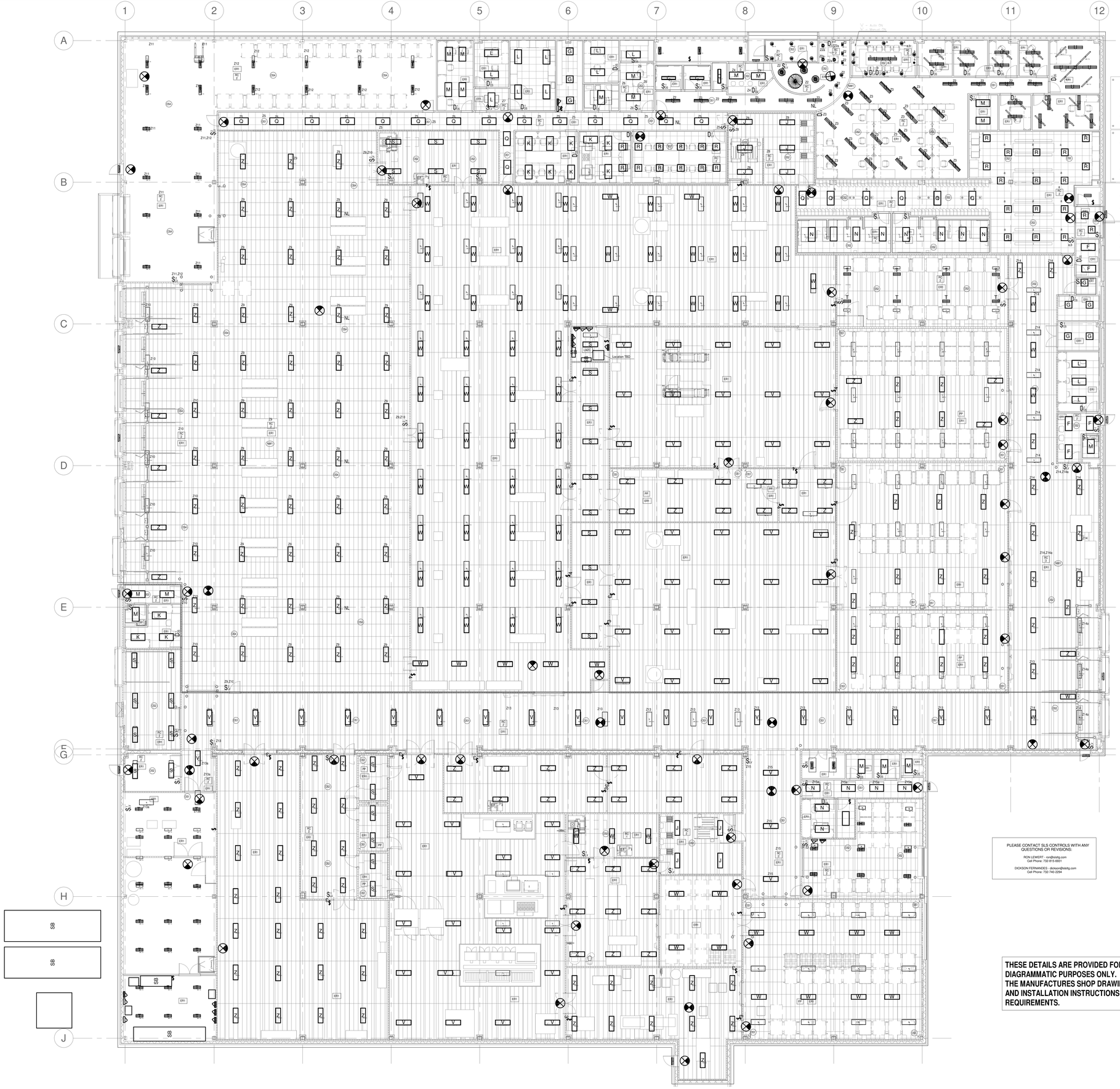
ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL LIGHTING PLAN
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-300.00
DOB BARCODE:
Total

9/24/2021 2:56:57 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 LIGHTING CONTROL FLOOR PLAN
3/32" = 1'-0"

DESIGN BASED ON ASHRAE 90.1-2016

STAND-ALONE ROOM - SEQUENCE OF OPERATION

TYP. SMALL OFFICE / LABEL PRINTING / TEST KITCHEN.
Partial auto-on partial manual-on and full auto-off operation through 0-10V dimming wall/sensor switch.

TYP. SMALL TOILETS / J.C / SMALL STORAGE.
Auto-on/auto-off operation through wall switch/sensor.

TYP. MULTI-STALL RESTROOMS / TYP. WASHROOMS.
Auto-on/auto-off operation through ceiling sensor, room controller. Digital switch for local control

TYP. COOLERS/ FREEZERS.
Auto-on/auto-off operation through wall mount sensor and power pack. (Toggle switch for local control by others).

DRY STORAGE / FOOD BANK / CLEAN STORAGE / KITCHEN DRY STORAGE / BREAK ROOM / OPEN LOCKER ROOM.
Partial manual-on/partial auto-on through digital switches, room controllers and ceiling sensors.

TRAINING CONFERENCE ROOM.
Manual-on/auto-off through local digital dimming switches, room controller and ceiling sensors.

TIME SCHEDULE - SEQUENCE OF OPERATION

TYP. VESTIBULE / TYP. CORRIDORS - PASSAGE / OFFICE CIRCULATION / EMPLOYEE ACCESS / RECEIVING DOCKS.
Auto time-on/auto time-off through LMDC zone controller. During business hours, occupancy sensors shall dim lighting fixtures by 50% after 20 min. of vacancy and be brought up to 100% output upon occupancy. Digital switches/sensors also provide after hour override control.

MARKET AREA / OPEN OFFICE AREA / STORAGE 145 & 144.
Auto time-on/auto time-off through LMDC zone controller. Manual-on/auto-off through local digital switches/push full time-off through time schedule via LMDC zone controller. During operating hours, room controller and ceiling sensors shall dim lighting fixtures by 50% after 20 min. of vacancy and be brought up to 100% output upon occupancy. Sensors and local digital switches also provide after hour override control.

NOTES

GENERAL NOTES

All occupancy/vacancy sensors shall turn off respective lighting fixtures 20 min after vacancy.

Afterhour override control shall have a maximum override of no more than two hours per activation during scheduled off periods.

Confirm the exact dimming requirements of each purchased lighting fixture, prior to ordering the corresponding dimming room controller. Compatibility must be verified.

Lower case letter (example "a") located next to lighting fixture indicates the local switch zone.

All engraving of switches shall be coordinated with the owner prior to ordering.

EMERGENCY NOTES

All fixtures indicated with "EM" shall have an emergency branch circuit fed from a generator or an inverter. An emergency bypass relay shall be provided to bypass local control, bringing fixture to full brightness during emergency operation.

LIGHTING CONTROL NOTES

1. All sensor locations are approximate. Refer to the Manufacture's installation instructions prior to installation.

2. If any questions arise regarding sensor placement, contact SLS Lighting and Controls prior to installation to schedule a field visit.

3. If pendant mounted fixtures are present, location and coverage of sensors should be reviewed.

4. All corner mount sensors located in rooms with recessed fixtures should be mounted on ceiling instead of the wall. Please review installation diagram for instructions.

5. Ceiling mounted sensors require to be located no closer than 6-8' from air supply/return registers.

6. Maximum number of sensors that can be wired in parallel to a single room controller or power pack, depends on sensor model (see individual sheets for mA consumption).

7. Contractor is responsible for field verification of required number of power packs (if apply).

8. One power pack is required for each circuit that is to be controlled.

9. Power packs and/or DLM Room Controllers are shown for zoning purposes only. Contractor is responsible for determining actual location and circuiting.

10. Power packs (if apply) should be mounted at least 6-12 inches from any sensor.

11. Locations of photocells (if shown) are diagrammatic and for quantitative purposes only. Actual mounting locations of photocells should be determined in an onsite pre-installation meeting prior to roughing in equipment.

12. Per the requirements of the electrical code, areas labeled as "mechanical" or "electrical" where work may occur are not to be controlled by automated lighting controls alone.

13. Turn off any power at the circuit breaker before wiring any product.

14. Free-topology DLM local network segments may include digital load controllers, switches and sensors; Cat 5e cable, 150' per device to 1,000' max, per each local network.

LIGHTING CONTROL LEGEND

LEGEND	MANUFACTURER		
M	LMRC-102	120/277 VAC	1-Way On/Off Room Controller
L	LMRC-112	120/277 VAC	0-10V Dimming Room Controller
L	LMRC-212	120/277 VAC	0-10V Dimming Room Controller
BP	BZ-150	120/277 VAC	Power Pack - Power Pack
EM	ELCU-DDC	120/277 VAC	Emergency Shunt Relay
US	LMUC-102-2	24VDC, 20mA	Ultrasonic Ceiling Sensor
DT	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
HB	LMPC-102-3	24VDC, 7mA	HB Ceiling Sensor High Density Low
HB	LMPC-102-5	24VDC, 7mA	HB Ceiling Sensor High Density Low
DT	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
HB	CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor
S_1	PW-100	120/277 VAC	1 Button PIR On/Off Digital Dec. Switch
D_{0-10}	OW-311	120/277 VAC	0-10V Dec WH Digital Dec. Switch
S_1	LMSW-101	24VDC, 5mA	1-Button Digital Wall Switch
S_2	LMSW-102	24VDC, 5mA	2-button Digital Wall Switch
D_{0-10}	LMDM-101	24VDC, 5mA	1button Dimming Wall Switch
NB	LMBC-300	24VDC, 30mA	Network Bridge
ZC	LMZC-201	120/277 VAC	Zone Controller With Enclosure

PLEASE CONTACT SLS CONTROLS WITH ANY QUESTIONS OR REVISIONS:

RON LEWERT - ron@slsltg.com
Cell Phone: 732-815-6901

DICKSON FERNANDES - dickson@slsltg.com
Cell Phone: 732-740-2294

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS, ARE AND SHALL REMAIN THE PROPERTY OF **CYBUL CYBUL WILHELM ARCHITECTS**. THEY ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY EXTENSION OR ADDITION TO THE PROJECT OR FOR ANY OTHER PROJECT. **CYBUL CYBUL WILHELM ARCHITECTS** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, PARTIALLY OR CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL APPROPRIATE FEES HAVE BEEN PAID TO **CYBUL CYBUL WILHELM ARCHITECTS** AND WE HAVE BEEN PROPERLY ENGAGED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH ALL FEDERAL, MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

copyright - BD ENGINEERING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL LIGHTING CONTROL PLAN

scale: As indicated

release date:

drawing date: 09/24/2021

drawn by: AW

approved by: BT

project no.: 2102

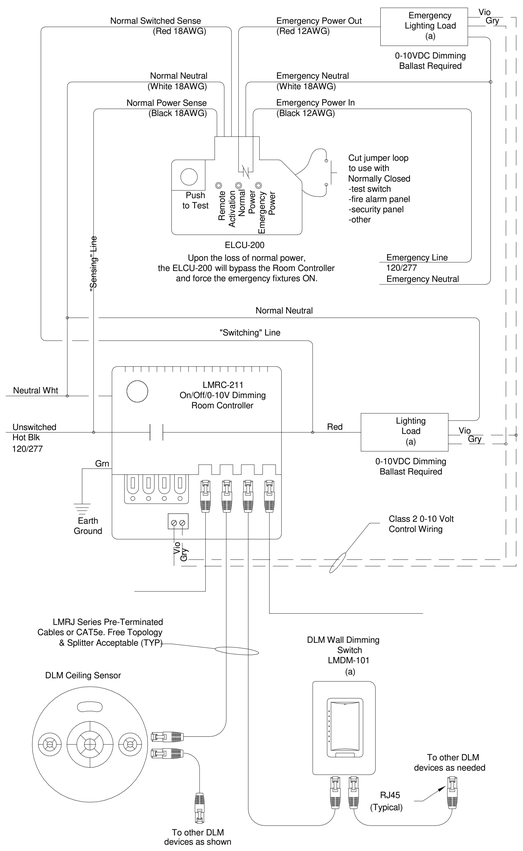
drawing no.: E-301.00

DOB BARCODE:

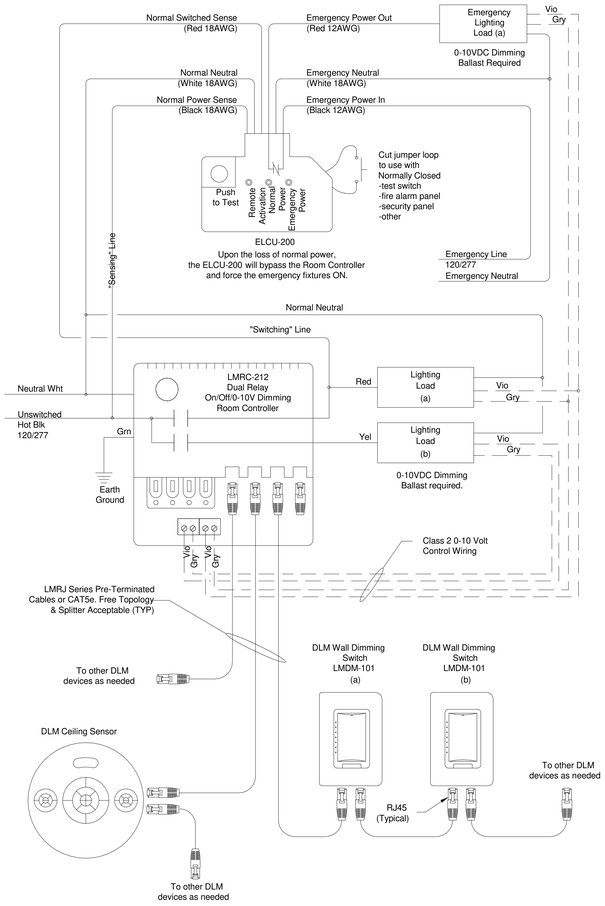
Total

9/24/2021 2:57:09 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

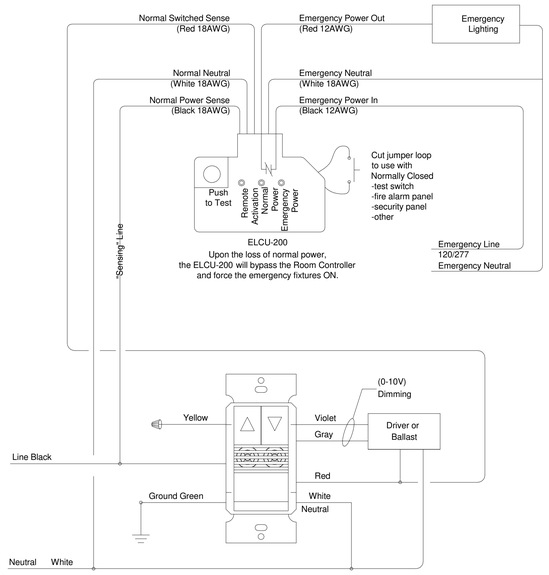


TYP. LMRC-211 WITH ELCU-200
WIRING DIAGRAM



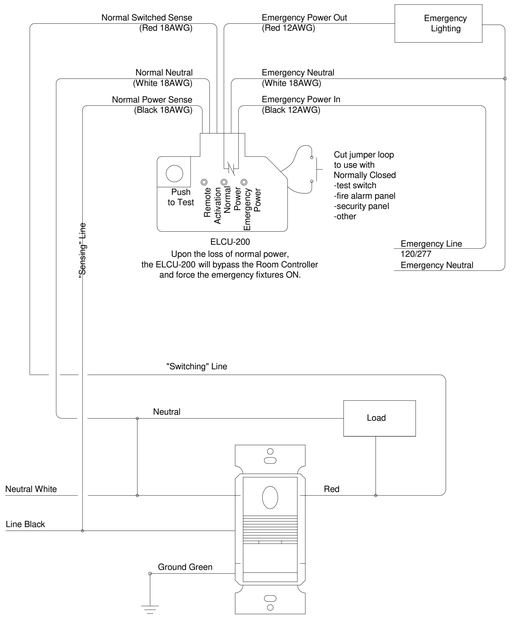
TYP. LMRC-212 WITH ELCU-200 WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



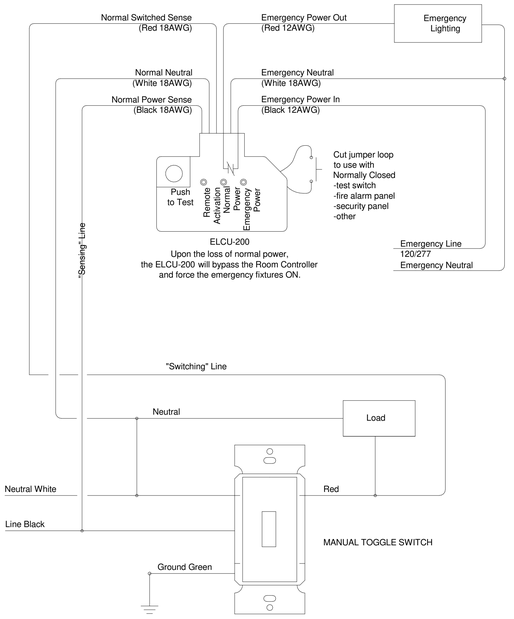
DW-311 WITH ELCU-200
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



PW-100 with ELCU-200
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



MANUAL TOGGLE SWITCH with ELCU-200
WIRING DIAGRAM

LIGHTING CONTROL NOTES
1. All sensor locations are approximate. Refer to the Manufacture's installation instructions prior to installation.
2. If any questions arise regarding sensor placement, contact SLS Lighting and Controls prior to installation to schedule a field visit.
3. If pendant mounted fixtures are present, location and coverage of sensors should be reviewed.
4. All corner mount sensors located in rooms with recessed fixtures should be mounted on ceiling instead of the wall. Please review installation diagram for instructions.
5. Ceiling mounted sensors require to be located no closer than 6-8' from air supply/return registers.
6. Maximum number of sensors that can be wired in parallel to a single room controller or power pack, depends on sensor model (see individual sheets for mA consumption).
7. Contractor is responsible for field verification of required number of power packs (if apply).
8. One power pack is required for each circuit that is to be controlled.
9. Power packs and/or DLM Room Controllers are shown for zoning purposes only. Contractor is responsible for determining actual location and circuiting.
10. Power packs (if apply) should be mounted at least 6-12 inches from any sensor.
11. Locations of photocells (if shown) are diagrammatic and for quantitative purposes only. Actual mounting locations of photocells should be determined in an onsite pre-installation meeting prior to roughing in equipment.
12. Per the requirements of the electrical code, areas labeled as "mechanical" or "electrical" where work may occur are not to be controlled by automated lighting controls alone.
13. Turn off any power at the circuit breaker before wiring any product.
14. Free-topology DLM local network segments may include digital load controllers, switches and sensors; Cat 5e cable, 150' per device to 1,000' max, per each local network.

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

LIGHTING CONTROL LEGEND LEGRAND WATTSTOPPER		
RC 1 LMRC-101	120/277 VAC	1-relay On/Off Room Controller
RC 2 LMRC-112	120/277 VAC	2-Relay On/Off 0-10V Dimming Room Controller
RC 3 LMRC-211	120/277 VAC	1-Relay On/Off 0-10V Dimming Room Controller
PP BZ-150	120/277 VAC	Universal Voltage Power Pack
ER1 ELCU-200	120/277 VAC	Emergency Shunt Relay
DS1 LMUC-100-2	24VDC, 20mA	Ultrasonic Ceiling Sensor
DS2 LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS3 LMPC-100-1	24VDC, 7mA	PIR Ceiling Sensor High Density Lens
DS4 LMPC-100-5	24VDC, 7mA	PIR Ceiling Sensor Extended Height Lens
VS1 LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS1 CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor.
S_{OS} PW-100	120/277 VAC	1-Button PIR On/Off Switch Occ Sensor
D_{OS} DW-311	120/277 VAC	2-Button Dual Tech 0-10V Dim With Switch Occ Sensor
S_{LV} LMSW-101	24VDC, 5mA	1-button Digital Wall Switch
S_{LV}^{2} LMSW-102	24VDC, 5mA	2-button Digital Wall Switch
D_{LV} LMDM-101	24VDC, 5mA	1-button Dimming Wall Switch
NW1 LMBC-300	24VDC, 30mA	Network Bridge
LMZC LMZC-301	120/277 VAC	Zone Controller With Enclosure

PLEASE CONTACT SLS CONTROLS WITH ANY QUESTIONS OR REVISIONS:

RON LEWERT - ron@slsltg.com
Cell Phone: 732-815-6931

DICKSON FERNANDES - dickson@slsltg.com
Cell Phone: 732-740-2294

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN GRAPHICALLY, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, PREPARED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PAID IN FULL TO THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR ACCEPTING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

STATE OF NEW JERSEY
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL LIGHTING CONTROL DETAILS

scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-302.00

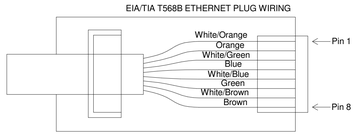
DOB BARCODE:

Total

9/24/2021 2:57:10 PM

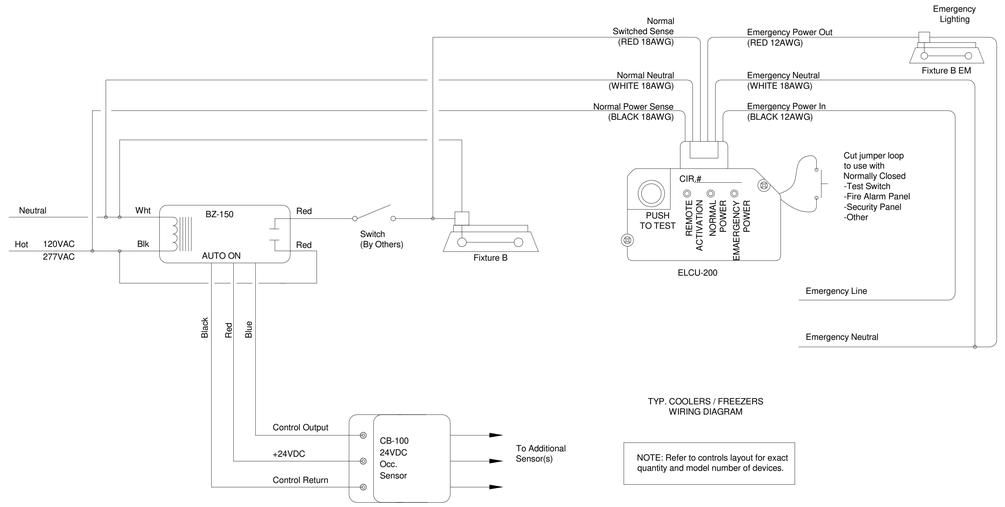
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

EIA/TIA T568B ETHERNET PLUG WIRING



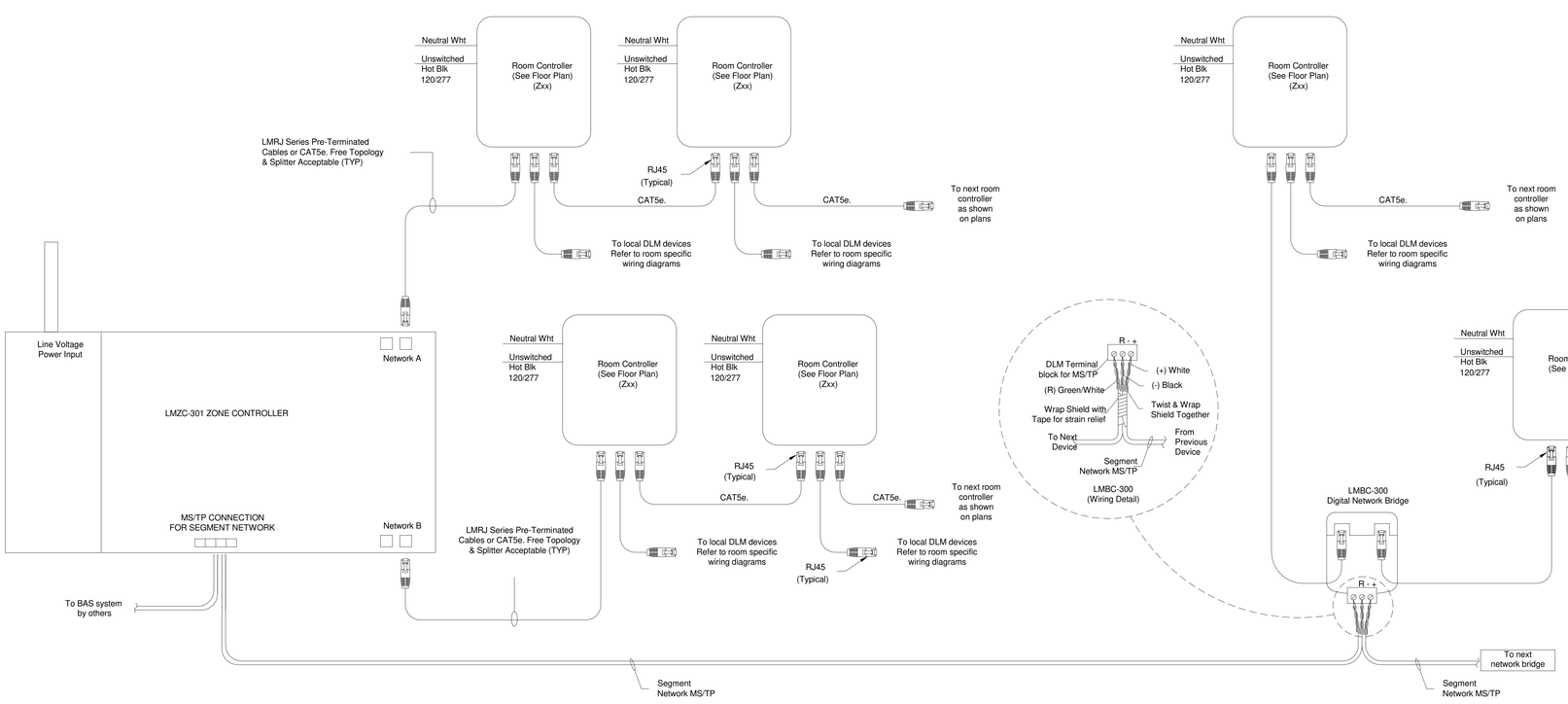
LATCHING TAB FACES AWAY
(ON OPPOSITE SIDE)

CAT5E WIRING DIAGRAM



TYP. COOLERS / FREEZERS
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



TYPICAL LMZC-301
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.

LIGHTING CONTROL NOTES

1. All sensor locations are approximate. Refer to the Manufacture's installation instructions prior to installation.

2. If any questions arise regarding sensor placement, contact SLS Lighting and Controls prior to installation to schedule a field visit.

3. If pendant mounted fixtures are present, location and coverage of sensors should be reviewed.

4. All corner mount sensors located in rooms with recessed fixtures should be mounted on ceiling instead of the wall. Please review installation diagram for instructions.

5. Ceiling mounted sensors require to be located no closer than 6-8' from air supply/return registers.

6. Maximum number of sensors that can be wired in parallel to a single room controller or power pack, depends on sensor model (see individual sheets for mA consumption).

7. Contractor is responsible for field verification of required number of power packs (if apply).

8. One power pack is required for each circuit that is to be controlled.

9. Power packs and/or DLM Room Controllers are shown for zoning purposes only. Contractor is responsible for determining actual location and circuiting.

10. Power packs (if apply) should be mounted at least 6-12 inches from any sensor.

11. Locations of photocells (if shown) are diagrammatic and for quantitative purposes only. Actual mounting locations of photocells should be determined in an onsite pre-installation meeting prior to roughing in equipment.

12. Per the requirements of the electrical code, areas labeled as "mechanical" or "electrical" where work may occur are not to be controlled by automated lighting controls alone.

13. Turn off any power at the circuit breaker before wiring any product.

14. Free-topology DLM local network segments may include digital load controllers, switches and sensors; Cat 5e cable, 150' per device to 1,000' max, per each local network.

LIGHTING CONTROL LEGEND
LEGRAND WATTSTOPPER

RC 1	LMRC-101	120/277 VAC	1-relay On/Off Room Controller
RC 2	LMRC-112	120/277 VAC	2-relay On/Off 0-10V Dimming Room Controller
RC 3	LMRC-211	120/277 VAC	1-relay On/Off 0-10V Dimming Room Controller
PP	BZ-150	120/277 VAC	Universal Voltage Power Pack
ER1	ELCU-200	120/277 VAC	Emergency Shunt Relay
DS1	LMUC-100-2	24VDC, 20mA	Ultrasonic Ceiling Sensor
DS2	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS3	LMPC-100-1	24VDC, 7mA	PIR Ceiling Sensor High Density Lens
DS4	LMPC-100-5	24VDC, 7mA	PIR Ceiling Sensor Extended Height Lens.
VS1	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS1	CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor.
S_{OS}	PW-100	120/277 VAC	1-Button PIR On/Off Switch Occ Sensor
D_{OS}	DW-311	120/277 VAC	2-Button Dual Tech 0-10V Dim With Switch Occ Sensor
S_{LV}	LMSW-101	24VDC, 5mA	1-button Digital Wall Switch
S_{LV}	LMSW-102	24VDC, 5mA	2-button Digital Wall Switch
D_{LV}	LMDM-101	24VDC, 5mA	1-button Dimming Wall Switch
NWI	LMBC-300	24VDC, 30mA	Network Bridge
LMZC	LMZC-301	120/277 VAC	Zone Controller With Enclosure

PLEASE CONTACT SLS CONTROLS WITH ANY QUESTIONS OR REVISIONS:

RON LEWERT - ron@slsltg.com
Cell Phone: 732-815-6931

DICKSON FERNANDES - dickson@slsltg.com
Cell Phone: 732-740-2294

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

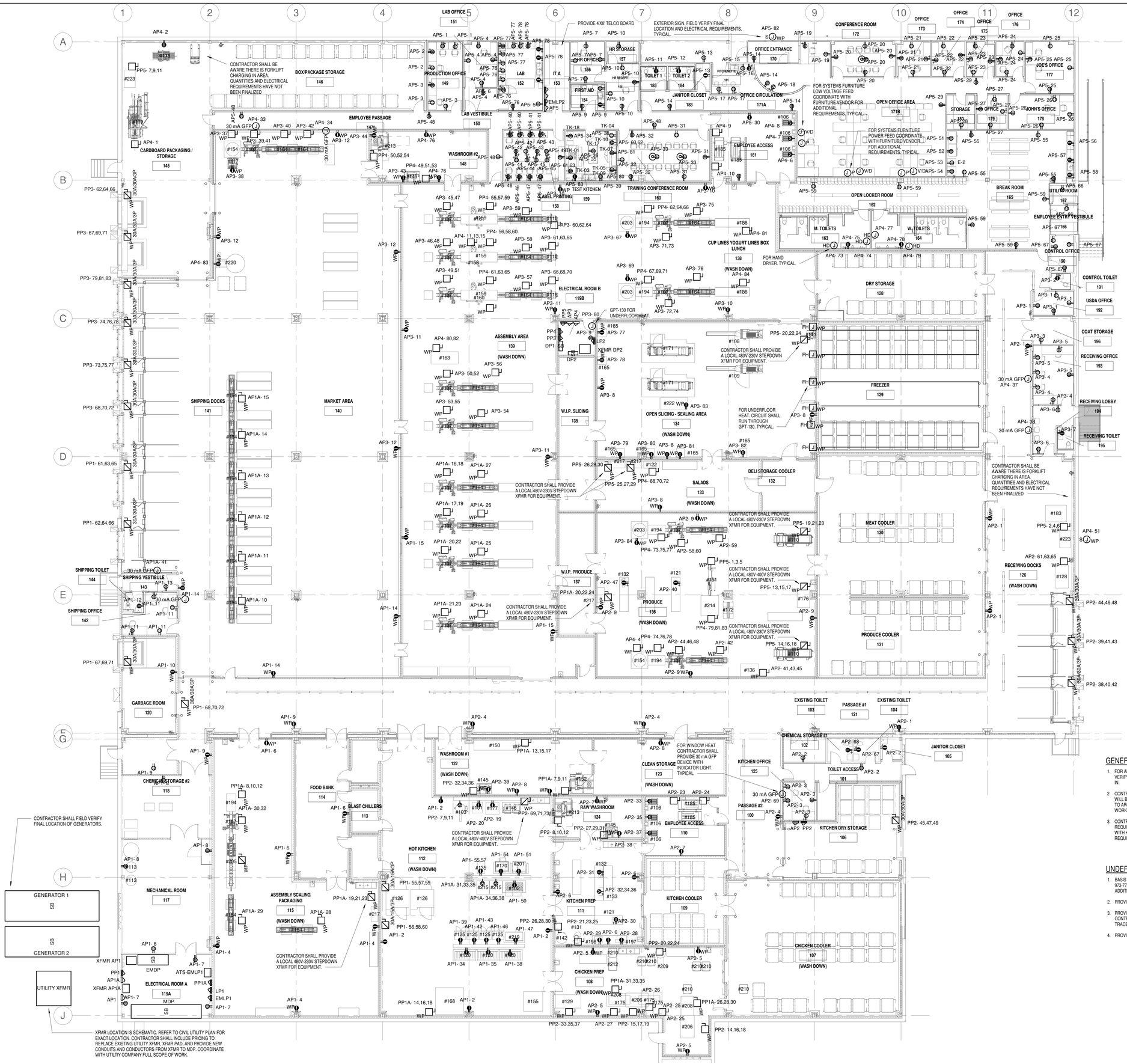
ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL LIGHTING CONTROL DETAILS
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-303.00
DOB BARCODE:
Total

9/24/2021 2:57:11 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 ELECTRICAL POWER PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. FOR ALL KITCHEN EQUIPMENT CONTRACTOR SHALL FIELD VERIFY FINAL ELECTRICAL REQUIREMENTS PRIOR TO ROUGH IN.
2. CONTRACTOR SHALL BE AWARE NOT ALL KITCHEN EQUIPMENT WILL BE INSTALLED IN PHASE 1. CONTRACTOR SHALL REFER TO ARCHITECTS DRAWINGS FOR PHASING AND SCOPE OF WORK REQUIREMENTS FOR ALL EQUIPMENT.
3. CONTRACTOR SHALL BE AWARE THERE ARE CONTROL WIRING REQUIREMENTS FOR THE KITCHEN EQUIPMENT. COORDINATE WITH KITCHEN EQUIPMENT MANUFACTURES FOR ALL REQUIRED CONTROL WIRING.

UNDERFLOOR HEAT GENERAL NOTES:

1. BASIS OF DESIGN IN THERMON. CONTACT PATRICK RIOTTO AT 973-772-8224 OR PMROTTO@LAWRENCELOWY.COM FOR ADDITIONAL INFORMATION.
2. PROVIDE THERMON FLX-8-2-OJ HEAT TRACE CABLE.
3. PROVIDE SEPERATE 3/4" CONDUIT FROM SENSOR TO GPT CONTROLLER. CONDUIT SHALL BE LOCATED BETWEEN HEAT TRACE RUNS IN MIDDLE OF FREEZER.
4. PROVIDE GPT-130 CONTROLLER

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

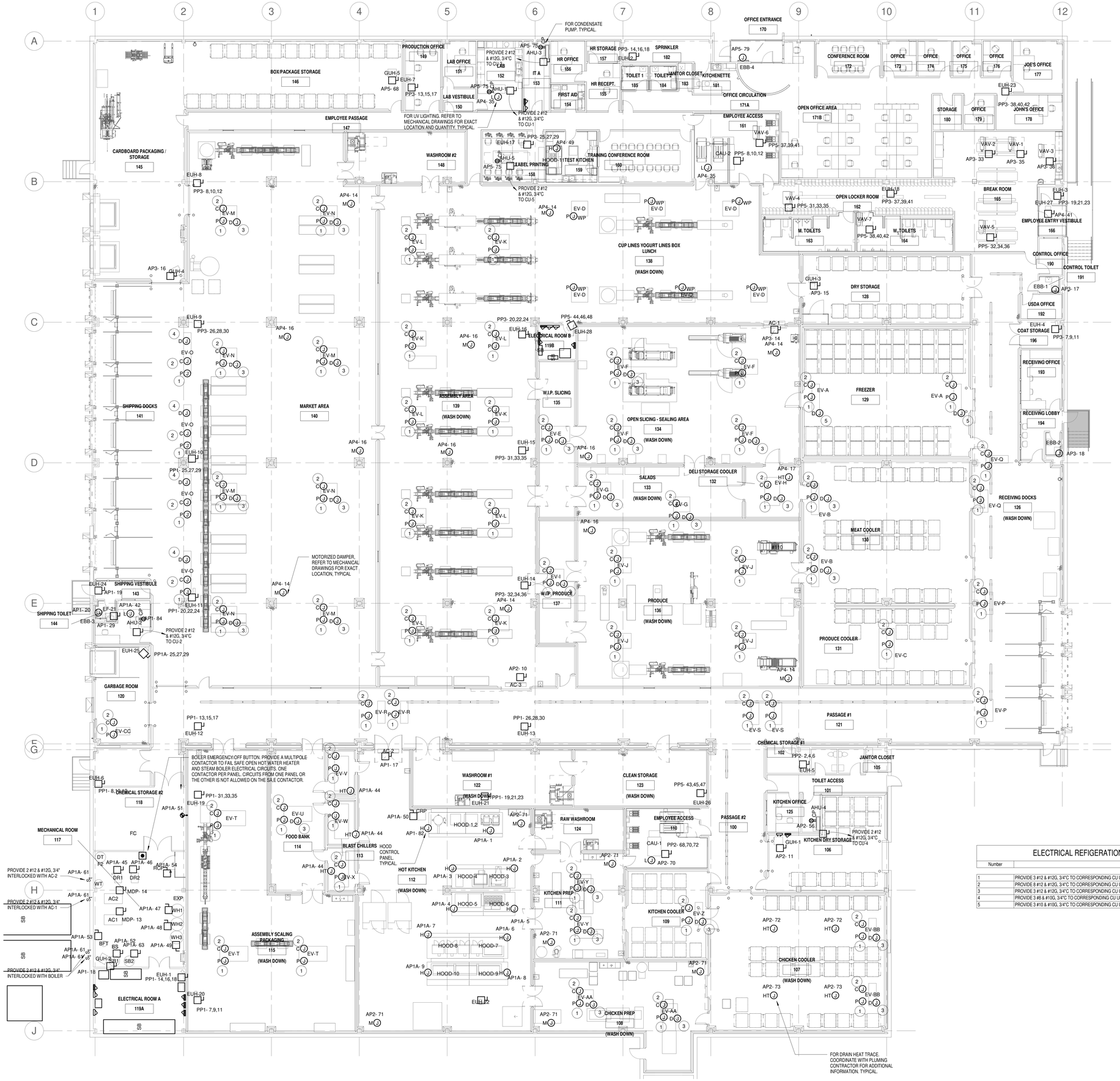
BRIAN D. TANNENHAUS
LICENSE NO. GE45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	ELECTRICAL FLOOR PLAN
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	E-400.00
DOB BARCODE:	Total

9/24/2021 2:57:22 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GENERAL CONDITIONS NOTE:



1 ELECTRICAL HVAC GROUND FLOOR
3/32" = 1'-0"

ELECTRICAL REFIGERATION DRAWING NOTES

Number	Text
1	PROVIDE 3 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
2	PROVIDE 8 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
3	PROVIDE 3 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
4	PROVIDE 3 #6 & #10G, 3/4"C TO CORRESPONDING CU UNIT
5	PROVIDE 3 #10 & #10G, 3/4"C TO CORRESPONDING CU UNIT

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

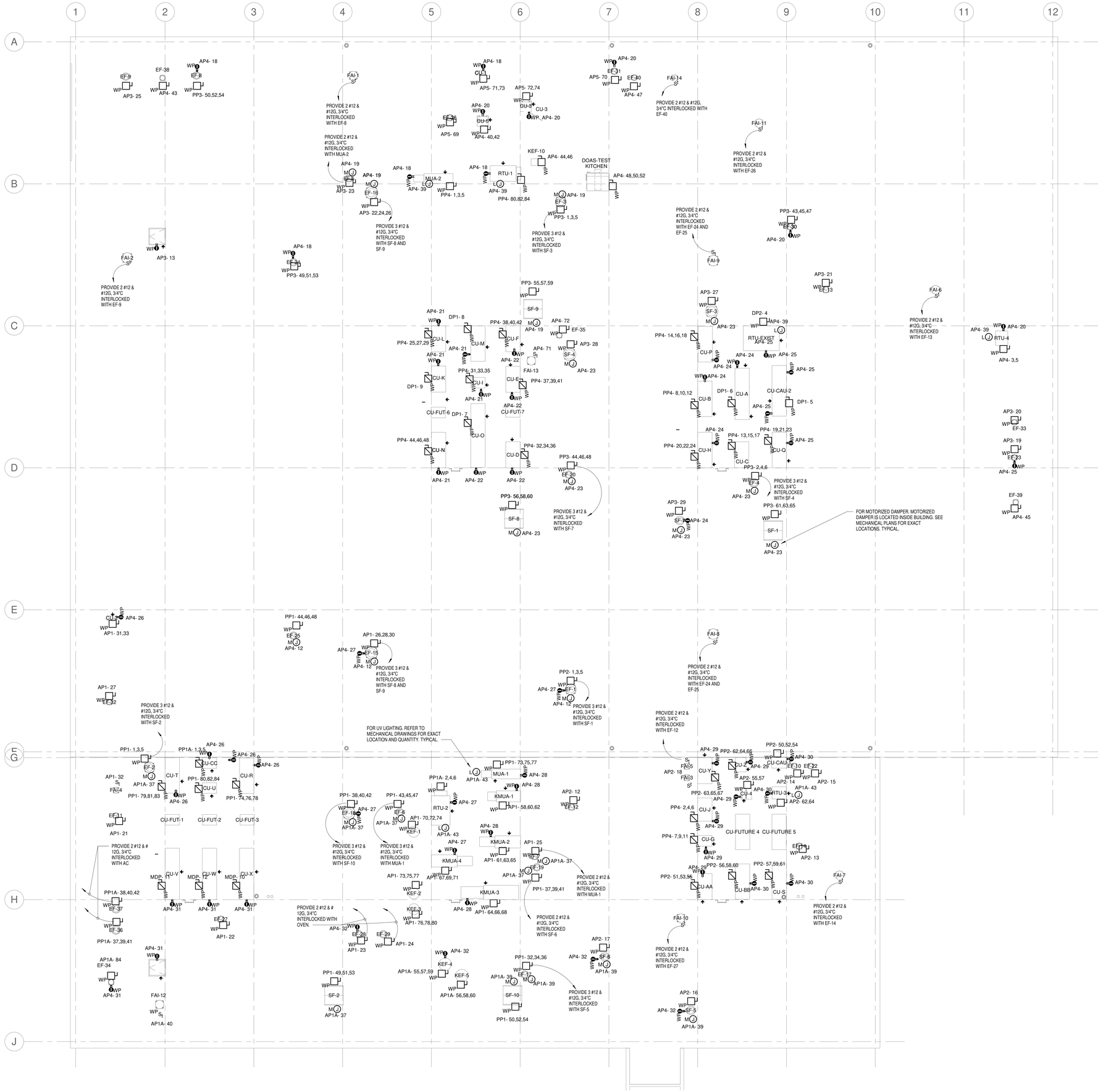
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL HVAC PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-500.00
DOB BARCODE:
Total

9/24/2021 2:57:44 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 ELECTRICAL ROOF PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

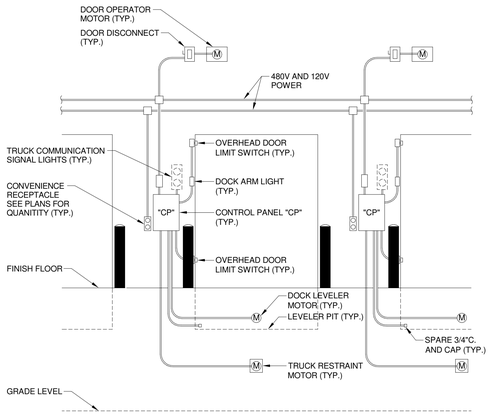
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

STATE OF NEW JERSEY
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL ROOF PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-501.00
DOB BARCODE:
Total

9/24/2021 2:57:51 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



DOCK DOOR EQUIPMENT CONNECTIONS DETAIL

SCALE: NONE

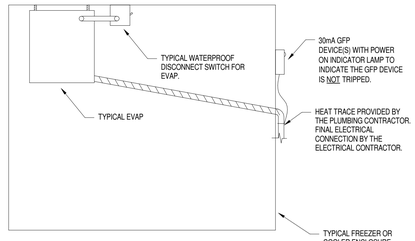
NOTES:

1. THIS CONTRACTOR IS RESPONSIBLE FOR POWER AND CONTROL CIRCUIT WIRING OF THE DOCK EQUIPMENT SYSTEM AS REQUIRED PER THE MANUFACTURER'S SHOP DRAWINGS. ALL DOCK EQUIPMENT LISTED ARE FURNISHED BY OTHERS UNLESS NOTED OTHERWISE. A COMPLETE COPY OF THIS SHOP DRAWING SHALL BE OBTAINED FROM OTHERS WHEN PACKAGE IS PURCHASED. CONNECTIONS INCLUDE DOCK ARM LIGHT, DOOR OPERATOR, DOCK LEVELER CONTROL PANEL, LIMIT SWITCHES, DOCK LEVELER MOTOR, TRUCK RESTRAINT MOTOR, COMMUNICATION SIGNAL LIGHTS AND CONTROL WIRES FROM DOOR OPERATOR TO THE DOCK LEVELER CONTROL PANEL. PROVIDE #12 AWG. WIRE FOR ALL POWER CIRCUITS AS A MINIMUM ON THE LOAD SIDE OF THE CONTROL PANEL.

2. THE DOCK LEVELER CONTROL PANEL MAY BE FURNISHED WITH A MAIN FUSED DISCONNECT SWITCH OR MAIN BREAKER. FOR PRICING PURPOSES ASSUME EC IS PROVIDING A FUSED SWITCH.

3. THE DOOR IS OPERATED BY THE DOCK LEVELER CONTROL PANEL AND POWERED BY THE SAME 480V, 3□ CIRCUIT, BUT OUTSIDE THE CONTROL PANEL, VERIFY WITH THE SHOP DRAWINGS ALSO.

4. THIS IS A GENERIC LAYOUT FOR ESTIMATING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL NOT PROVIDE ANY INSTALLATION WITHOUT THE REVIEW OF THE MANUFACTURERS SHOP DRAWINGS. CONDUITS SHOWN SHALL BE 3/4" AND PROVIDED AS A MINIMUM. APPROVAL FROM THE ENGINEER IS REQUIRED FOR ANY CHANGES.



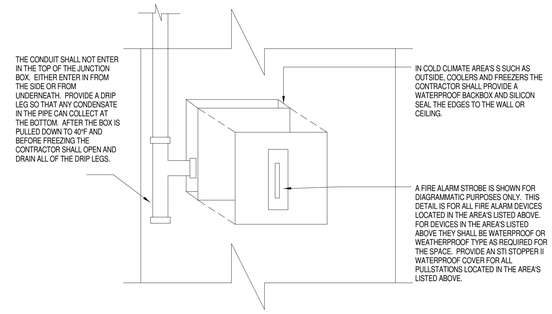
NOTES:

1. PROVIDE ONE 30mA GROUND FAULT PROTECTION DEVICE WITH INDICATOR LIGHT FOR THE CONDENSATE HEAT TRACE, DOOR HEAT AND/OR ONE 30mA GROUND FAULT PROTECTION DEVICE WITH INDICATOR LIGHT FOR FLOOR HEAT TAPE FOR FREEZER APPLICATIONS ONLY.

2. DISCONNECT SWITCH FOR THE EVAP SHALL NOT BE CONNECTED TO THE EVAP. IT SHALL EITHER BE WALL OR CEILING MOUNTED WITHIN REACH OF THE EVAP.

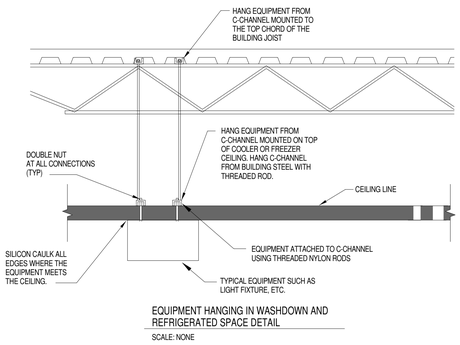
COOLER/FREEZER ELECTRICAL CONNECTION DETAIL

SCALE: NONE



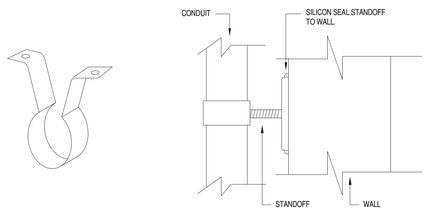
FIRE ALARM - COLD CLIMATE INSTALLATION

SCALE: NONE



EQUIPMENT HANGING IN WASHDOWN AND REFRIGERATED SPACE DETAIL

SCALE: NONE



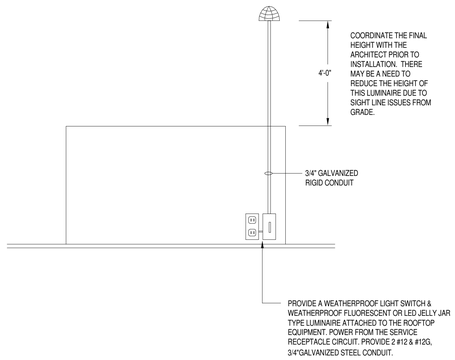
NOTES:

1. ALL EXPOSED PIPE SHALL BE SECURED USING A STAINLESS STEEL OR BRASS STANDOFF TYPE PIPE BRACKET. BRACKET SHALL PROVIDE A MINIMUM CLEARANCE OF 1" BETWEEN PIPE AND WALL OR CEILING.

2. THE BRACKETS SHOWN ARE FOR DIAGRAMMATIC PURPOSES ONLY. THE CONTRACTOR SHALL HAVE THE OPTION TO SUBMIT ALTERNATE STANDOFFS FOR APPROVAL PRIOR TO BID.

WASHDOWN(FOOD PROCESSING) CONDUIT STAND-OFF DETAIL

SCALE: NONE



ROOFTOP EQUIPMENT SERVICE LUMINAIRE

SCALE: NONE

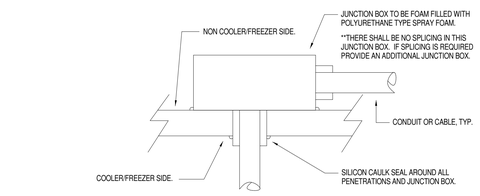
WASH DOWN ROOM(FOOD PROCESSING) CONDUIT INSTALLATION REQUIREMENTS

1. THE CONTRACTOR SHALL USE SCHEDULE STAINLESS STEEL OR PVC COATED RIDGID STEEL CONDUIT IN ALL OF THE FOOD PROCESSING AND OPEN FOOD STORAGE AREA'S. WHERE ALLOWED BY THE AHJ SCHEDULE 80 PVC SHOULD BE PROVIDED IN THE BID AS AN ALTERNATE PRICE, NYC DOES NOT ALLOW THIS OPTION.

2. THE CONTRACTOR SHALL PROVIDE 1" STAND-OFFS FOR ALL SURFACE MOUNTED PIPING LOCATED IN THE FOOD PROCESSING AND OPEN FOOD STORAGE AREA'S. REFER TO THE STAND-OFF DETAIL FOR ADDITIONAL INFORMATION.

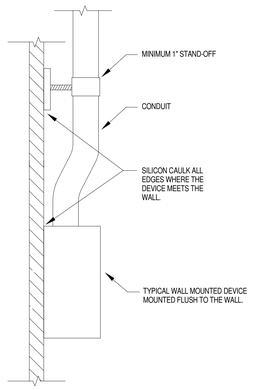
3. IT SHOULD ALSO BE NOTED THAT ALL ELECTRICAL DEVICES PROVIDED IN THE PRODUCTION AND STORAGE AREA'S WHERE WASHDOWN OF EQUIPMENT OCCURS SHALL BE NEMA 4X RATED. REFER TO THE ARCHITECTS PLANS FOR A COMPLETE UNDERSTANDING OF WASHDOWN AREA'S.

4. UNLESS OTHERWISE NOTED ON OUR PLANS OR THE ARCHITECTS, FOR BIDDING PURPOSES ANY AREA WITH FOOD PREPERATION(PROCESS) EQUIPMENT AND/OR HOSE STATIONS AND/OR A FLOOR DRAIN IN THE ROOM OR AT THE DOOR ENTRANCE SHALL BE CONSIDERED A FOOD PROCESSING AREA. PLEASE NOTE THAT DRAINS AT DOOR ENTRANCES MAY INDICATE THAT THE ROOMS ON BOTH SIDES OF THE DOOR ARE WASH DOWN ROOMS. IF UNSURE PROVIDE SEPARATE PRICING IN YOUR BID INDICATING YOUR ASSUMPTIONS BUT THE BREAK OUT PRICE SHOULD BE THE INCREASED PRICING FOR THE WASH DOWN EQUIPMENT REQUIREMENTS AS OUTLINED ABOVE.



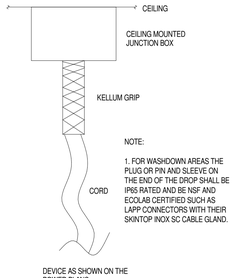
COOLER/FREEZER PENETRATION DETAIL

SCALE: NONE



WASHDOWN AREA WALL MOUNTED DEVICE DETAIL

SCALE: NONE



CORD DROP

SCALE: NONE

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ELECTRONIC FILES, ARE AND SHALL REMAIN THE PROPERTY OF **BD ENGINEERING**. WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL OUTSTANDING FEES OWED TO BD ENGINEERING FOR SERVICES RENDERED HAVE BEEN PROPERLY TILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION OF THE PROJECT IS IN ACCORDANCE WITH THE INFORMATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

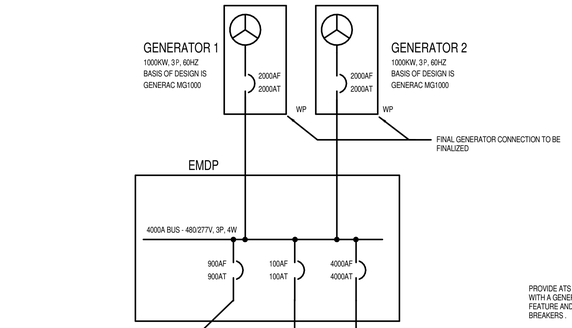
BRIAN D. TANNENHAUS

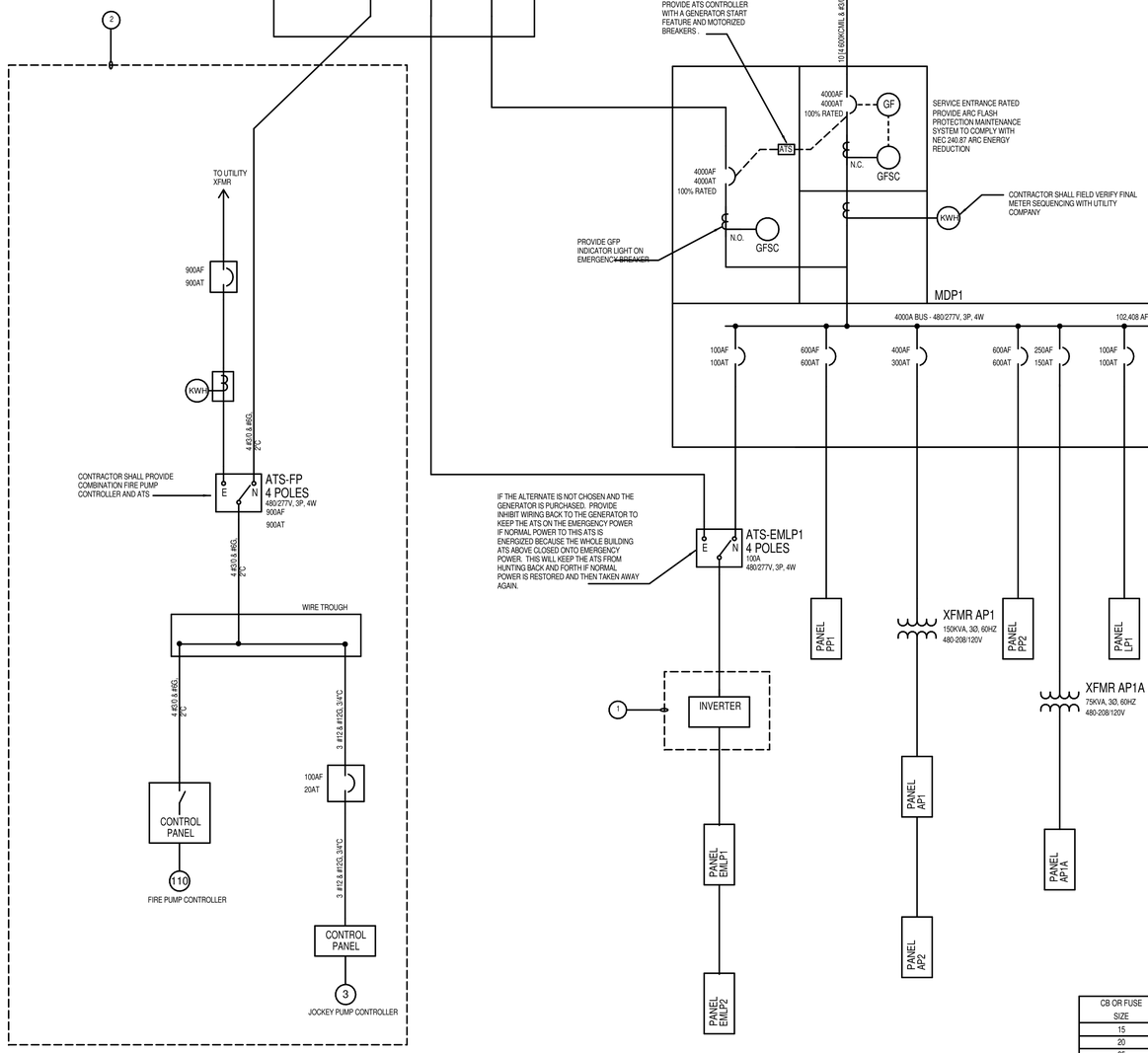
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

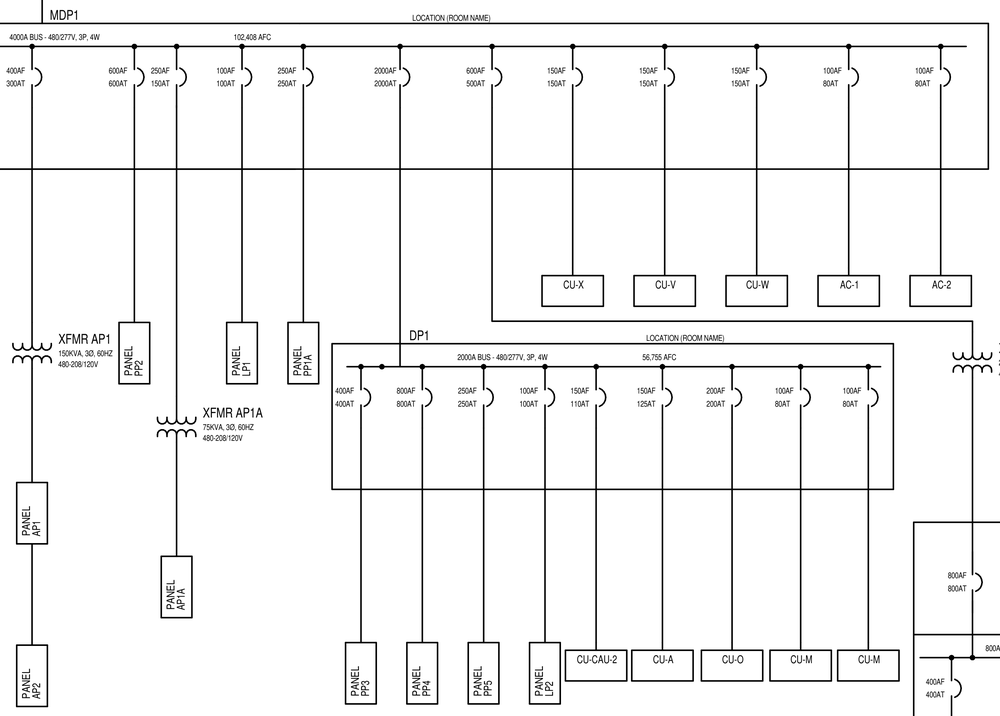
drawing name:	ELECTRICAL DETAILS
scale:	12" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	E-600.00
DOB BARCODE:	
	Total

9/24/2021 2:57:51 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt







FOR THE AVAILABLE FAULT CURRENT CALCULATIONS WE HAVE ASSUMED A 2500kVA UTILITY TRANSFORMER WITH INFINITE AVAILABLE FAULT CURRENT (AFC)

Z = 3%
AFC = 111,374

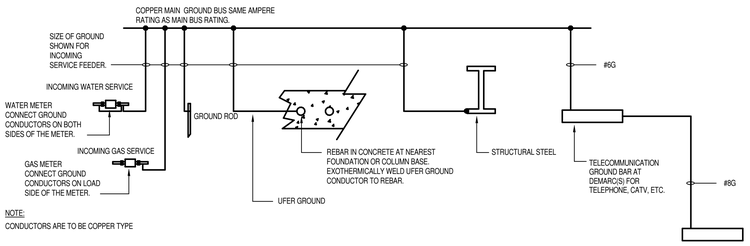
THE CONTRACTOR SHALL COORDINATE THE FINAL AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO ORDERING EQUIPMENT. ONCE THE AVAILABLE FAULT CURRENT IS KNOWN THE CONTRACTOR SHALL CONTACT THE ENGINEER. THE ENGINEER WILL PROVIDE THE CALCULATED AVAILABLE FAULT CURRENT FOR ALL OF THE ELECTRICAL EQUIPMENT AND INFORM THE ELECTRICIAN THE AVAILABLE FAULT CURRENT AND THE DATE THE FAULT CURRENT WAS CALCULATED. THIS INFORMATION WILL BE PLACED ON A WATERPROOF PERMANENT ENGRAVED PLACARD THAT WILL BE PLACED ON THE SERVICE EQUIPMENT.

DRAWING NOTES:

1. EQUIPMENT TO BE PRICED AS ALTERNATE TO PROVIDE EMERGENCY POWER TO THE EMERGENCY LIGHTING IF THE CLIENT DECIDES NOT TO PURCHASE THE GENERATOR. THE INVERTER SHALL BE SIZED TO PICK UP THE LOAD INDICATED IN THE PANEL SCHEDULE.
2. EQUIPMENT TO BE PRICED AS ALTERNATE FIRE PUMP REQUIREMENTS HAVE NOT BEEN FINALIZED.

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR FUSED/SWITCHES SHOWN ARE 3 POLE TYPE.
2. UNLESS OTHERWISE NOTED, THE AVAILABLE FAULT CURRENT (AFC) SHOWN IS THE MINIMUM RATING FOR THAT EQUIPMENT. THE CONTRACTOR SHALL ENSURE THE FAULT CURRENT RATING OF THE EQUIPMENT PROVIDED IS EQUAL OR GREATER THAN THE AVAILABLE FAULT CURRENT (AFC).
3. THE CONTRACTOR SHALL ASSUME FOR MULTI-SECTION PANELS THERE WILL BE FEED-THROUGH LUGS FROM ONE SECTION TO THE OTHER SECTION AND CONNECTED WITH A FEEDER THE SAME SIZE AS THE FEEDER CONDUCTORS AND CONDUIT(S) FROM THE UPSTREAM OVER CURRENT PROTECTION DEVICE.
4. UNLESS OTHERWISE NOTED, ALL CONDUCTOR SIZES SHOWN ARE COPPER TYPE.
5. UNLESS OTHERWISE NOTED ALL ELECTRICAL PANELS WILL BE REQUIRED TO HAVE SURGE PROTECTION. REFER TO COVER SHEET FOR ADDITIONAL INFORMATION.



NOTE:
CONDUCTORS ARE TO BE COPPER TYPE

SERVICE GROUNDING DETAIL

SCALE: NONE

CB OR FUSE SIZE	3P, 4W WIRE SIZE OR SETS OF WIRE	3P, 3W WIRE SIZE OR SETS OF WIRE	1P, 2W WIRE SIZE OR SETS OF WIRE
15	4 #12 & #12G, 3/4"C	3 #12 & #12G, 3/4"C	2 #12 & #12G, 3/4"C
20	4 #12 & #12G, 3/4"C	3 #12 & #12G, 3/4"C	2 #12 & #12G, 3/4"C
25	4 #10 & #10G, 3/4"C	3 #10 & #10G, 3/4"C	2 #10 & #10G, 3/4"C
30	4 #10 & #10G, 3/4"C	3 #10 & #10G, 3/4"C	2 #10 & #10G, 3/4"C
40	4 #8 & #10G, 3/4"C	3 #8 & #10G, 3/4"C	2 #8 & #10G, 3/4"C
45	4 #6 & #10G, 1"C	3 #6 & #10G, 3/4"C	2 #6 & #10G, 3/4"C
50	4 #6 & #10G, 1"C	3 #6 & #10G, 3/4"C	2 #6 & #10G, 3/4"C
60	4 #4 & #10G, 1-1/4"C	3 #4 & #10G, 1-1/4"C	2 #4 & #10G, 1-1/4"C
70	4 #4 & #6G, 1-1/4"C	3 #4 & #6G, 1"C	2 #4 & #6G, 1"C
80	4 #3 & #6G, 1-1/4"C	3 #3 & #6G, 1-1/4"C	2 #3 & #6G, 1-1/4"C
90	4 #2 & #6G, 1-1/4"C	3 #2 & #6G, 1-1/4"C	2 #2 & #6G, 1-1/4"C
100	4 #1 & #6G, 1-1/2"C	3 #1 & #6G, 1-1/2"C	2 #1 & #6G, 1-1/2"C
110	4 #1 & #6G, 1-1/2"C	3 #1 & #6G, 1-1/4"C	
125	4 #1 & #6G, 2"C	3 #1 & #6G, 1-1/2"C	
150	4 #1/0 & #6G, 2"C	3 #1/0 & #6G, 1-1/2"C	
175	4 #2/0 & #6G, 2"C	3 #2/0 & #6G, 2"C	
200	4 #3/0 & #6G, 2"C	3 #3/0 & #6G, 2"C	
225	4 #4/0 & #4G, 2-1/2"C	3 #4/0 & #4G, 2-1/2"C	
250	4 250KCMIL & #4G, 2-1/2"C	3 250KCMIL & #4G, 2-1/2"C	
300	4 350KCMIL & #4G, 3"C	3 350KCMIL & #4G, 3"C	
350	4 500KCMIL & #3G, 4"C	3 500KCMIL & #3G, 4"C	
400	4 600KCMIL & #3G, 4"C	3 600KCMIL & #3G, 4"C	
450	2 [4 #4/0 & 2G, 3"C]	2 [3 #4/0 & #2G, 3"C]	
500	2 [4 250KCMIL & #2G, 2-1/2"C]	2 [3 250KCMIL & #2G, 3"C]	
600	2 [4 350KCMIL & #1G, 3"C]	2 [3 350KCMIL & #1G, 3"C]	
700	2 [4 500KCMIL & #1/0G, 4"C]	2 [4 500KCMIL & #1/0G, 4"C]	
800	2 [4 600KCMIL & #1/0G, 4"C]	2 [3 600KCMIL & #1/0G, 4"C]	
1000	3 [4 400KCMIL & #2/0G, 4"C]	3 [3 400KCMIL & #2/0G, 4"C]	
1200	3 [4 600KCMIL & #3/0G, 4"C]	3 [3 600KCMIL & #3/0G, 4"C]	
1600	4 [4 600KCMIL & #4/0G, 4"C]	4 [3 600KCMIL & #4/0G, 4"C]	
1800	5 [4 500KCMIL & 250KCMILG, 4"C]	5 [3 500KCMIL & 250KCMILG, 4"C]	
2000	5 [4 600KCMIL & 250KCMILG, 4"C]	5 [3 600KCMIL & 250KCMILG, 4"C]	
2500	6 [4 600KCMIL & 350KCMILG, 4"C]	6 [3 600KCMIL & 350KCMILG, 4"C]	
3000	8 [4 500KCMIL & 400KCMILG, 4"C]	8 [3 500KCMIL & 400KCMILG, 4"C]	
4000	10 [4 600KCMIL & 500KCMILG, 4"C]	10 [3 600KCMIL & 500KCMILG, 4"C]	
5000	13 [4 600KCMIL & 700KCMILG, 4"C]	13 [3 600KCMIL & 700KCMILG, 4"C]	
6000	15 [4 600KCMIL & 800KCMILG, 4"C]	15 [3 600KCMIL & 800KCMILG, 4"C]	

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	ELECTRICAL SINGLE LINE DIAGRAM
scale:	12" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	E-700.00
DOB BARCODE:	Total

9/24/2021 2:57:52 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

Switchboard: MDP

Location: ELECTRICAL ROOM A... **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: **Phases:** 3 **Mains Type:**
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	ATS-EMLP1	3	34400 VA	
2	PP1	3	251805 VA	
3	XFMR AP1	3	140794 VA	
4	PP2	3	285189 VA	
5	XFMR AP1A	3	73519 VA	
6	LP1	3	17200 VA	
7	PP1A	3	92444 VA	
8	DP1	3	1203912...	
9	XFMR DP2	3	261620 VA	
10	CU-X	3	85365 VA	
11	CU-V	3	85365 VA	
12	CU-W	3	85365 VA	
13	AC1	3	47997 VA	
14	AC2	3	47997 VA	
15				
16				
17				
18				
19				
20				
			2712973...	
			3263.2	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	2082673 VA	100.00%	2082673 VA		
Receptacle	55440 VA	59.02%	32720 VA	**Total Conn. Load:**	2712973 VA
Spare	68800 VA	100.00%	68800 VA	**Total Est. Demand:**	2513132 VA
Kitchen	506060 VA	65.00%	328939 VA	**Total Conn.:**	3263.2
				Total Est. Demand:	3022.8

Notes:

Switchboard: DP1

Location: ELECTRICAL ROOM B... **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	PP3	3	215822 VA	
2	PP4	3	542832 VA	
3	PP5	3	106775 VA	
4	LP2	3	17200 VA	
5	CU-CAU-2	3	54557 VA	
6	CU-A	3	73906 VA	
7	CU-O	3	107122 VA	
8	CU-M	3	44011 VA	
9	CU-K	3	41686 VA	
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			1203912...	
			1448.1	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	1029745 VA	100.00%	1029745 VA		
Spare	17200 VA	100.00%	17200 VA	**Total Conn. Load:**	1203912 VA
Kitchen	156966 VA	65.00%	102028 VA	**Total Est. Demand:**	1148974 VA
				Total Conn.:	1448.1
				Total Est. Demand:	1382.0

Notes:

Switchboard: DP2

Location: ELECTRICAL ROOM B... **Volts:** 120/208 Wye **A.I.C. Rating:**
Supply From: XFMR DP2 **Phases:** 3 **Mains Type:**
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	AP3	3	99334 VA	
2	AP4	3	76979 VA	
3	AP5	3	57600 VA	
4	RTU-EXIST	3	27708 VA	
5				
6				
7				
8				
9				
10				
			261620 VA	
			726.2	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	87758 VA	100.00%	87758 VA		
Receptacle	42300 VA	61.82%	26150 VA	**Total Conn. Load:**	261620 VA
Kitchen	131562 VA	65.00%	85516 VA	**Total Est. Demand:**	199423 VA
				Total Conn.:	726.2
				Total Est. Demand:	553.5

Notes:

Branch Panel: PP1

Location: ELECTRICAL ROOM A 119A **Volts:** 480/277 Wye **A.I.C. Rating:** 82961
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 600.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 2491...						2	
3-#12, 1-#12, 1-#12	3	EF-1	20.0	3		609... 2491...		3	20.0	EUH-22	4	3-#12, 1-#12, 1-#12
	5						609... 2491...				6	
	7				2491... 996...						8	
3-#12, 1-#12, 1-#12	9	EUH-20	20.0	3		2491... 996...		3	20.0	EUH-6	10	3-#12, 1-#12, 1-#12
	11						2491... 996...				12	
	13				2491... 1661...						14	
3-#12, 1-#12, 1-#12	15	EUH-12	20.0	3		2491... 1661...		3	20.0	EUH-1	16	3-#12, 1-#12, 1-#12
	17						2491... 1661...				18	
	19				2491... 2491...						20	
3-#12, 1-#12, 1-#12	21	EUH-21	20.0	3		2491... 2491...		3	20.0	EUH-11	22	3-#12, 1-#12, 1-#12
	23						2491... 2491...				24	
	25				2491... 2491...						26	
3-#12, 1-#12, 1-#12	27	EUH-10	20.0	3		2491... 2491...		3	20.0	EUH-13	28	3-#12, 1-#12, 1-#12
	29						2491... 2491...				30	
	31				2491... 424...						32	
3-#12, 1-#12, 1-#12	33	EUH-19	20.0	3		2491... 424...		3	20.0	EF-17	34	3-#12, 1-#12, 1-#12
	35						2491... 424...				36	
	37				304... 941...						38	
3-#12, 1-#12, 1-#12	39	EF-19	20.0	3		304... 941...		3	20.0	EF-18	40	3-#12, 1-#12, 1-#12
	41						304... 941...				42	
	43				304... 304...						44	
3-#12, 1-#12, 1-#12	45	Power	20.0	3		304... 304...		3	20.0	EF-25	46	3-#12, 1-#12, 1-#12
	47						304... 304...				48	
	49				443... 581...						50	
3-#12, 1-#12, 1-#12	51	SF-2	20.0	3		443... 581...		3	20.0	SF-10	52	3-#12, 1-#12, 1-#12
	53						443... 581...				54	
	55				1384... 1384...						56	
3-#12, 1-#12, 1-#12	57	#126	15.0	3		1384... 1384...		3	15.0	#126	58	3-#12, 1-#12, 1-#12
	59						1384... 1384...				60	
	61				6643... 6643...						62	
3-#10, 1-#10, 1-#10	63	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	64	3-#10, 1-#10, 1-#10
	65						6643... 6643...				66	
	67				6643... 6643...						68	
3-#10, 1-#10, 1-#10	69	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	70	3-#10, 1-#10, 1-#10
	71						6643... 6643...				72	
	73				969... 9411...						74	
3-#12, 1-#12, 1-#12	75	MUA-1	20.0	3		969... 9411...		3	50.0	CU-R	76	3-#6, 1-#6, 1-#10
	77						969... 9411...				78	
	79				1273... 4982...						80	
3-#10, 1-#10, 1-#10	81	CU-T	20.0	3		1273... 4982...		3	30.0	CU-U	82	3-#10, 1-#10, 1-#10
	83						1273... 4982...				84	
					Total Load: 83935 VA	83935 VA	83935 VA					
					Total Amps: 303.0	303.0	303.0					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	251805 VA	100.00%	251805 VA		
				Total Conn. Load:	251805 VA
				Total Est. Demand:	251805 VA
				Total Conn.:	302.9
				Total Est. Demand:	302.9

Branch Panel: PP2

Location: KITCHEN DRY STORAGE 106 **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 600.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 996...						2	
3-#12, 1-#12, 1-#12	3	EF-1	20.0	3		609... 996...		3	20.0	EUH-5	4	3-#12, 1-#12, 1-#12
	5						609... 996...				6	
	7				1938... 4982...						8	
3-#12, 1-#12, 1-#12	9	#103	20.0	3		1938... 4982...		3	25.0	#213	10	3-#10, 1-#10, 1-#10
	11						1938... 4982...				12	
--	13	SHUNT TRIP	--	1	-- 767...						14	
	15					767... 767...		3	20.0	#206	16	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	17	#206	20.0	3			767... 767...				18	
	19				767... 830...						20	
	21					388... 830...		3	20.0	#209	22	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	23	#131	20.0	3			388... 830...				24	
	25				388... 3598...						26	
	27					2491... 3598...		3	20.0	#142	28	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	29	#145	20.0	3			2491... 3598...				30	
	31				2491... 2491...						32	
	33					2768... 2491...		3	20.0	#145	34	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	35	#129	20.0	3			2768... 2491...				36	
	37				2768... 6643...						38	
	39					6643... 6643...		3	30.0	MOTORIZED DOOR	40	3-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	41	MOTORIZED DOOR	30.0	3			6643... 6643...				42	
	43				6643... 6643...						44	
	45					6643... 6643...		3	30.0	MOTORIZED DOOR	46	3-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	47	MOTORIZED DOOR	30.0	3			6643... 6643...				48	
	49				6643... 4152...						50	
	51					8027... 4152...		3	20.0	CU-CAU-1	52	3-#12, 1-#12, 1-#12
3-#8, 1-#8, 1-#10	53	CU-AA	40.0	3			8027... 4152...				54	
	55				8027... 1079...						56	
	57					9411... 1079...		3	60.0	CU-BB	58	3-#4, 1-#4, 1-#10
3-#6, 1-#6, 1-#10	59	CU-S	50.0	3			9411... 1079...				60	
	61				9411... 4982...						62	
	63					6782... 4982...		3	30.0	CU-Z	64	3-#10, 1-#10, 1-#10
3-#8, 1-#8, 1-#10	65	CU-Y	35.0	3			6782... 4982...				66	
	67				6782... 1215...						68	
	69					500... 1215...		3	20.0	CAU-1	70	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	71	#146	20.0	3			500... 1215...				72	
	73				500... 0 VA						74	
--	75	Spare	20.0	1		0 VA 0 VA		1	20.0	Spare	76	--
--	77	Spare	20.0	1			0 VA 0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA 0 VA			1	20.0	Spare	80	--
--	81	Spare	20.0	1		0 VA 0 VA		1	20.0	Spare	82	--
--	83	Spare	20.0	1			0 VA 0 VA	1	20.0	Spare	84	--
					Total Load: 95063 VA	95063 VA	95063 VA					
					Total Amps: 343.2	343.2	343.2					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	222129 VA	100.00%	222129 VA		
Kitchen	63060 VA	65.00%	40989 VA	**Total Conn. Load:**	285189 VA
				Total Est. Demand:	263118 VA
				Total Conn.:	343.0
				Total Est. Demand:	316.5

Branch Panel: PP3

Location: ELECTRICAL ROOM B 119B **Volts:** 480/277 Wye **A.I.C. Rating:** 50058
Supply From: DP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 400.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 941...						2	
3-#12, 1-#12, 1-#12	3	EF-3	20.0	3		609... 941...		3	20.0	EF-4	4	3-#12, 1-#12, 1-#12
	5						609... 941...				6	
	7				996... 2491...						8	
3-#12, 1-#12, 1-#12	9	EUH=4	20.0	3		996... 2491...		3	20.0	EUH-8	10	3-#12, 1-#12, 1-#12
	11						996... 2491...				12	
	13				2491... 1005...						14	
3-#12, 1-#12, 1-#12	15	EUH-7	20.0	3		2491... 1005...		3	20.0	EUH-2	16	3-#12, 1-#12, 1-#12
	17						2491... 1005...				18	
	19				996... 2491...						20	
3-#12, 1-#12, 1-#12	21	EUH-3	20.0	3		996... 2491...		3	20.0	EUH-16	22	3-#12, 1-#12, 1-#12
	23						996... 2491...				24	
	25				2491... 2491...						26	
3-#12, 1-#12, 1-#12	27	EUH-17	20.0	3		2491... 2491...		3	20.0	EUH-9	28	3-#12, 1-#12, 1-#12
	29						2491... 2491...				30	
	31				2491... 2491...						32	
3-#12, 1-#12, 1-#12	33	EUH-15	20.0	3		2491... 2491...		3	20.0	EUH-14	34	3-#12, 1-#12, 1-#12
	35						2491... 2491...				36	
	37				2491... 2491...						38	
3-#12, 1-#12, 1-#12	39	EUH-18	20.0	3		2491... 2491...		3	20.0	EUH-23	40	3-#12, 1-#12, 1-#12
	41						2491... 2491...				42	
	43				304... 304...						44	
3-#12, 1-#12, 1-#12	45	Power	20.0	3		304... 304...		3	20.0	EF-20	46	3-#12, 1-#12, 1-#12
	47						304... 304...				48	
	49				609... 304...						50	
3-#12, 1-#12, 1-#12	51	EF-24	20.0	3		609... 304...		3	20.0	EF-8	52	3-#12, 1-#12, 1-#12
	53						609... 304...				54	
	55				581... 581...						56	
3-#12, 1-#12, 1-#12	57	SF-9	20.0	3		581... 581...		3	20.0	SF-8	58	3-#12, 1-#12, 1-#12
	59						581... 581...				60	
	61				581... 6643...						62	
3-#12, 1-#12, 1-#12	63	SF-1	20.0	3		581... 6643...		3	30.0	MOTORIZED DOOR	64	3-#10, 1-#10, 1-#10
	65						581... 6643...				66	
	67				6643... 6643...						68	
3-#10, 1-#10, 1-#10	69	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	70	3-#10, 1-#10, 1-#10
	71						6643... 6643...				72	
	73				6643... 6643...						74	
3-#10, 1-#10, 1-#10	75	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	76	3-#10, 1-#10, 1-#10
	77						6643... 6643...				78	
	79				6643... 5540...			1	30.0	FLOOR HEAT	80	1-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	81	MOTORIZED DOOR	30.0	3		6643... 0 VA		1	20.0	Spare	82	--
	83						6643... 0 VA	1	20.0	Spare	84	--
					Total Load: 75634 VA	70094 VA	70094 VA					
					Total Amps: 273.0	253.0	253.0					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	215822 VA	100.00%	215822 VA		
				Total Conn. Load:	215822 VA
				Total Est. Demand:	215822 VA
				Total Conn.:	259.6
				Total Est. Demand:	259.6

Branch Panel: PP4

Location: ELECTRICAL ROOM B 119B **Volts:** 480/277 Wye **A.I.C. Rating:** 51032
Supply From: DP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 800.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				747... 1217...						2	
3-#12, 1-#12, 1-#12	3	MUA-2	20.0	3		747... 1217...		3	70.0	CU-J	4	3-#4, 1-#4, 1-#8
	5						747... 1217...				6	
	7				4982... 1273...						8	
3-#12, 1-#12, 1-#12	9	CU-G	20.0	3		4982... 1273...		3	70.0	CU-B	10	3-#4, 1-#4, 1-#8
	11						4982... 1273...				12	
	13				8581... 1079...						14	
3-#6, 1-#6, 1-#10	15	CU-C	50.0	3		8581... 1079...		3	60.0	CU-P	16	3-#4, 1-#4, 1-#10
	17						8581... 1079...				18	
	19				1079... 5204...						20	
3-#4, 1-#4, 1-#10	21	CU-Q	60.0	3		1079... 5204...		3	30.0	CU-H	22	3-#10, 1-#10, 1-#10
	23						1079... 5204...				24	
	25				1389... 0 VA			1	20.0	Spare	26	--
3-#3, 1-#3, 1-#8	27	CU-L	80.0	3		1389... 0 VA		1	20.0	Spare	28	--
	29						1389... 0 VA	1	20.0	Spare	30	--
	31				3322... 1389...						32	
3-#12, 1-#12, 1-#12	33	CU-I	20.0	3		3322... 1389...		3	80.0	CU-D	34	3-#3, 1-#3, 1-#8
	35						3322... 1389...				36	
	37				6643... 1217...						38	
3-#8, 1-#8, 1-#10	39	CU-E	35.0	3		6643... 1217...		3	70.0	CU-F	40	3-#4, 1-#4, 1-#8
	41						6643... 1217...				42	
--	43	Spare	20.0	1	0 VA 1467...						44	
--	45	Spare	20.0	1		0 VA 1467...		3	80.0	CU-N	46	3-#3, 1-#3, 1-#8
--	47	Spare	20.0	1			0 VA 1467...				48	
	49				2768... 1716...						50	
3-#12, 1-#12, 1-#12	51	#145	15.0	3		2768... 1716...		3	80.0	#213	52	3-#3, 1-#3, 1-#8
	53						2768... 1716...				54	
	55				2768... 2768...						56	
3-#12, 1-#12, 1-#12	57	#159	20.0	3		2768... 2768...		3	20.0	#159	58	3-#12, 1-#12, 1-#12
	59						2768... 2768...				60	
	61				2768... 2768...						62	
3-#12, 1-#12, 1-#12	63	#159	20.0	3		2768... 2768...		3	20.0	#194	64	3-#12, 1-#12, 1-#12
	65						2768... 2768...				66	
	67				2768... 4152...						68	
3-#12, 1-#12, 1-#12	69	#194	20.0	3		2768... 4152...		3	20.0	#122	70	3-#12, 1-#12, 1-#12
	71						2768... 4152...				72	
	73				2768... 2768...						74	
3-#12, 1-#12, 1-#12	75	#194	20.0	3		2768... 2768...		3	20.0	#194	76	3-#12, 1-#12, 1-#12
	77						2768... 2768...				78	
	79				1329... 5536...						80	
3-#12, 1-#12, 1-#12	81	#214	20.0	3		1329... 5536...		3	25.0	RTU-1	82	3-#10, 1-#10, 1-#10
	83						1329... 5536...				84	
					Total Load: 180944 VA	180944 VA	180944 VA					
					Total Amps: 653.2	653.2	653.2					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	412460 VA	100.00%	412460 VA		
Kitchen	130373 VA	65.00%	84742 VA	**Total Conn. Load:**	542832 VA
				Total Est. Demand:	497202 VA
				Total Conn.:	652.9
				Total Est. Demand:	598.0

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN GRAPHICALLY, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PAID TO CYBUL CYBUL WILHELM ARCHITECTS (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND MATERIALS SPECIFIED ARE SUITABLE FOR THE APPLICATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL PANEL SCHEDULES

scale:

release date:

drawing date:
09/24/2021

drawn by:
AW

approved by:
BT

project no.:
2102

drawing no.:
E-701.00

DOB BARCODE:

Total

9/24/2021 2:57:55 PM

Branch Panel: PP5

Location: ELECTRICAL ROOM B 119B **Supply From:** DP1 **Mounting:** Surface **Enclosure:** Type 1
Volts: 480/277 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: 47839 **Mains Type:** MAIN LUG ONLY **Mains Rating:** 250.0 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
	1				600...	3875...								2	
3-#12, 1-#12, 1-#12	3	#151	20.0	3			600...	3875...			3	20.0	#223	4	3-#12, 1-#12, 1-#12
	5								600...	3875...				6	
	7				3875...	5212...								8	
3-#12, 1-#12, 1-#12	9	#223	20.0	3			3875...	5212...			3	25.0	CAU-2	10	3-#10, 1-#10, 1-#10
	11								3875...	5212...				12	
	13				1467...	3316...								14	
3-#12, 1-#12, 1-#12	15	#176	20.0	3			1467...	3316...			3	20.0	#110	16	3-#12, 1-#12, 1-#12
	17								1467...	3316...				18	
	19				3316...	1326...								20	
3-#12, 1-#12, 1-#12	21	#110	20.0	3			3316...	1326...			3	20.0	#111	22	3-#12, 1-#12, 1-#12
	23								3316...	1326...				24	
	25				557...	557...								26	
3-#12, 1-#12, 1-#12	27	#117	20.0	3			557...	557...			3	20.0	#117	28	3-#12, 1-#12, 1-#12
	29								557...	557...				30	
	31				4333...	1500...								32	
3-#12, 1-#12, 1-#12	33	VAV-4	20.0	3			4333...	1500...			3	20.0	VAV-5	34	3-#12, 1-#12, 1-#12
	35								4333...	1500...				36	
	37				1500...	1500...								38	
3-#12, 1-#12, 1-#12	39	VAV-6	20.0	3			1500...	1500...			3	20.0	VAV-7	40	3-#12, 1-#12, 1-#12
	41								1500...	1500...				42	
	43				1661...	996...								44	
3-#12, 1-#12, 1-#12	45	EUH-26	20.0	3			1661...	996...			3	20.0	EUH-28	46	3-#12, 1-#12, 1-#12
	47								1661...	996...				48	
--	49	Spare	20.0	1	0 VA	--					1	--	Space	50	--
--	51	Spare	20.0	1			0 VA	--			1	--	Space	52	--
--	53	Spare	20.0	1					0 VA	--	1	--	Space	54	--
--	55	Spare	20.0	1	0 VA	--					1	--	Space	56	--
--	57	Spare	20.0	1			0 VA	--			1	--	Space	58	--
--	59	Spare	20.0	1					0 VA	--	1	--	Space	60	--
--	61	Spare	20.0	1	0 VA	--					1	--	Space	62	--
--	63	Spare	20.0	1			0 VA	--			1	--	Space	64	--
--	65	Spare	20.0	1					0 VA	--	1	--	Space	66	--
--	67	Spare	20.0	1	0 VA	--					1	--	Space	68	--
--	69	Spare	20.0	1			0 VA	--			1	--	Space	70	--
--	71	Spare	20.0	1					0 VA	--	1	--	Space	72	--
--	73	Spare	20.0	1	0 VA	--					1	--	Space	74	--
--	75	Spare	20.0	1			0 VA	--			1	--	Space	76	--
--	77	Spare	20.0	1					0 VA	--	1	--	Space	78	--
--	79	Spare	20.0	1	0 VA	--					1	--	Space	80	--
--	81	Spare	20.0	1			0 VA	--			1	--	Space	82	--
--	83	Spare	20.0	1					0 VA	--	1	--	Space	84	--
				Total Load:	35592 VA		35592 VA		35592 VA						
				Total Amps:	128.5		128.5		128.5						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	80182 VA	100.00%	80182 VA		
Kitchen	26594 VA	80.00%	21275 VA	Total Conn. Load:	106775 VA
				Total Est. Demand:	101457 VA
				Total Conn.:	128.4
				Total Est. Demand:	122.0

Branch Panel: AP2

Location: KITCHEN DRY STORAGE 106 **Supply From:** AP1 **Mounting:** Surface **Enclosure:** Type 1
Volts: 120/208 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: **Mains Type:** MAIN LUG ONLY **Mains Rating:** 250.0 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#10, 1-#10, 1-#10	1	Receptacle RECEIVING...	20.0	1	720...	540...					1	20.0	REC-GENERAL	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC OFFICE	20.0	1			720...	540...			1	20.0	REC-HALLWAY	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REC PREP	20.0	1					720...	540...	1	20.0	REC PREP	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC GENERALL	20.0	1	360...	360...					1	20.0	REC-GENERAL	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC PRODUCE	20.0	1			720...	312...			1	20.0	AC-3	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	GUH-1	15.0	1					228...	168...	1	20.0	EF-12	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	EF-14	20.0	1	168...	168...					1	20.0	EF-10	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	EF-22	20.0	1			168...	1176...			1	20.0	SF-5	16	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	17	SF-6	20.0	1					696...	180...	1	20.0	FAI-3	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	#177	20.0	1	600...	1200...					1	20.0	#101	20	1-#10, 1-#10, 1-#10
--	21	SHUNT TRIP	--	1			--	--			1	--	SHUNT TRIP	22	--
1-#12, 1-#12, 1-#12	23	#185	20.0	1					1300...	1300...	1	20.0	#185	24	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	25	#175	20.0	1	1440...	1440...					1	20.0	#175	26	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	27	#175	20.0	1			1440...	180...			1	20.0	#197	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	#198	20.0	1					180...	720...	1	20.0	#121	30	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	31	#132	20.0	1	1020...	4429...								32	
1-#10, 1-#10, 1-#10	33	#106	25.0	1			2300...	4429...			3	20.0	#133	34	3-#8, 1-#8, 1-#8
1-#10, 1-#10, 1-#10	35	#106	25.0	1					2300...	4429...				36	
1-#10, 1-#10, 1-#10	37	#106	25.0	1	2300...	600...					1	20.0	#145	38	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	39	#145	20.0	1			600...	720...			1	20.0	#121	40	1-#12, 1-#12, 1-#12
	41								1199...	500...	1	20.0	#164	42	1-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	43	#136	20.0	3	1199...	2999...								44	
	45						1199...	2999...			3	35.0	#107	46	3-#8, 1-#8, 1-#10
1-#8, 1-#8, 1-#8	47	#132	20.0	1					1920...	2999...				48	
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
2-#10, 1-#10, 1-#10	55	CU-4	25.0	2	1976...	180...					1	20.0	CONDENSATE PUMP	56	1-#12, 1-#12, 1-#12
	57						1976...	2600...			2	35.0	#107	58	2-#8, 1-#8, 1-#10
1-#10, 1-#10, 1-#10	59	#164	20.0	1					1200...	2600...				60	
	61				1500...	1986...					2	20.0	RTU-3	62	2-#12, 1-#12, 1-#12
3-#10, 1-#10, 1-#10	63	#128	30.0	3			1500...	1986...						64	
	65								1500...	600...	1	20.0	#152	66	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	67	REC BATHROOM	20.0	1	180...	180...					1	20.0	REC BATHROOM	68	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	69	WINDOW HEAT	20.0	1			1000...	67 VA			1	20.0	UV LIGHT	70	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	71	MOTORIZED DAMPER	20.0	1					720...	1000...	1	20.0	HEAT TRACE	72	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	73	HEAT TRACE	20.0	1	240...	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	25785 VA		26633 VA		26999 VA						
				Total Amps:	214.9		223.0		226.1						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	27130 VA	100.00%	27130 VA		
Receptacle	5940 VA	100.00%	5940 VA	Total Conn. Load:	79417 VA
Kitchen	46346 VA	65.00%	30125 VA	Total Est. Demand:	63196 VA
				Total Conn.:	220.4
				Total Est. Demand:	175.4

Branch Panel: AP4

Location: ELECTRICAL ROOM B 119B **Supply From:** DP2 **Mounting:** Surface **Enclosure:** Type 1
Volts: 120/208 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: 14271 **Mains Type:** MAIN LUG ONLY **Mains Rating:** 250.0 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#8, 1-#8, 1-#8	1	#119	20.0	1	1200...	432...					1	20.0	#118	2	1-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#8	3	RTU-4	25.0	2			1986...	1440...			1	20.0	#154	4	1-#8, 1-#8, 1-#8
	5								1986...	2300...	1	25.0	#106	6	1-#6, 1-#6, 1-#6
1-#6, 1-#6, 1-#6	7	#106	25.0	1	2300...	2300...					1	25.0	#106	8	1-#6, 1-#6, 1-#6
1-#10, 1-#10, 1-#10	9	#185	20.0	1			1300...	1300...			1	20.0	#185	10	1-#10, 1-#10, 1-#10
	11								600...	360...	1	20.0	MOTORIZED DAMPER	12	1-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	13	#158	20.0	3	600...	720...					1	20.0	MOTORIZED DAMPER	14	1-#10, 1-#10, 1-#10
	15						600...	720...			1	20.0	MOTORIZED DAMPER	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	HEAT TRACE	20.0	1					500...	900...	1	20.0	REC-ROOF	18	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	19	MOTORIZED DAMPER	20.0	1	480...	900...					1	20.0	REC-ROOF	20	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	21	REC-ROOF	20.0	1			900...	720...			1	20.0	REC-ROOF	22	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	23	MOTORIZED DAMPER	20.0	1					840...	900...	1	20.0	REC-ROOF	24	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	25	REC-ROOF	20.0	1	900...	900...					1	20.0	REC-ROOF	26	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	27	REC-ROOF	20.0	1			900...	720...			1	20.0	REC-ROOF	28	1-#10, 1-#10, 1-#10
1-#8, 1-#8, 1-#8	29	REC-ROOF	20.0	1					1080...	720...	1	20.0	REC-ROOF	30	1-#10, 1-#10, 1-#10
1-#6, 1-#6, 1-#6	31	REC-ROOF	20.0	1	900...	720...					1	20.0	REC-ROOF	32	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	33	WINDOW HEAT	20.0	1			1000...	1000...			1	20.0	WINDOW HEAT	34	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	35	UV LIGHT	20.0	1					134...	1000...	1	20.0	WINDOW HEAT	36	1-#8, 1-#8, 1-#8
1-#10, 1-#10, 1-#10	37	WINDOW HEAT	20.0	1	1000...	1000...					1	20.0	WINDOW HEAT	38	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	39	UV LIGHT	20.0	1			624...	1144...			2	20.0	CU-5	40	2-#12, 1-#12, 1-#12
1-#6, 1-#6, 1-#6	41	EUH-27	20.0	1					1500...	1144...				42	
1-#12, 1-#12, 1-#12	43	EF-38	20.0	1	156...	541...					2	20.0	KEF-10	44	2-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	EF-39	20.0	1			156...	541...						46	
1-#12, 1-#12, 1-#12	47	EF-40	20.0	1					156...	4066...				48	
1-#12, 1-#12, 1-#12	49	HOOD 11	20.0	1	500...	4066...					3	35.0	DOAS TEST KITCHEN	50	3-#8, 1-#8, 1-#10
1-#10, 1-#10, 1-#10	51	SIGN	20.0	1			500...	4066...						52	
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
1-#12, 1-#12, 1-#12	71	FAI-13	20.0	1					180...	100...	1	20.0	EF-35	72	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	73	HAND DRYER	20.0	1	1000...	1000...					1	20.0	HAND DRYER	74	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	75	REC TOILET	20.0	1			180...	360...			1	20.0	REC WASHROOM	76	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	77	HAND DRYER	20.0	1					1000...	180...	1	20.0	REC TOILET 1	78	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	79	HAND DRYER	20.0	1	1000...	6240...					2	80.0	#163	80	2-#3, 1-#3, 1-#8
1-#12, 1-#12, 1-#12	81	#188	20.0	1			500...	6240...						82	
1-#10, 1-#10, 1-#10	83	#220	20.0	1					1080...	500...	1	20.0	#188	84	1-#12, 1-#12, 1-#12
				Total Load:	28855 VA		26897 VA		21227 VA						
				Total Amps:	247.7		231.4		176.9						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	35987 VA	100.00%	35987 VA		
Receptacle	12060 VA	91.46%	11030 VA	Total Conn. Load:	76979 VA
Kitchen	28931 VA	65.00%	18805 VA	Total Est. Demand:	65823 VA
				Total Conn.:	213.7
				Total Est. Demand:	182.7

Branch Panel: AP1

Location: ELECTRICAL ROOM A 119A **Supply From:** XFMR AP1 **Mounting:** Surface **Enclosure:** Type 1
Volts: 120/208 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: 13098 **Mains Type:** MAIN CIRCUIT BREAKER **Mains Rating:** 600.0 **MCB Rating:** 600.0

Notes:
PROVIDE FEED THROUGH LUGS

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
	1				2578...	720...					1	20.0	REC HOT	2	1-#10, 1-#10, 1-#10
3-#350, 1-#350, 1-#4	3	AP2	250.0	3			2663...	540...			1	20.0	REC ASSEM	4	1-#12, 1-#12, 1-#12
	5								2699...	540...	1	20.0	REC ASSEM	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC ELEC	20.0	1	540...	720...					1	20.0	REC MECH	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC-GENERAL	20.0	1			540...	180...			1	20.0	REC GARBAGE	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC SHIP	20.0	1					720...	180...	1	20.0	REC TOILET	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC VEST	20.0	1	180...	540...					1	20.0	REC DOCK	14	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	15	REC ASSEM	20.0	1			360...							16	
1-#12, 1-#12, 1-#12	17	AC-2	20.0	1					312...	228...	1	15.0	GUH-2	18	1-#12, 1-#12, 1-#12
1-#8, 1-#8, 1-#8	19	EUH-24	20.0	1	1500...	400...					1	20.0	EBB-3	20	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	21	EF-11	20.0	1			156...	264...			1	20.0	EF-27	22	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	23	EF-28	20.0	1					696...	696...	1	20.0	EF-29	24	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	25	EF-7	20.0	1	180...	960...								26	
1-#12, 1-#12, 1-#12	27	EF-32	20.0	1			180...	960...			3	20.0	EF-15	28	3-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	EF-21	20.0	1					144...	960...				30	
2-#10, 1-#10, 1-#10	31	CU-2	20.0	2	1144...	180...					1	20.0	FAI-4	32	1-#12, 1-#12, 1-#12
	33						1144...	180...			1	20.0	#120	34	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	35	#120	20.0	1					180...	--	1	--	SHUNT TRIP	36	--
--	37	SHUNT TRIP	--	1	--	180...					1	20.0	#120	38	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	39	#125	20.0	1			924...	--			1	--	SHUNT TRIP	40	--
--	41	SHUNT TRIP	--	1					--	924...	1	20.0	#125	42	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	43	#125	20.0	1	924...	--					1	--	SHUNT TRIP	44	--
--	45	SHUNT TRIP	--	1			--	924...			1	20.0	#125	46	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	47	#219	20.0	1					360...	--	1	--	SHUNT TRIP	48	--
--	49	SHUNT TRIP	--	1	--	180...					1	20.0	#102	50	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	51	#201	20.0	1			200...	--			1	--	SHUNT TRIP	52	--
--	53	SHUNT TRIP	--	1					--	180...	1	20.0	#170	54	1-#12, 1-#12, 1-#12
2-#12, 1-#12, 1-#12	55	#135	20.0	2	624...	--					1	--	SHUNT TRIP	56	--
	57						624...	792...						58	
--	59	SHUNT TRIP	--	1					--	792...	3	15.0	KMUA-1	60	3-#12, 1-#12, 1-#12
	61				2375...	792...								62	
3-#8, 1-#8, 1-#10	63	KMAU-2	35.0	3			2375...	2375...						64	
	65								2375...	2375...	3	35.0	KMUA-3	66	3-#8, 1-#8, 1-#10
	67				4198...	2375...								68	
3-#4, 1-#4, 1-#10	69	KMUA-4	60.0	3			4198...	792...						70	
	71								4198...	792...	3	20.0	KEF-1	72	3-#12, 1-#12, 1-#12
	73				1139...	792...								74	
3-#12, 1-#12, 1-#12	75	KEF-2	20.0	3			1139...	1139...						76	
	77								1139...	1139...	3	20.0	KEF-3	78	3-#12, 1-#12, 1-#12
--	79	Spare	20.0	1	0 VA	1139...								80	
--	81	Spare	20.0	1			0 VA	500...			1	20.0	HOOD 1	82	1-#12, 1-#12, 1-#12
--	83	Spare	20.0	1					0 VA	180...	1	20.0	CONDENSATE PUMP	84	1-#12, 1-#12, 1-#12
				Total Load:	47567 VA		47118 VA		46109 VA						
				Total Amps:	397.7		393.9		384.2						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	75984 VA	100.00%	75984 VA		
Receptacle	12060 VA	91.46%	11030 VA	Total Conn. Load:	140794 VA
Kitchen	52750 VA	65.00%	34288 VA	Total Est. Demand:	121302 VA
				Total Conn.:	390.8
				Total Est. Demand:	336.7

Branch Panel: AP3

Location: ELECTRICAL ROOM B 119B **Supply From:** DP2 **Mounting:** Surface **Enclosure:** Type 1
Volts: 120/208 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: 14703 **Mains Type:** MAIN LUG ONLY **Mains Rating:** 400.0 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#10, 1-#10, 1-#10	1	REC USDA	20.0	1	720...	180...					1	20.0	REC TOILET	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC COAT	20.0	1			180...	540...			1	20.0	REC OFFICE	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REC OFFICE	20.0	1					540...	360...	1	20.0	REC LOBBY	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC TOILET	20.0	1	180...	720...					1	20.0	REC SICING	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC ELEC ROOM	20.0	1			180...	540...			1	20.0	REC CUP LINES	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC ASSEM	20.0	1					540...	720...	1	20.0	Receptacle MARKET ARE...	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC ROOF	20.0	1	180...	312...					1	20.0	AC-1	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	GUH-3	15.0	1			228...	228...			1	15.0	GUH-4	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	EBB-1	20.0	1					400...	400...	1	20.0	EBB-2	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	EF-23	20.0	1	120...	120...					1	20.0	EF-33	20	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	21	EF-13	20.0	1			120...	960...						22	
1-#12, 1-#12, 1-#12	23	EF-5	20.0	1					120...	960...	3	20.0	EF-16	24	3-#12, 1-#12, 1-#12
1-#8, 1-#8, 1-#8	25	EF-9	20.0	1	1176...	960...								26	
1-#8, 1-#8, 1-#8	27	SF-3	25.0	1			2400...	2400...			1	25.0	SF-4	28	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	29	SF-7	20.0	1					696...	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
1-#8, 1-#8, 1-#8	33	VAV-2	20.0	1			1000...	0 VA			1	20.0	Spare	34	--
1-#8, 1-#8, 1-#8	35	VAV-1	20.0	1					1000...	2500...	1	30.0	VAV-3	36	1-#4, 1-#4, 1-#4
1-#10, 1-#10, 1-#10	37	#154	20.0	1	792...	1200...					1	20.0	#117	38	1-#8, 1-#8, 1-#8
2-#8, 1-#8, 1-#10	39	#107	35.0	2			2600...	1200...			1	20.0	#164	40	1-#8, 1-#8, 1-#8
	41								2600...	1200...	1	20.0	#164	42	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	43	#145	15.0	1	180...	600...					1	20.0	#213	44	1-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#10	45	#107	35.0	2			2600...	2600...			2	35.0	#107	46	2-#8, 1-#8, 1-#10
	47								2600...	2600...				48	
2-#8, 1-#8, 1-#10	49	#107	35.0	2	2600...	2600...					2	35.0	#107	50	2-#8, 1-#8, 1-#10
	51						2600...	2600...						52	
2-#8, 1-#8, 1-#10	53	#107	35.0	2					2600...	1200...	1	20.0	#164	54	1-#12, 1-#12, 1-#12
	55				2600...	1200...					1	20.0	#164	56	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	57	#164	20.0	1			1200...	1200...			1	20.0	#164	58	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	59	#164	20.0	1					1200...	1199...				60	
	61				1199...	1199...					3	20.0	#115	62	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	63	#115	20.0	3			1199...	1199...						64	
	65								1199...	1199...				66	
1-#12, 1-#12, 1-#12	67	#203	20.0	1	1656...	1199...					3	20.0	#115	68	3-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	69	#203	20.0	1			1656...	1199...						70	
2-#10, 1-#10, 1-#10	71	#107	20.0	2					2600...	2600...	2	20.0	#107	72	2-#12, 1-#12, 1-#12
	73				2600...	2600...								74	
1-#12, 1-#12, 1-#12	75	#164	20.0	1			1200...	1200...			1	20.0	#164	76	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	77	#165	20.0	1					960...	960...	1	20.0	#165	78	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	79	#165	20.0	1	960...	960...					1	20.0	#165	80	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	81	#165	20.0	1			960...	960...			1	20.0	#165	82	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	83	#222	20.0	1					960...	1656...	1	20.0	#203	84	1-#10, 1-#10, 1-#10
				Total Load:	28814 VA		34950 VA		35570 VA						
				Total Amps:	240.1		299.1		304.3						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	16099 VA	100.00%	16099 VA		
Receptacle	5580 VA	100.00%	5580 VA	Total Conn. Load:	99334 VA
Kitchen	77655 VA	65.00%	50476 VA	Total Est. Demand:	72155 VA
				Total Conn.:	275.7
				Total Est. Demand:	200.3

Branch Panel: AP5

Location: IT A 153 **Supply From:** DP2 **Mounting:** Surface **Enclosure:** Type 1
Volts: 120/208 Wye **Phases:** 3 **Wires:** 4
A.I.C. Rating: 10022 **Mains Type:** MAIN LUG ONLY **Mains Rating:** 250.0 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#12, 1-#12, 1-#12	1	REC-PROD OFFICE	20.0	1	360...	360...					1	20.0	REC-PROD OFFICE	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC-PROD OFFICE	20.0	1			540...	900...			1	20.0	REC-LAB OFFICE	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REFG	20.0	1					1000...	1000...	1	20.0	REFG	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC-HR OFFICE	20.0	1	720...	1000...					1	20.0	REFG	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC FIRST AID	20.0	1			360...	900...			1	20.0	REC HR STORAGE	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC TOILET 1	20.0	1					180...	180...	1	20.0	REC-TOILET 2	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC SPRINKLER	20.0	1	360...	720...					1	20.0	Receptacle OFFICE...	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	REFG	20.0	1			1000...	180...			1	20.0	REC KITCHENNETTE	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	REC KITCHENNETTE	20.0	1					360...	180...	1	20.0	SIGN	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	REC ENTRANCE	20.0	1	360...	900...					1	20.0	REC CONF ROOM	20	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	21	REC- OFFICE 173	20.0	1			720...	720...			1	20.0	REC OFFICE 174	22	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	23	REC OFFICE 175	20.0	1					720...	720...	1	20.0	REC OFFICE 176	24	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	25	REC JOE	20.0	1	720...	720...					1	20.0	REC JOHNS OFFICE	26	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	27	Receptacle OFFICE 179	20.0	1			720...	180...			1	20.0	REC STORAGE	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	Receptacle OFFICE...	20.0	1					360...	180...	1	20.0	REC EMPLOYEE	30	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	31	REC-TRAING CONF	20.0	1	540...	540...					1	20.0	REC-TRAING CONF	32	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	33	REC-TRAING CONF	20.0	1			360...	1800...			1	20.0	TK-18	34	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	35	TK-01	20.0	1					1800...	960...	1	20.0	TK-17	36	1-#12, 1-#12, 1-#12
--	37	SHUNT TRIP	--	1	--	300...					1	20.0	TK-04	38	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	39	TK-09	20.0	1			1848...	360...			1	20.0	REC LABEL	40	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	41	REC LABEL	20.0	1					360...	360...	1	20.0	REC LABEL	42	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	43	REC LABEL	20.0	1	360...	360...					1	20.0	REC LABEL	44	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	REC LABEL	20.0	1			360...	360...			1	20.0	REC LABEL	46	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	47	REC LABEL	20.0	1					360...	720...	1	20.0	REC CORR	48	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	49	REC LABEL	20.0	1	180...	0 VA					1	20.0	Spare	50	--
1-#12, 1-#12, 1-#12	51	VENDING MACHINE	20.0	1			500...	500...			1	20.0	VENDING MACHINE	52	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	53	REFG	20.0	1					1000...	1000...	1	20.0	REFG	54	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	55	REC BREAK	20.0	1	720...	180...					1	20.0	REC BREAK	56	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	57	REC BREAK	20.0	1			180...	180...			1	20.0	REC BREAK	58	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	59	REC BREAK	20.0	1					900...	1404...	2	20.0	TK-10	60	2-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#10	61	TK-03	40.0	2	3000...	1404...								62	
	63						3000...	0 VA			1	20.0	Spare	64	--
--	65	SHUNT TRIP	--	1					--	360...	1	20.0	Receptacle UTILITY ROO...	66	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	67	Receptacle CONTROL...	20.0	1	720...	228...					1	15.0	GUH-5	68	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	69	EF-26	20.0	1			120...	120...			1	20.0	EF-31	70	1-#12, 1-#12, 1-#12
2-#12, 1-#12, 1-#12	71	CU-1	20.0	2					1144...	1976...	2	25.0	CU-3	72	2-#10, 1-#10, 1-#10
	73				1144...	1976...								74	
1-#12, 1-#12, 1-#12	75	CONDENSATE PUMP	20.0	1			540...	720...			1	20.0	Receptacle LAB 152	76	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	77	Receptacle LAB 152	20.0	1					720...	900...	1	20.0	Receptacle LAB 152	78	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	79	EBB-4	20.0	1	756...	1920...					1	20.0	TK-05	80	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	81	TK-07	20.0	1			360...	500...			1	20.0	SIGN	82	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	83	REC TEST KITCHEN	20.0	1					180...					84	
				Total Load:	20548 VA		18028 VA		19024 VA						
				Total Amps:	172.5		150.2		159.8						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	7964 VA	100.00%	7964 VA		
Receptacle	24660 VA	70.28%	17330 VA	Total Conn. Load:	57600 VA
Kitchen	24976 VA	65.00%	16234 VA	Total Est. Demand:	41528 VA
				Total Conn.:	159.9
				Total Est. Demand:	115.3

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL PANEL SCHEDULES
scale:
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-702.00
DOB BARCODE:
Total

9/24/2021 2:58:01 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

Branch Panel: EMLP1

Location: ELECTRICAL ROOM A 119A **Volts:** 480/277 Wye **A.I.C. Rating:** 45182
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 100.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
	1				1720...	0 VA					1	20.0	Spare	2	--
3-#1, 1-#1, 1-#8	3	EMLP2	100.0	3			0 VA	0 VA			1	20.0	Spare	4	--
	5								0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--

	A	B	C
Total Load:	34400 VA	0 VA	0 VA
Total Amps:	124.2	0.0	0.0

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	34400 VA	100.00%	34400 VA		
				Total Conn. Load:	34400 VA
				Total Est. Demand:	34400 VA
				Total Conn.:	41.4
				Total Est. Demand:	41.4

Branch Panel: LP1

Location: ELECTRICAL ROOM A 119A **Volts:** 480/277 Wye **A.I.C. Rating:** 45182
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 100.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--

	A	B	C
Total Load:	17200 VA	0 VA	0 VA
Total Amps:	62.1	0.0	0.0

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: PP1A

Location: ELECTRICAL ROOM A 119A **Volts:** 480/277 Wye **A.I.C. Rating:** 65623
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 250.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
	1				3045...	6090...								2	
3-#12, 1-#12, 1-#12	3	CU-CC	15.0	3			3045...	6090...			3	25.0	RTU-2	4	3-#10, 1-#10, 1-#10
	5								3045...	6090...				6	
	7				8027...	2768...								8	
3-#8, 1-#8, 1-#10	9	#152	40.0	3			8027...	2768...			3	20.0	#194	10	3-#12, 1-#12, 1-#12
	11								8027...	2768...				12	
	13				1107...	3460...								14	
3-#12, 1-#12, 1-#12	15	#150	20.0	3			1107...	3460...			3	20.0	Kitchen HOT KITCHEN 112	16	3-#12, 1-#12, 1-#12
	17								1107...	3460...				18	
	19				557...	557...								20	
3-#12, 1-#12, 1-#12	21	#117	20.0	3			557...	557...			3	20.0	#117	22	3-#12, 1-#12, 1-#12
	23								557...	557...				24	
	25				1661...	830...								26	
3-#12, 1-#12, 1-#12	27	EUH-25	20.0	3			1661...	830...			3	20.0	#208	28	3-#12, 1-#12, 1-#12
	29								1661...	830...				30	
	31				830...									32	
3-#12, 1-#12, 1-#12	33	#208	20.0	3			830...							34	
	35								830...					36	
	37				941...	941...								38	
3-#12, 1-#12, 1-#12	39	EF-36	20.0	3			941...	941...			3	20.0	EF-37	40	3-#12, 1-#12, 1-#12
	41								941...	941...				42	
--	43	Spare	20.0	1	0 VA	--					1	--	Space	44	--
--	45	Spare	20.0	1			0 VA	--			1	--	Space	46	--
--	47	Spare	20.0	1					0 VA	--	1	--	Space	48	--
--	49	Spare	20.0	1	0 VA	--					1	--	Space	50	--
--	51	Spare	20.0	1			0 VA	--			1	--	Space	52	--
--	53	Spare	20.0	1					0 VA	--	1	--	Space	54	--
--	55	Spare	20.0	1	0 VA	--					1	--	Space	56	--
--	57	Spare	20.0	1			0 VA	--			1	--	Space	58	--
--	59	Spare	20.0	1					0 VA	--	1	--	Space	60	--
--	61	Spare	20.0	1	0 VA	--					1	--	Space	62	--
--	63	Spare	20.0	1			0 VA	--			1	--	Space	64	--
--	65	Spare	20.0	1					0 VA	--	1	--	Space	66	--
--	67	Spare	20.0	1	0 VA	--					1	--	Space	68	--
--	69	Spare	20.0	1			0 VA	--			1	--	Space	70	--
--	71	Spare	20.0	1					0 VA	--	1	--	Space	72	--
--	73	Spare	20.0	1	0 VA	--					1	--	Space	74	--
--	75	Spare	20.0	1			0 VA	--			1	--	Space	76	--
--	77	Spare	20.0	1					0 VA	--	1	--	Space	78	--
--	79	Spare	20.0	1	0 VA	--					1	--	Space	80	--
--	81	Spare	20.0	1			0 VA	--			1	--	Space	82	--
--	83	Spare	20.0	1					0 VA	--	1	--	Space	84	--

	A	B	C
Total Load:	30815 VA	30815 VA	30815 VA
Total Amps:	111.2	111.2	111.2

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	38032 VA	100.00%	38032 VA		
Kitchen	54412 VA	65.00%	35368 VA	**Total Conn. Load:**	92444 VA
				Total Est. Demand:	73400 VA
				Total Conn.:	111.2
				Total Est. Demand:	88.3

Branch Panel: EMLP2

Location: IT A 153 **Volts:** 480/277 Wye **A.I.C. Rating:** 5865
Supply From: EMLP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 100.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--

	A	B	C
Total Load:	17200 VA	0 VA	0 VA
Total Amps:	62.1	0.0	0.0

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: LP2

Location: ELECTRICAL ROOM B 119B **Volts:** 480/277 Wye **A.I.C. Rating:** 39933
Supply From: DP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 100.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--

	A	B	C
Total Load:	17200 VA	0 VA	0 VA
Total Amps:	62.1	0.0	0.0

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: AP1A

Location: ELECTRICAL ROOM A 119A **Volts:** 120/208 Wye **A.I.C. Rating:** 6574
Supply From: XFMR AP1A **Phases:** 3 **Mains Type:** MAIN CIRCUIT BREAKER
Mounting: Surface **Wires:** 4 **Mains Rating:** 250.0
Enclosure: Type 1 **MCB Rating:** 250.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#12, 1-#12, 1-#12	1	HOOD 2	20.0	1	500...	500...					1	20.0	HOOD 3	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	HOOD 4	20.0	1			500...	500...			1	20.0	HOOD 5	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	HOOD 6	20.0	1					500...	500...	1	20.0	HOOD 7	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	HOOD 8	20.0	1	500...	500...					1	20.0	HOOD 9	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	HOOD 10	20.0	1			500...	1200...			1	20.0	#164	10	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	11	#164	20.0	1					1200...	1200...	1	20.0	#164	12	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	13	#164	20.0	1	1200...	1200...					1	20.0	#164	14	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	15	#164	20.0	1			1200...	2600...			2	35.0	#107	16	2-#4, 1-#4, 1-#4
2-#6, 1-#6, 1-#6	17	#107	35.0	2					2600...	2600...				18	
	19				2600...	2600...					2	35.0	#107	20	2-#6, 1-#6, 1-#6
2-#6, 1-#6, 1-#6	21	#107	35.0	2			2600...	2600...						22	
	23								2600...	1200...	1	20.0	#164	24	1-#8, 1-#8, 1-#8
1-#6, 1-#6, 1-#6	25	#164	20.0	1	1200...	1200...					1	20.0	#164	26	1-#6, 1-#6, 1-#6
1-#6, 1-#6, 1-#6	27	#164	20.0	1			1200...	1200...			1	20.0	#164	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	#164	20.0	1					1200...	2600...	2	35.0	#107	30	2-#8, 1-#8, 1-#10
	31				1151...	2600...								32	
3-#12, 1-#12, 1-#12	33	#215	15.0	3			1151...	1151...						34	
	35								1151...	1151...	3	15.0	#215	36	3-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	37	MOTORIZED DAMPER	20.0	1	720...	1151...								38	
1-#12, 1-#12, 1-#12	39	MOTORIZED DAMPER	20.0	1			480...	180...			1	20.0	FAI-12	40	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	41	WINDOW HEAT	20.0	1					1000...	67 VA	1	20.0	Power SHIPPING OFFICE...	42	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	43	UV LIGHT	20.0	1	468...	360...					1	20.0	Power BLAST CHILLERS...	44	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	DR1	20.0	1			240...	240...			1	20.0	DR2	46	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	47	WH1	20.0	1					600...	600...	1	20.0	WH2	48	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	49	WH3	20.0	1	600...	900...					1	20.0	CRP	50	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	51	REC-CHEM STORAGE	20.0	1			180...	500...			1	20.0	SB1	52	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	53	BFT	20.0	1					1656...	228...	1	20.0	RCP	54	1-#12, 1-#12, 1-#12
	55				1895...	1895...								56	
3-#10, 1-#10, 1-#10	57	KEF-4	20.0	3			1895...	1895...			3	20.0	KEF-5	58	3-#10, 1-#10, 1-#10
	59								1895...	1895...				60	
1-#12, 1-#12, 1-#12	61	LO-1,2,3,4	20.0	1	720...	0 VA					1	20.0	Spare	62	--
1-#12, 1-#12, 1-#12	63	SB2	20.0	1			500...	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	100...	1	20.0	EF-34	84	1-#12, 1-#12, 1-#12

	A	B	C
Total Load:	24461 VA	22513 VA	26544 VA
Total Amps:	206.3	187.6	223.7

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	25130 VA	100.00%	25130 VA		
Receptacle	1080 VA	100.00%	1080 VA	**Total Conn. Load:**	73519 VA
Kitchen	47309 VA	65.00%	30751 VA	**Total Est. Demand:**	56961 VA
				Total Conn.:	204.1
				Total Est. Demand:	158.1

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

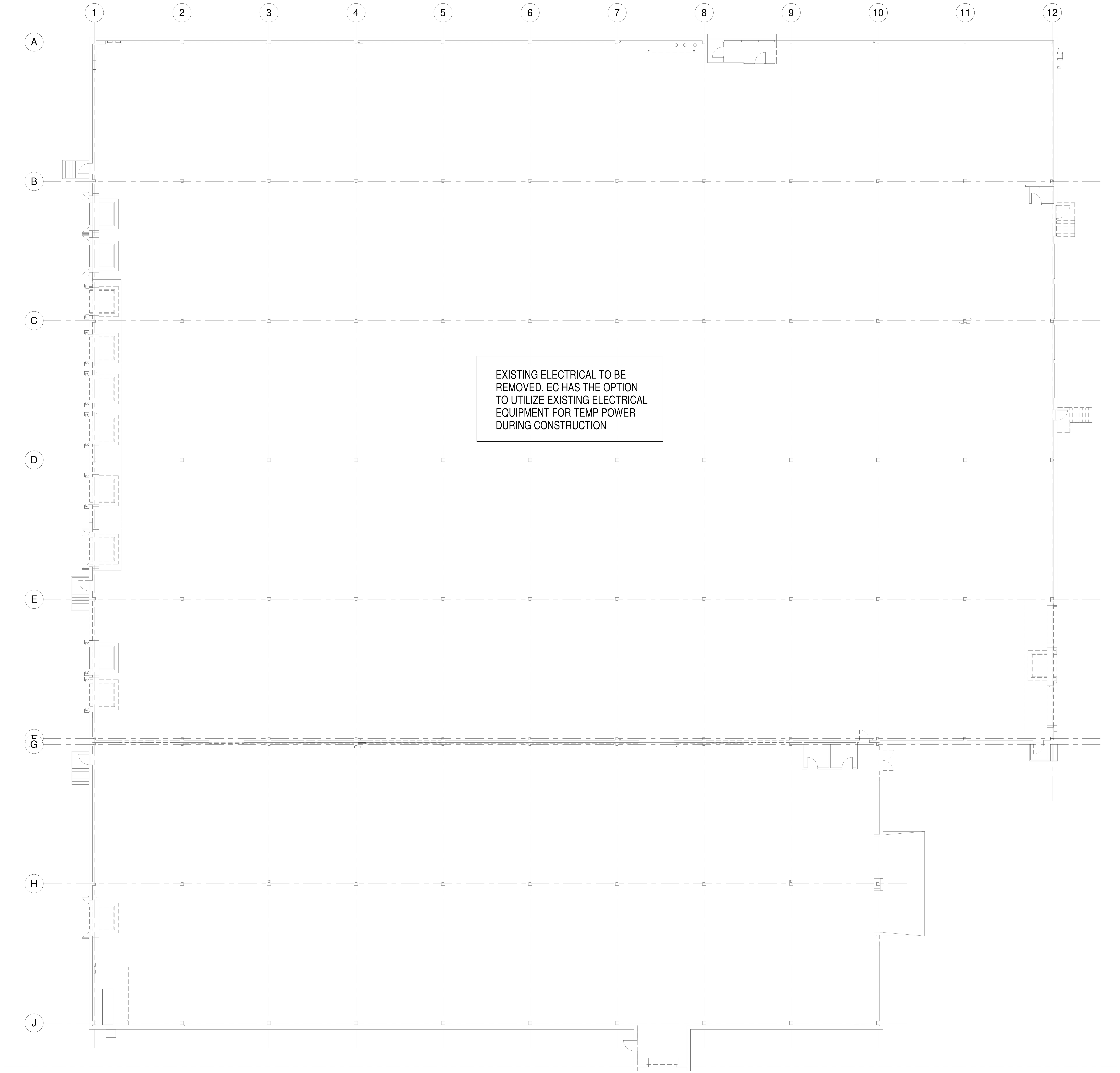
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL PANEL SCHEDULES
scale:
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-703.00
DOB BARCODE:
Total

9/24/2021 2:58:07 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 ELECTRICAL DEMOLITION PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

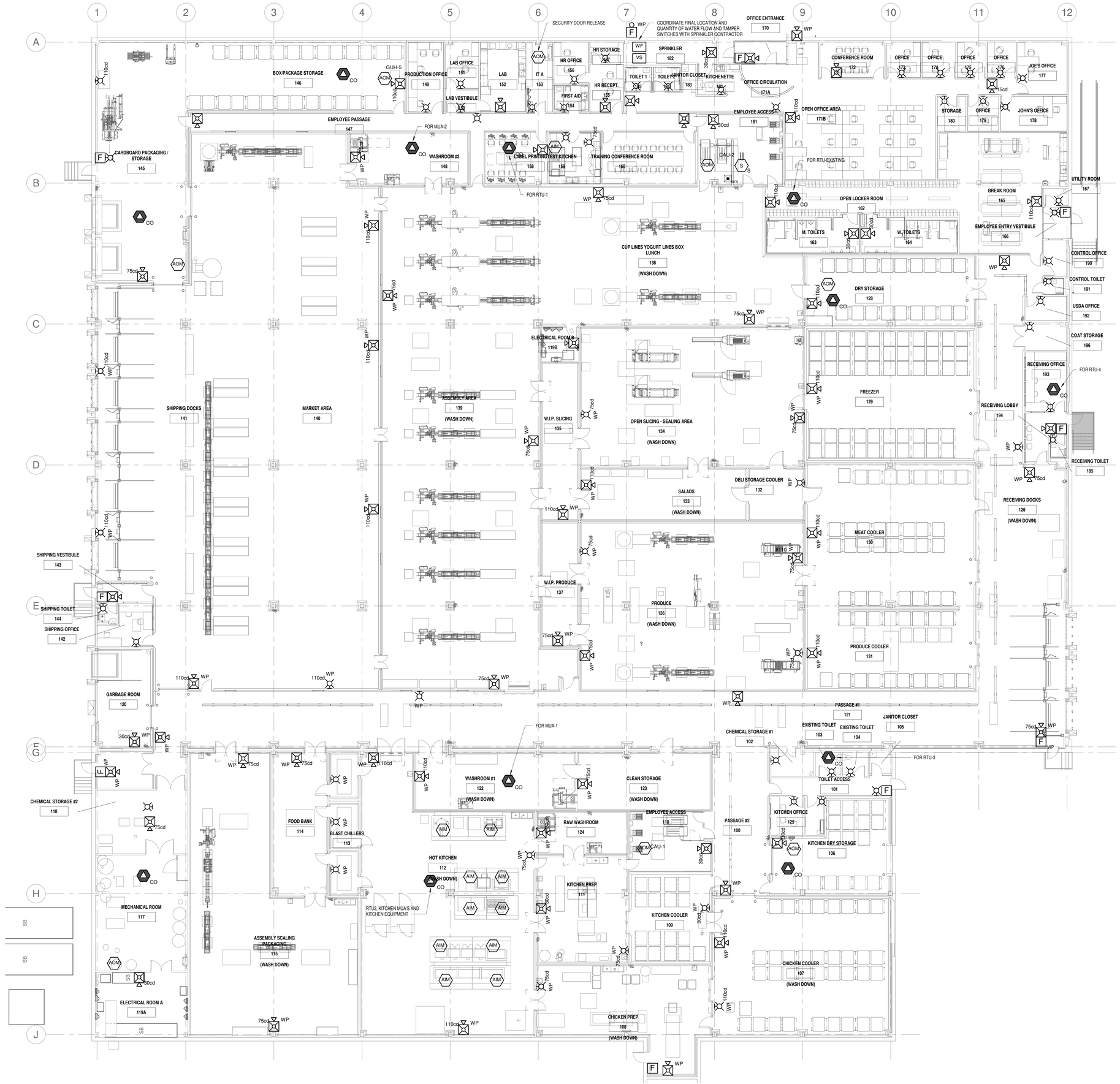
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	ELECTRICAL DEMOLITION PLAN
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	ED-200.00
DOB BARCODE:	

Total

9/24/2021 2:58:10 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 FIRE ALARM FLOOR PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PROPERLY PAID BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

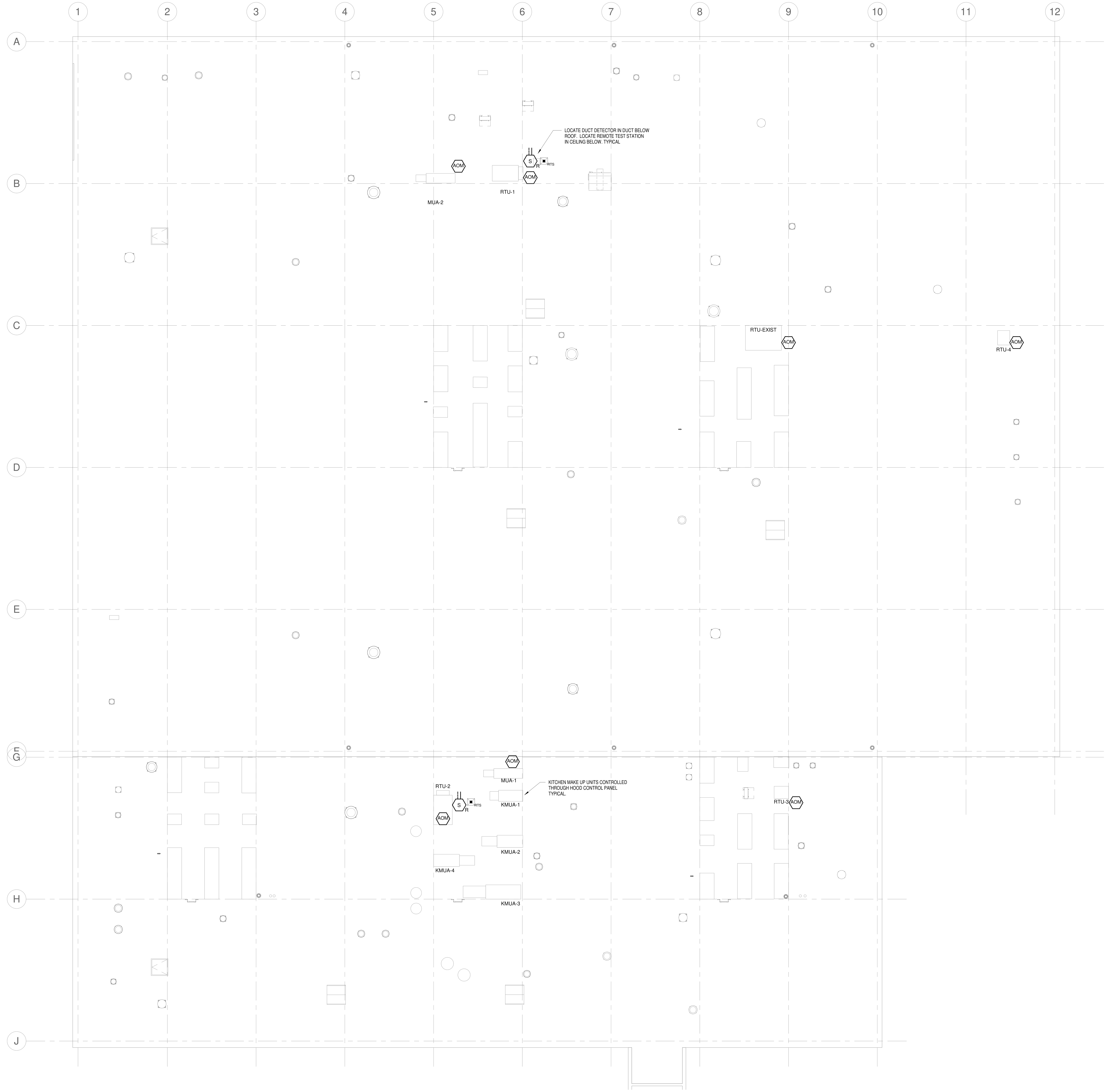
SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: FIRE ALARM FLOOR PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: FA-100.00
DOB BARCODE:
Total

9/24/2021 2:58:27 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GENERAL CONDITIONS NOTE:



1 FIRE ALARM ROOF PLAN
3/32" = 1'-0"

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	FIRE ALARM ROOF PLAN
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	FA-101.00
DOB BARCODE:	

Total

9/24/2021 2:58:30 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

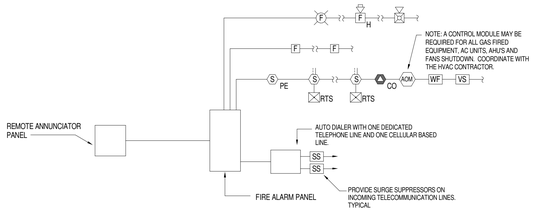
GENERAL FIRE ALARM SYSTEM NOTES

1. FIRE ALARM SYSTEM EQUIPMENT & INSTALLATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE STATE BUILDING AND FIRE CODE. REFER TO THE ARCHITECTS DRAWINGS FOR THE BUILDING CLASSIFICATIONS.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED BY A NICET CERTIFIED FIRE ALARM INSTALLER. FIRE ALARM SYSTEM SHALL BE U.L., N.F.P.A., F.M. AND LOCALLY APPROVED. THE SYSTEM SHALL COMPLY WITH THE ABOVE MENTIONED BUILDING CODE, AMERICAN DISABILITY ACT (ADA) AND ALL OTHER APPLICABLE STATE AND LOCAL CODES & REGULATIONS.
3. THE FIRE ALARM CONTRACTOR SHALL COORDINATE WITH THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE EXACT NUMBER AND SIZE OF ALL SYSTEM WIRING. ALL FIRE ALARM SYSTEM WIRING SHALL BE INSTALLED IN CONDUIT, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
4. THE FIRE ALARM RISER DIAGRAM IS DIAGRAMMATIC AND SERVES TO INDICATE THE ALARM DEVICE INTERCONNECTIONS AS CLEARLY AS POSSIBLE. IT DOES NOT SHOW QUANTITY OF DEVICES. ROUTING OR OFFSETS OF INTERCONNECTIONS OR QUANTITY. THE CONTRACTOR SHALL DETERMINE DEVICE LOCATIONS FROM THE DRAWING AND SELECT OPTIMUM ROUTING. PROVIDE OFFSETS AS MAY BE REQUIRED.
5. ALL JUNCTION BOXES ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PAINTED RED.
6. SEE FLOOR PLANS FOR LOCATIONS OF ALL DEVICES. COORDINATE WITH THE SPRINKLER CONTRACTOR FOR ALL FLOW AND TAMPER SWITCH LOCATIONS AND QUANTITY.
7. TAMPER AND FLOW SWITCHES SHALL BE SUPPLIED AND INSTALLED BY THE MECHANICAL/PLUMBING CONTRACTOR AND WIRED BY THE FIRE ALARM INSTALLER.
8. DEVICE MOUNTING HEIGHT SHALL COMPLY WITH ALL ANSI A117 AND NFPA REQUIREMENTS.
9. THE FIRE ALARM PANEL SHALL NOTIFY THE LOCAL FIRE STATION HAVING JURISDICTION AND/OR CENTRAL MONITORING STATION. THE INSTALLATION CONTRACTOR SHALL COORDINATE WITH THE LOCAL INSPECTOR FOR AN AUTO DIALER APPROVED LOCAL STATION.
10. THE FIRE ALARM INSTALLER SHALL GUARANTEE ALL WORK, MATERIAL, AND EQUIPMENT FOR A PERIOD OF ONE (1) YEAR FROM DATE OF EQUIPMENT TURN OVER TO THE OWNER.
11. THE FIRE ALARM INSTALLER SHALL FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM INCLUDING ALL PANELS, WIRING, ASSOCIATED BOXES, CONDUITS, FITTINGS, CONNECTORS AND ALL NECESSARY APPLIANCES FOR AN APPROVED FIRE ALARM INSTALLATION.
12. ALL CONDUCTORS SHALL BE MINIMUM #14 THWN SOLID COPPER 90 DEGREES C. FPLP CABLE SHALL HAVE A MINIMUM RATING OF 150°C.
13. ALL 120V SUPPLY POWER CONDUCTORS TO THE FIRE COMMAND STATION AND/OR FIRE ALARM CONTROL UNIT AND/OR TO OUTLYING CONTROL CABINETS, SHALL CONTAIN A GREEN INSULATED GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE ADOPTED ELECTRICAL CODE WITH A MINIMUM OF #10 AWG.
14. THE FIRE ALARM INSTALLER SHALL SUBMIT IBC SECTION 907 SIGNED AND SEALED SHOP DRAWINGS TO THE AUTHORITY HAVING JURISDICTION THAT INCLUDE BUT ARE NOT LIMITED TO ALL BATTERY CALCULATIONS, EQUIPMENT SPECIFICATIONS, NUMBER OF DEVICES, VOLTAGE DROP CALCULATIONS AND ROUTING OF CABLES. THE FIRE ALARM INSTALLER SHALL BE STATE APPROVED AND SHALL ATTEND ALL INSPECTIONS. THE PLANS ARE TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE THIS PROJECT IS LOCATED OR IF ACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION BE A MINIMUM NICET LEVEL III CERTIFIED DESIGNER.
15. ALL STROBES SHALL BE SYNCHRONIZED TYPE.
16. SMOKE DETECTORS SHALL BE A MINIMUM OF 3(THREE) FEET FROM ANY AIR SUPPLY OR AIR RETURN DIFFUSERS FOR ANY HVAC AND EXHAUST SYSTEMS.
17. THE CONTRACTOR SHALL BE MADE AWARE THAT THE ANNUNCIATION DEVICES ARE SHOWN WIRED DIAGRAMMATICALLY. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY POWER SUPPLIES AS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE A SMOKE DETECTOR ABOVE THE POWER SUPPLY(S). IF THE POWER SUPPLIES ARE TO BE REMOTE FROM THE MAIN FIRE ALARM PANEL THE CONTRACTOR SHALL INFORM THE ELECTRICIAN OF THESE ADDITIONAL CIRCUIT REQUIREMENTS. FAILURE TO INFORM THE ELECTRICIAN OF THESE REQUIREMENTS WILL RESULT IN THE DENIAL OF ANY EXTRAS.
18. FOR THE SYSTEM CONTROL PANELS AND/OR POWER SUPPLIES THE CONTRACTOR SHALL INSTALL THE CONDUITS FROM THE SIDE OR BOTTOM PORTION OF THE FIRE PANEL ONLY. THE CONTRACTOR SHALL ENSURE THAT NO CONDUITS ARE INSTALLED IN THE TOP OF THE(SE) PANEL(S).
19. PROVIDE SURGE SUPPRESSION DEVICES ON ALL INCOMING TELECOMMUNICATION LINES AND POWER LINES FOR MAIN PANEL AND AUXILIARY PANELS.

FIRE ALARM SEQUENCE OF OPERATIONS

ACTIVATION OF FIRE PUMP DOOR OPEN	ACTIVATIONOF FIRE PUMP FAILURE	ACTIVATION OF FIRE PUMP RUNNING	ACTIVATION OF FIRE PUMP PHASE REVERSAL	ACTIVATION OF FIRE PUMP POWER LOSS	ACTIVATION OF KITCHEN HOOD FIRE SUPPRESSION	ACTIVATION OF CARBON MONOXIDE DETECTOR	ACTIVATION OF MANUAL PULL STATION	ACTIVATION OF AREA SMOKE DETECTOR	ACTIVATION OF DUCT SMOKE DETECTOR	ACTIVATION OF WATER FLOW SWITCH	ACTIVATION OF SUPERVISORY TAMPER SWITCH	TROUBLE CONDITION AT PANEL	NOTES:	
													1. FIRE DEPARTMENT AND CENTRAL OFFICE COMPANY TO RECEIVE SEPARATE & DISTINCT SIGNALS. a) MANUAL ALARM b) SPRINKLER ALARM c) AUTOMATIC ALARM (ie., SMOKE & DUCT DETECTORS.) d) TROUBLE & SUPERVISORY SIGNAL 2. ALL FANS TO BE MANUALLY RESTARTED. AUTOMATIC RESTART IS NOT PERMITTED 3. ALL SIGNALS TO FIRE ALARM PANEL TO BE DUPLICATED AT REMOTE ANNUNCIATOR PANEL LOCATED BY ENTRANCE. FINAL LOCATION TO BE DETERMINED BY THE FIRE MARSHAL.	
X	X	X	X	X	X	X	X	X	X	X	X	X	ACTIVATES ZONE ANNUNCIATION ON PANEL AND L.C.D.	
					X		X	X	X	X			ACTIVATES AUDIO DEVICES	
					X		X	X	X	X			ACTIVATES STROBE LIGHTS THROUGHOUT	
X	X	X	X	X	X	X	X	X	X	X	X	X	TRANSMITS SIGNAL TO CENTRAL OFFICE COMPANY	
					X	X	X	X	X	X			ACTIVATES RELAY TO SHUT OFF AC UNITS, AHU'S, AND FANS. COORDINATE WITH THE LOCAL FIRE MARSHALL IF ALL AC UNITS, AHU'S AND FANS NEED TO SHUT DOWN IF ONE DUCT DETECTOR IS ACTIVATED. SYSTEM SHALL BE CAPABLE OF THIS FEATURE. FOR CARBON MONOXIDE IT IS TO SHUT DOWN ALL FUEL BURNING APPLIANCES SUCH AS BOILERS.	
X	X	X	X	X	X	X	X	X	X	X	X	X	ACTIVATES SPECIFIC SIGNAL AT REMOTE ANNUCIATOR	
						X							ACTIVATE SOUNDER BASE	
							X	X	X	X			RELEASE ALL SECURITY DOORS	

* SEQUENCE OF OPERATION MUST COMPLY WITH AHJ AND LOCAL FIRE DEPARTMENT.



FIRE ALARM RISER AND NOTES

SCALE: NONE

FIRE ALARM SUMMARY:

THE FIRE ALARM FOR THE BUILDING SHALL BE A HORN/STROBE PROJECT TYPE TO PROVIDE THE REQUIRED AUDIO AND VISUAL NOTIFICATION TO EVACUATE THE ENTIRE BUILDING UPON A FIRE CALL. THERE WILL BE NO OCCUPANT RELOCATION DURING A FIRE CALL. THE BUILDING WILL BE FULLY SPRINKLERED WITH AN ELECTRIC FIRE PUMP. REMOTE ANNUNCIATOR WILL BE PROVIDED.

ALARM INITIATION:

MANUAL INITIATION: PULLSTATIONS SHALL BE PROVIDED AT ALL EXITS .

FLOW SWITCHES: FLOW SWITCHES SHALL BE PROVIDED ON THE SPRINKLER SYSTEM AT THE MAIN AND AT EACH FLOOR CONTROL VALVE.

DUCT SMOKE DETECTION: DUCT SMOKE DETECTION SHALL BE LOCATED ON THE SUPPLY AND RETURN OF THE BUILDINGS MAIN HVAC ROOFTOP UNITS. DUCT SMOKE DETECTION SHALL BE ADDED AT EACH FLOOR TAKEOFF FROM THE SUPPLY AND RETURN MAINS.

SMOKE DETECTORS: AREA SMOKE DETECTORS SHALL BE PROVIDED ABOVE EACH FIRE ALARM PANEL AND/OR POWER SUPPLY, IT CLOSETS/ROOMS.

HEAT DETECTORS: AREA HEAT DETECTORS ARE TO BE PROVIDED IN THE FIRE PUMP ROOM, , MECHANICAL ROOM.

CARBON MONOXIDE: CARBON MONOXIDE DETECTION WITH SOUNDER BASES SHALL BE PROVIDED FOR ALL FUEL BURNING EQUIPMENT, THE FIRST ROOM FROM THE FIRST DUCT TAKEOFF FROM EACH GAS FIRED HVAC UNIT , UPON DETECTION OF CARBON MONOXIDE THE FUEL BURNING SYSTEM(S) IN THE AREA THE CARBON MONOXIDE DETECTOR IS PROTECTING SHALL SHUT DOWN THOSE FUEL BURNING EQUIPMENT AND INITIATE TROUBLE ALARM.

DOOR RELEASE: SMOKE DOOR HOLD OPENS, SECURITY DOORS AND APPLICABLE FIRE/SMOKE DAMPERS SHALL BE RELEASED UPON A FIRE CALL **(REMOVE IF NO DOOR RELEASE.)

OCCUPANT NOTIFICATION:

VISUAL: PUBLIC MODE STROBES WILL BE PROVIDED THROUGHOUT THE FACILITY

AUDIO: HORN APPLIANCES SHALL BE UTILIZED TO PROVIDE BOTH AUDIBILITY THROUGHOUT THE BUILDING INCLUDING THE STAIRWELLS. HORN SPACING SHALL BE AS SUCH TO PROVIDE THE CODE REQUIRED AUDIBILITY 15DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF NOT LESS THAN 60 SECONDS. PER ANNEX A OF NFPA 72 THE ASSUMED AVERAGE AMBIENT SOUND LEVELS SHALL BE THE FOLLOWING:

OFFICE AREA'S : 55DBA

MECHANICAL ROOMS: 85DBA

ASSEMBLY TYPE OCCUPANCIES: 55DBA

CAFETERIA: 55DBA

STORAGE AREAS: 30DBA

INDUSTRIAL EQUIPMENT AREAS(F OCCUPANCY): 80DBA

SUPERVISORY:

TAMPER SWITCHES: TAMPER SWITCHES WILL BE PROVIDED ON ALL SPRINKLER VALVES.

POWER SUPPLIES: THE POWER SUPPLIES SHALL BE SUPERVISED TO VERIFY POWER IS STILL AVAILABLE.

OFF NORMAL: ALL DEVICE OFF NORMAL SIGNALS WILL BE MONITORED SUCH AS OTHER FIRE ALARM COMPONENTS, THE FIRE PUMP OR GENERATOR.

TROUBLE:

FIRE PUMP: NFPA 20 REQUIRED TROUBLE SIGNALS WILL BE MONITORED FROM THE ELECTRIC FIRE PUMP, THE ROOM TEMPERATURE SHALL BE MONITORED AND INITIATE A TROUBLE SIGNAL IF THE ROOM DROPS BELOW THE PUMP MANUFACTURES RECOMMENDATION.

GENERATOR: ANY TROUBLE SIGNALS FROM THE GENERATOR OR LIFE SAFETY ATS(S) WILL BE MONITORED.

FIRE ALARM ITEMS ARE BROKEN: FIRE ALARM DEVICES THAT ARE NOT OPERATIONAL WILL BE MONITORED FOR TROUBLE SIGNALS.

POWER SUPPLIES:

POWER SHALL BE BACKED UP BY THE EMERGENCY GENERATOR ALONG WITH HAVING INTERNAL BATTERIES TO PROVIDE A MINIMUM OF 24 HOURS OF STANDBY POWER AND AFTER THAT 24 HOUR PERIOD A MINIMUM OF 5 MINUTES OF ALARM AT MAXIMUM LOAD.

CIRCUIT AND PATHWAY:

PATHWAY CLASS DESIGNATION: NFPA 72 APPLICABLE CLASS B PATHWAY'S SHALL BE PROVIDED FOR FOR BOTH NOTIFICATION CIRCUITS AND INITIATION CIRCUITS.

PATHWAY SURVIVABILITY: NFPA 72 LEVEL 2 AND LEVEL 3 PATHWAY SURVIVABILITY SHALL BE PROVIDED FOR ALL VERTICAL WIRING FROM THE MAIN PANEL TO EACH DATA AND CONTROL LOOP, POWER SUPPLY INTERCONNECTION, EXPANSION PANEL INTERCONNECTION, ETC. THE WIRING ARRANGEMENT SHALL BE AS SUCH THAT A FIRE IN ONE FIRE COMPARTMENT OR FLOOR WILL NOT AFFECT THE PATHWAY INTEGRITY ON ANOTHER FIRE COMPARTMENT OR FLOOR SUCH AS THE FIRE PUMP ROOM. MINIMUM 2-HOUR FIRE RATED FIRE ALARM CABLE SHALL BE UTILIZED.

CENTRAL MONITORING:

COMMUNICATION WITH A CENTRAL MONITORING STATION WILL SHALL BE PROVIDED. TWO LINES WILL BE UTILIZED. ONE WILL BE CELLULAR BASED SYSTEM AND THE OTHER WILL UTILIZE A LANDLINE, COPPER PAIR POTS LINE IF AVAILABLE.

ZONING:

ZONING SHALL BE PER FLOOR THEN PER SMOKE OR FIRE PARTION NO MORE THAN 22,500 SQUARE FEET,

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENT OF ALL ELEMENTS AND DETAILS THEREOF, **ARE RESERVED** THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN OBTAINED AND UNLESS YOU HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND SYSTEMS SHOWN ON THIS DRAWING CAN BE INSTALLED AS SHOWN ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	FIRE ALARM RISER DIAGRAM
scale:	12" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	FA-102.00
DOB BARCODE:	Total

9/24/2021 2:58:31 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

1. THESE GENERAL NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC. DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD. RELOCATE EXISTING WORK THAT INTERFERES WITH WORK OF THIS CONTRACT.
3. WORK IN THIS SECTION IS SPECIFIED ON THE SPECIFICATION SHEET
4. COORDINATE THIS WORK WITH THAT OF OTHER TRADES.
5. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
6. NEITHER ACCURACY NOR COMPLETION OF SERVICES AND UTILITY LOCATIONS SHOWN ON DRAWINGS IS GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING SERVICES AND UTILITIES IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
7. MANUFACTURERS MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
8. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURERS RECOMMENDATIONS.
9. PROVIDE HANGERS, INSERTS, ANCHORS, SUPPLEMENTAL STEEL & SUPPORTS AS REQUIRED TO SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM STRUCTURE.
10. SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH EXISTING OPERATIONS IN THE FACILITY.
11. COORDINATE ROOF PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. MECHANICAL CONTRACTOR TO NOTIFY OWNER PRIOR TO STARTING WORK TO VERIFY COMPLIANCE WITH BOND AND WARRANTY OF EXISTING ROOF.
12. RUN DUCTS AND PIPING CONCEALED AND CLEAR OF CEILING INSERTS, UNLESS OTHERWISE SPECIFIED.
13. INSTALL THERMOSTATS 4'-6" ABOVE FINISHED FLOOR OR AS DIRECTED OTHERWISE BY ARCHITECT.
14. STRUCTURAL WELDING SHALL BE CONTINUOUS 1/4" FILLET UNLESS REQUIRED OTHERWISE.
15. ALL NEW PIPING SHALL BE CONCEALED IN CEILING, WALL CAVITIES AND/OR UNDER SLAB, UNLESS OTHERWISE NOTED. EXISTING PIPING TO REMAIN BUT EXPOSED AS A RESULT OF DEMOLITION OPERATIONS SHALL BE RE-ROUTED/MODIFIED FOR CONCEALMENT IN CEILING OR WALL CAVITIES,OR UNDER SLAB, AT NO ADDITIONAL COST TO THE OWNER.
16. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ITS ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
17. CONNECT NEW WORK TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS ARE PERMISSIBLE ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
18. FIRESTOPPING SHALL BE INSTALLED WHENEVER PIPING CROSSES FIRE RATED PARTITIONS. FIRE DAMPERS SHALL BE INSTALLED WHENEVER DUCTWORK CROSSES A FIRE RATED PARTITION. REFER TO THE ARCHITECTURAL PLANS FOR FIRE RATED PARTITION LOCATIONS. THE FIRESTOPPING SHALL MATCH OR EXCEED THE FIRE RATING OF THE PARTITION PENETRATED. ALL FIRESTOPPING SHALL BE A UL LISTED ASSEMBLY.
19. THE CONTRACTOR SHALL BRING ANY CONFLICTS IN THE DRAWINGS TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. IF NOT BROUGHT UP TO THE ENGINEER DURING THE BIDDING PROCESS THE MORE EXPENSIVE OPTION SHALL BE CHOSEN FOR BIDDING PURPOSES.
20. HVAC CONTRACTOR IS RESPONSIBLE TO PROVIDE ACCESS PANELS FOR ANY CONCEALED HVAC WORK THAT MUST BE ACCESSIBLE EITHER BY CODE OR AS INDICATED IN THE DOCUMENTS. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF DEVICE REQUIRING THE ACCESS PANEL. ALL ACCESS DOORS MUST MATCH THE FIRE RATING AND CONSTRUCTION TYPE OF THE CEILING OR WALL PENETRATION AS DESIGNATED ON THE ARCHITECTURAL DRAWINGS.

AIR SYSTEMS

21. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES.
22. INTERNAL AIRFLOW DIMENSIONS ARE SHOWN FOR DUCTS. INCREASE DUCT SIZE AS NECESSARY TO MAINTAIN FREE FLOW AREA INDICATED.
23. USE FLAT TRANSVERSE SEAM FOR DUCTWORK WHERE SPACE AVAILABLE DICTATES.
24. DIFFUSER SIZES SHOWN ARE NECK SIZES. REGISTERS AND GRILLE SIZES ARE NOMINAL.
25. PROVIDE VOLUME DAMPERS OR OTHER APPROVED BALANCING DEVICES AT DUCT BRANCHES AND RUN OUTS, AND AT REGISTER GRILLE AND DIFFUSER NECKS IN SUPPLY, RETURN AND EXHAUST DUCTWORK, WHETHER SHOWN OR NOT.
26. DUCTWORK DOWNSTREAM OF ALL AC UNITS SHALL BE ACOUSTICALLY LINED WITH 1" ACOUSTICAL LINING FOR A MINIMUM OF 15 FEET.
27. PROVIDE CLEARANCE IN FRONT OF ALL ELECTRIC CONTROL PANELS PER N.E.C. AND MFG. REQUIREMENTS.

CONSUMABLES

28. THE CONTRACTOR SHALL REPLACE ALL CONSUMABLE EQUIPMENT ON THIS PROJECT AFTER FINAL TESTING AND RIGHT BEFORE THE EQUIPMENT IS TURNED OVER TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ALL WATER AND AIR FILTERS ON THE PROJECT.

CODE COMPLIANCE

29. ALL WORK PERFORMED MUST MEET ALL APPLICABLE CODES AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

GENERAL NOTES

NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS PLAN
ARE USED IN THE PROCEEDING DRAWINGS.

AAV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BG	BOTTOM GRILLE
BFC	BELOW FINISHED CEILING
BHP	BRAKE HORSEPOWER
BR	BOTTOM REGISTER
BT	BOTTOM THROAT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CLG	CEILING
COND	CONDENSATE
CR	CEILING REGISTER
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
DB	DRY BULB
DIAM	DIAMETER
DMPR	DAMPER
DX	DIRECT EXPANSION
EG	EXHAUST GRILLE
EX	EXISTING TO REMAIN
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EF	EXHAUST FAN
EL	ELEVATION
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
FA	FREE AREA (SQ.FT.)
FAI	FRESH AIR INTAKE
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FIN FL	FINISHED FLOOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HT	HEIGHT
HR	HOUR
HV	HEATING AND VENTILATING
HX	HEAT EXCHANGER
HZ	FREQUENCY
IN	INCH OR INCHES
LAT	LEAVING AIR TEMPERATURE
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LWB	LEAVING WET BULB TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
NC, N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO, N.O.	NORMALLY OPEN
NTS, N.T.S.	NOT TO SCALE
NO.	NUMBER
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OED	OPEN END DUCT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
RA	RETURN AIR
RE	EXISTING TO BE REMOVED
REX	EXISTING TO BE RELOCATED
RE	REMOVE EXISTING
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
(RRO)	EXISTING TO BE REMOVED AND RETURN TO OWNER
SA	SUPPLY AIR
SD	SMOKE DAMPER
SF	SUPPLY FAN
SP	STATIC PRESSURE
SPEC	SPECIFICATION
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TG	TOP GRILLE
TYP	TYPICAL
TR	TOP REGISTER
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
VAV	VARIABLE AIR VOLUME UNIT
VIV	VARIABLE INLET VANES
W	WIDTH
w/	WITH
WB	WET BULB
WMS	WIRE MESH SCREEN

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION
	SINGLE LINE DUCTWORK OR EQUIPMENT - NEW
	SINGLE LINE DUCTWORK OR EQUIPMENT - EXISTING
	DUCTWORK TO BE REMOVED
	DUCTWORK WITH ACOUSTIC LINING
	DUCT UNDER POSITIVE PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
	DUCT UNDER NEGATIVE PRESSURE (RETURN, EXHAUST OR OUTSIDE AIR)
VD	VOLUME DAMPER - THE "VD" MAY NOT BE SHOWN ON THE PLANS.
FD	FIRE DAMPER AND ACCESS DOOR
BDD	BACK DRAFT DAMPER
M	MOTORIZED DAMPER
R	RISE IN DUCTWORK (IN DIRECTION OF AIR FLOW)
D	DROP IN DUCTWORK (IN DIRECTION OF AIR FLOW)
OR CFM	CUBIC FEET PER MINUTE
∅	DIAMETER
⌀	SQUARE FEET
	POINT OF CONNECTION
	POINT OF DISCONNECTION
DD	DUCT SMOKE DETECTOR
	2-WAY SHUT OFF VALVE
	3-WAY SHUT OFF VALVE
	AIR SEPARATOR
	AIR FLOW ARROW
	AIR FLOW
	AIR VENT
	ANCHOR
	ANGLE VALVE - SIDE
	ANGLE VALVE - TOP
	ARROW
	BALANCE VALVE
	BM PUMP
	CAP
	CHECK VALVE
	CONTROL VALVE
	CONVERTER
	DOOR LOUVER L
	DOOR LOUVER R
	DRAIN VALVE
D	DROP
	REDUCER
	EXPANSION JOINT
	EXPANSION TANK
	FLANGE
M	FLOW METER
	GUIDE
	UNION
	HUMIDISTAT
	LCSH VALVE
	P BREAK
	PETCOCK
	PUMP
	PRESSURE GAUGE
	PRESSURE RELIEF VALVE

SYMBOL	DESCRIPTION
CD-X X" Ø NECK XXX CFM	SUPPLY DIFFUSER
RG-X -or- EG-X X" Ø NECK XXX CFM	RETURN -OR- EXHAUST GRILLE
	SUPPLY DIFFUSER WITH BLANKING PLATE
	LINEAR DIFFUSER -OR- LINEAR RETURN
	SIDE WALL -OR- DUCT MOUNTED DIFFUSER
	VANED ELBOW (SEE DETAIL) OR RADIUS ELBOW
	FLEXIBLE DUCT
	FLEXIBLE DUCT CONNECTION
	VERTICAL DUCT DROP (IN DIRECTION OF AIRFLOW)
	VERTICAL DUCT RISE (IN DIRECTION OF AIRFLOW)
	SLOTTED LINEAR DIFFUSER WITH PLENUM
	PROPELLER FAN
P/T	PT PLUG
	RAD INFO
	REDUCER
	RELIEF VALVE
R	RISE
	SHUT OFF VALVE
	STEAM TRAP
	STRAINER
	THERMAL WELL
	THERMOMETER
	THROTTLE VALVE
	UNDERCUT
T	THERMOSTAT
H	HUMIDISTAT
	VARIABLE AIR VOLUME BOX
	UNIT HEATER
	ROOFTOP EXHAUST FAN
M	PIPING MANIFOLD PITCH POCKET FOR REFRIGERATION PIPING
P	PIPING PENETRATION PITCH POCKET FOR ELECTRICAL CONDUIT
F	ANSUL PULL STATION
XXX X	EQUIPMENT IDENTIFICATION TAG
RTU-X	ASSOCIATED EQUIPMENT TAG I.E.: THERMOSTAT ASSOCIATED WITH RTU-X
X	DRAWING NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN.
X	KEY NOTE - 'x' DENOTES NOTE NUMBER SHOWN FOR ALL HVAC PLANS.
X	DEMOLITION NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN

SYMBOL LEGEND

GENERAL CONDITIONS NOTE:

ALL CONTRACTOR WORK MUST COMPLY WITH THE GOVERNING CODES & REFERENCES:

1. NJIBC 2018, NJMC 2018, NJECC 2018 NJNSPC 2018, NJIFGC 2018, NJIFC 2018

SUMMER OUTDOOR DESIGN CONDITIONS:

1. DESIGN REGION: TETERBORO, NJ
2. DRY BULB: 89°F
3. WET BULB: 74°F

SUMMER INDOOR DESIGN CONDITIONS:

1. DRY BULB: 75°F
2. RELATIVE HUMIDITY: 50% MAXIMUM

WINTER OUTDOOR DESIGN CONDITIONS:

1. DESIGN REGION: TETERBORO, NJ
2. DRY BULB: 14°F

WINTER INDOOR DESIGN CONDITIONS:

1. DRY BULB: 75°F
2. RELATIVE HUMIDITY: NO MINIMUM RH CONTROL PROVIDED

VENTILATION REQUIREMENTS:

1. PER THE APPLICABLE MECHANICAL CODE LISTED ABOVE.

FILTRATION:

1. 30% PLEATED PRE-FILTER MEDIA

SEISMIC DESIGN CRITERIA:

PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE STATED ABOVE.

ALL ROOF MOUNTED EQUIPMENT SHALL BE ABLE TO WITHSTAND THE FOLLOWING WIND SPEEDS PER THE BUILDING CODE SECTION 1609. WIND SPEED: 100MPH TIMES ASCE STANDARD 07-16 FORCE FACTOR OF 1.9 = 190MPH

CODE REVIEW

PROJECT NOTES:

THE CONTRACTOR SHALL RECEIVE AND REVIEW ALL OF THE PROJECTS DRAWINGS AND SPECIFICATIONS SUCH AS ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, FIRE ALARM, SPRINKLER, SITE, ETC. TO UNDERSTAND THE FULL SCOPE OF WORK. FAILURE TO RECEIVE AND REVIEW THOSE PLANS DURING BIDDING WILL RESULT IN THE DENIAL OF EXTRA'S.

Sheet Number	Sheet Name
M-100	HVAC COVER SHEET
M-101	HVAC SPECIFICATIONS
M-200	HVAC GROUND FLOOR PLAN
M-201	HVAC OFFICES
M-202	HVAC ROOF PLAN
M-300	HVAC SCHEDULES
M-301	HVAC DETAILS
M-302	HVAC DETAILS AND SEQUENCE OF OPERATIONS
M-303	HVAC VENTILATION INDEX
M-400	HVAC WIRING DIAGRAMS
M-401	HVAC GROUND FLOOR CONTROLS
M-500	HVAC CAPTIVE AIRE DETAILS
M-501	HVAC CAPTIVE AIRE DETAILS
M-502	HVAC CAPTIVE AIRE DETAILS
M-503	HVAC CAPTIVE AIRE DETAILS
M-504	HVAC CAPTIVE AIRE DETAILS
M-505	HVAC CAPTIVE AIRE DETAILS
M-506	HVAC CAPTIVE AIRE DETAILS
M-507	HVAC CAPTIVE AIRE DETAILS
M-508	HVAC CAPTIVE AIRE DETAILS
M-509	HVAC CAPTIVE AIRE DETAILS
M-510	HVAC CAPTIVE AIRE DETAILS
M-511	HVAC CAPTIVE AIRE DETAILS
M-512	HVAC CAPTIVE AIRE DETAILS
M-513	HVAC CAPTIVE AIRE DETAILS
M-514	HVAC CAPTIVE AIRE DETAILS
M-515	HVAC CAPTIVE AIRE DETAILS
MD-100	HVAC DEMO PLAN

DRAWING LIST

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC COVER SHEET
scale:
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-100.00
DOB BARCODE: Total

9/24/2021 2:58:34 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

HVAC WORK SPECIFICATIONS

1. GENERAL

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN COST.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM THE MANUFACTURE IN SECTIONS OF A SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM THE BUILDING OWNER AND TENANT AT WHAT TIMES OF THE DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPING AND OR DUCT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS/HER PRICE FOR ROUTING OF PIPING AND DUCTS TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER. PROVIDE SEISMIC RESTRAINTS AS REQUIRED BY CODE.

F. INSTALL WORK AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES, WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT OUR OR OWNER APPROVAL.

G. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSED.

H. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH A MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF THE EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

I. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

J. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

K. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

L. SEAL OPENING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL. ALL PENETRATIONS THROUGH NEW AND EXISTING RATED FIRE AND SMOKE PARTITIONS AND/OR FLOORS SHALL BE COMPLETELY SEALED USING MATERIALS AND METHODS DESCRIBED IN SUBSEQUENT "FIRE STOPPING" SPECIFICATIONS SECTIONS.

M. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING, DUCTWORK AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED AND POSITIVELY ATTACH THE EQUIPMENT TO THE STRUCTURE BELOW.

N. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

O. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

P. UNLESS OTHERWISE SPECIFICALLY NOTED OF SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

Q. REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR IS RESPONSIBLE TO PROVIDE APPROPRIATELY SIZED/RATED ACCESS DOORS WITH LOCATIONS COORDINATED WITH ALL TRADES AND THE GENERAL CONTRACTOR FOR OVERALL INSTALLATION COORDINATION. IN ORDER TO CLEARLY IDENTIFY THE LOCATION AND PURPOSE OF THE ACCESS DOOR, THE HAVC CONTRACTOR SHALL PROVIDE THE FOLLOWING ACCESS DOOR IDENTIFICATION INFORMATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.

R. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

S. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF ALL OF THE PLANS APPLICABLE FOR THE PROJECT AND NOT JUST THE HVAC PLANS AND IS FAMILIAR WITH ANY PROPOSED CONDITIONS THAT WILL NEED TO BE COORDINATED IN THE FIELD. FOR EXISTING BUILDINGS: THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS TOROUGHLY REVIEWED ALL OF THE DOCUMENTATION ASSOCIATED WITH THE PROJECT AND IF AN EXISTING BUILDING REVIEWED ALL OF THE EXISTING CONDITIONS. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION AND REVIEW. THE ON-SITE INSPECTION SHALL VERIFY EXISTING EQUIPMENT, PIPING AND DUCTWORK (SIZES, CLEARANCES, ETC.) AND CONDITIONS.

T. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

U. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED AND BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

V. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

W. DEFINITIONS:

1. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
3. "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
5. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
6. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
7. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

2. SCOPE OF WORK:

A. THE SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE APPLICABLE MECHANICAL CODES AND ALL OTHER INDUSTRY, STATE, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OF REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATED OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY THE OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BE DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES FOR, AND FURNISH TO THE OWNER BEFORE BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS:

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, THE CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. THE CONTRACTOR SHALL PREPARE FULL COORDINATED COMPOSITE DRAWINGS FOR THE MECHANICAL, ELECTRICAL AND FIRE PROTECTION TRADES. THE CONTRACTOR SHALL OVERLAY EACH TRADE'S WORK (IN SEPARATE COLORS) ON A REPRODUCIBLE SET OF SHEETMETAL DRAWINGS. ALL CONFLICTS AND POTENTIAL CONFLICTS SHALL BE CLEARLY IDENTIFIED ON THE SHEETMETAL DRAWINGS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO CONFLICTS WITH LIGHTS, EQUIPMENT, PIPING, DUCTWORK AND SUPPORTS OF OTHER TRADES, AS WELL AS CONFLICTS WITH ARCHITECTURAL AND STRUCTURAL WALLS, COLUMNS, CEILINGS AND STRUCTURAL BEAMS.

C. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:
1. PROJECT NAME AND LOCATION
2. NAME OF ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF THE PRIME CONTRACTOR

D. SUBMISSIONS:
1. SUBMISSIONS 11 IN X 17 IN OR SMALLER. IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2. SUBMISSIONS LARGER THAN 11 IN X 17 IN. SUBMIT TWO PRINTS TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT TO THE ENGINEER.

4. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING

A. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:
1. DUCTWORK LAYOUT AND SHEET METAL DESIGNS.
2. AIR OUTLETS.
3. AIR BALANCE REPORT.
4. AC UNITS AND FANS.
5. PIPING LAYOUT.
6. INSULATION
7. VIBRATION ISOLATION.
8. MOTORIZED AND NON-MOTORIZED DAMPERS
9. ASHRAE 90.1 REQUIRED COMPLETION DOCUEMENTS BUT AS A MINIMUM:

i. DRAWINGS. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER. RECORD DRAWINGS SHALL INCLUDE, AS A MINIMUM, THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT; GENERAL CONFIGURATION OF THE DUCT AND PIPE DISTRIBUTION SYSTEM, INCLUDING SIZES; AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES.

ii.MANUALS. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT AN OPERATING MANUAL AND A MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE. THESE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS (SEE INFORMATIVE APPENDIX E) AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:

1. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.

2. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT AND SYSTEM REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

3. NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY.

4. HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SETPOINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS.

5. COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SUGGESTED SETPOINTS.

B. SHOP DRAWINGS
1. PREPARE AND SUBMIT DETAILED SHOP DRAWINGS FOR PIPING WORK AND OTHER DISTRIBUTION SERVICES, INCLUDING LOCATIONS AND SIZES OF ALL OPENINGS IN FLOOR WALLS AND ROOFS
2. THE WORK DESCRIBED IN ANY SHOP DRAWING SUBMISSION SHALL BE CAREFULLY CHECKED FOR ALL CLEARANCES (INCLUDING THOSE REQUIRED FOR MAINTENANCE AND SERVICING), FIELD CONDITIONS, MAINTENANCE OF ARCHITECTURAL CONDITIONS AND PROPER COORDINATION WITH ALL TRADES ON THE JOB.
3. EACH SUBMITTED SHOP DRAWING TO INCLUDE A CERTIFICATION THAT ALL RELATED JOB CONDITIONS HAVE BEEN CHECKED AND THAT NO CONFLICT EXISTS.
4. ALL DRAWINGS TO BE SUBMITTED SUFFICIENTLY IN ADVANCE OF FIELD REQUIREMENTS TO ALLOW AMPLE TIME FOR CHECKING. ALL SUBMITTALS TO BE COMPLETE AND CONTAIN ALL REQUIRED AND DETAILED INFORMATION. SHOP DRAWINGS WITH MULTIPLE PARTS SHALL BE SUBMITTED AS A PACKAGE.
5. IF SUBMITTALS DIFFER FROM THE CONTRACT DOCUMENT REQUIREMENTS, MAKE SPECIFIC MENTION OF SUCH DIFFERENCE IN A LETTER OF TRANSMITTAL, WITH REQUEST FOR SUBSTITUTION, TOGETHER WITH REASONS FOR SAME.
6. REVIEW OF ANY SUBMITTED DATA OR SHOP DRAWINGS FOR MATERIAL, EQUIPMENT APPARATUS, DEVICES, ARRANGEMENT AND LAYOUT SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS AND WEIGHT, CAPACITIES, SIZES, QUANTITY, QUALITY AND INSTALLATION DETAILS TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE WORK. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR INADEQUACIES OF ANY SORT ON SUBMITTED DATA OR SHOP DRAWINGS.
7. EACH SHOP DRAWING TO CONTAIN JOB TITLE CONTRACTOR AND SUBCONTRACTOR NAMES AND PHONE NUMBERS, REFERENCE TO THE APPLICABLE DESIGN DRAWING OR SPECIFICATION ARTICLE, DATE AND SCALE.
8. WITHIN 15 DAYS AFTER AWARD OF CONTRACT, SUBMIT FOR REVIEW, A LIST OF ALL MATERIAL AND EQUIPMENT MANUFACTURERS WHOSE PRODUCTS ARE PROPOSED, AS WELL AS NAMES OF ALL SUBCONTRACTORS WHOM THIS TRADE PROPOSES TO EMPLOY.

C. RECORD DRAWINGS

1. THE CONTRACTOR SHALL MAINTAIN ON A DAILY BASIS AT THE PROJECT SITE A COMPLETE SET OF "RECORD DRAWINGS", REFLECTING AN ACCURATE DIMENSIONAL RECORD OF ALL WORK. THE "RECORD DRAWINGS" SHALL ALSO CONSIST OF A SET OF PRINTS OF THE FINAL "SIGNED OFF" CONTRACTOR'S "COORDINATION DRAWINGS" PREPARED BY THE SUBCONTRACTORS. IN ADDITION, THE "RECORD DRAWINGS SHALL BE MARKED TO SHOW THE PRECISE LOCATION OF CONCEALED WORK AND EQUIPMENT, INCLUDING CONCEALED OR EMBEDDED PIPING AND VALVES AND ALL CHANGES AND DEVIATIONS IN THE MECHANICAL WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS. THIS REQUIREMENT SHALL NOT BE CONSTRUED AS AUTHORIZATION FOR THE CONTRACTOR TO MAKE CHANGES IN THE LAYOUT OR WORK WITHOUT WRITTEN DEFINITE INSTRUCTIONS FROM THE ARCHITECT OR ENGINEER. THE DAILY "RECORD DRAWINGS" SHALL CONSIST OF A SET OF PRINTS OF THE CONTRACT DRAWINGS FOR THIS DIVISION WITH THE ENGINEER'S SEAL AND ENGINEER'S FIRM NAME REMOVED OR BLACKED OUT. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL PURCHASE FROM THE ARCHITECT OR ENGINEER A SET OF PRINTS TO BE USED FOR THE DAILY "RECORD DRAWINGS".

2. RECORD DIMENSIONS SHALL CLEARLY AND ACCURATELY DELINEATE THE WORK AS INSTALLED; LOCATIONS SHALL BE SUITABLY IDENTIFIED BY AT LEAST TWO DIMENSIONS TO PERMANENT STRUCTURES.

3. PRIOR TO FINAL ACCEPTANCE OF THE WORK OF THIS DIVISION, THE CONTRACTOR SHALL SUBMIT PROPERLY CERTIFIED "RECORD DRAWINGS" TO THE ARCHITECT AND ENGINEER FOR REVIEW AND SHALL MAKE CHANGES, CORRECTIONS, OR ADDITIONS AS THE ARCHITECT MAY REQUIRE TO THE "RECORD DRAWINGS". AFTER THE ARCHITECT AND ENGINEER REVIEW, THE "RECORD DRAWINGS" SHALL BE DELIVERED TO THE OWNER.

4. THE HVAC CONTRACTOR SHALL TAG/LABEL ALL EQUIPMENT AND SYSTEM COMPONENTS AND SUBMIT AS-BUILT DRAWINGS LOCATING ALL ACCESS DOORS AND PROVIDE A DETAILED LIST OF ALL SYSTEM COMPONENTS FOR WHICH THE ACCESS DOOR HAS BEEN PROVIDED. THIS DRAWING SHALL SERVE AS A "ROAD MAP" FOR THE OWNER TO PERFORM FUTURE MAINTENANCE.

5. SHEET METAL WORK

A. 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 THE LATEST EDITION OF SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. DUCT CONSTRUCTION STANDARDS, PRESSURE CLASSIFICATION 1 IN. W.G.

B. VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA "LOW VELOCITY MANUAL," EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT OTHER END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. INSTALL WITH LEVERS ACCESSIBLE.

C. FLEXIBLE CONNECTIONS: NEOPRENE-COATED GLASS FABRIC, 30 OZ PER SQ YD WITH SEWED AND CEMENTED SEAMS, SIMILAR TO VENT FABRICS. PROVIDE WITH METAL COLLARS. ALLOW MINIMUM MOVEMENT OF 1 IN.

D. TURNING VANES: GALVANIZED STEEL SMALL DOUBLE-THICKNESS VANES WITH 2 IN. INSIDE RADIUS.

E. ALL DUCT DIMENSIONS INDICATED ON PLANS ARE INSIDE CLEAR DIMENSIONS.

F. LOW PRESSURE FLEXIBLE DUCT: SHALL BE A FACTORY FABRICATED HIGH TEMPERATURE COPOLYMER IMPREGNATED GLASS FABRIC, LOCKED TO COLD ROLLED FLAT STEEL SPIRAL. SIMILAR TO THERMAFLEX. MAXIMUM INSTALLED LENGTH SHALL NOT EXCEED 5 FEET.

G. OUTDOOR DUCTWORK SHALL BE LEAK TESTED PER ASHRAE 90.1 AND TESTED TO INDUSTRY-ACCEPTED TEST PROCEDURES PER APPENDIX IN ASHRAE 90.1.

6. AIR OUTLETS

A. GENERAL:

1. MARGIN TYPES, COLORS, FINISH AND METHODS OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH ARCHITECTURAL CEILING AND WALL DETAILS AND SPECIFICATIONS.

2. FRAME TYPE SUITABLE FOR MOUNTING IN CEILING OR WALL CONSTRUCTION AS INDICATED ON ARCHITECTURAL PLANS.

3. EXACT LOCATION OF ALL AIR OUTLETS AS PER ARCHITECTURAL PLANS.

4. SUITABLE FOR OPERATION AT 20% EXCESS AND 20% LESS THAN NOTED CAPACITY FOR CONSTANT VOLUME SYSTEMS AND AT 20% EXCESS AND 60% LESS THAN NOTED CAPACITY FOR VARIABLE VOLUME SYSTEMS. MANUFACTURER RESPONSIBLE FOR EXAMINING APPLICATION OF EACH OUTLET AND GUARANTEE THAT EACH WILL PROVIDE REQUIRED NC LEVELS AND COMFORT SPACE CONDITIONS WITHOUT DRAFTS THROUGHOUT OPERATING RANGE.

5. DIFFUSERS, GRILLES AND REGISTERS SHALL BE SELECTED TO ACHIEVE NC 35 OR LESS WHEN INSTALLED.

6. ALL REGISTERS AND DIFFUSERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS. DAMPER OPERATING LEVERS SHALL BE ACCESSIBLE AT THE FACE OF AIR OUTLETS.

B. REGISTERS AND GRILLES:

1. RETURN AND EXHAUST REGISTERS: STEEL CONSTRUCTION WITH VOLUME DAMPER.

2. SUPPLY REGISTERS: ALUMINUM CONSTRUCTION, ADJUSTABLE DOUBLE DEFLECTION ALUMINUM AIRFOIL LOUVERS, WITH VOLUME DAMPER. PROVIDE AIR EQUALIZING DEFLECTOR WHERE REGISTER COLLAR DUCT IS LESS THAN 2 FT LONG.

3. TRANSFER GRILLES: STEEL CONSTRUCTION WITHOUT VOLUME DAMPER.

C. DIFFUSERS:
1. PERFORATED FACE SUPPLY: STEEL FACE WITH 1, 2, 3 OR 4 WAY ADJUSTABLE PATTERN, ROUND INLET COLLAR. WITH MATCHING RETURN.

7. APPLIANCE VENTING

a) NON-CONDENSING/NEGATIVE PRESSURE = CATEGORY 1 VENT TYPE: B-VENT DOUBLE WALL

b) NON-CONDENSING/POSITIVE PRESSURE = CATEGORY III VENT TYPE:
FORCED DRAFT: UL P-STACK DOUBLE WALL DIRECT VENT: AL29-4C DOUBLE WALL

c) CONDENSING/NEGATIVE PRESSURE = CATEGORY II VENT TYPE:
AL29-4C DOUBLE WALL

d) CONDENSING/POSITIVE PRESSURE = CATEGORY IV VENT TYPE:
AL29-4C DOUBLE WALL

NOTES:

1. THIS VENT SYSTEM CATEGORY TYPES ABOVE IS PROVIDED TO INDICATE THE VENT MATERIAL TYPE THAT WILL BE REQUIRED BASED UPON THE APPLIANCE VENTING REQUIREMENTS. CONTRACTOR SHALL MAKE SURE THAT DURING BIDDING THEY CHECK WITH THE APPLIANCE MANUFACTURE FOR THE EXACT TYPE OF VENTING REQUIRED. SOME MANUFACTURES ONLT ALLOW ONE VENT TYPE OR VENT MANUFACTURE TYPE. FAILURE TO COORDINATE THIS DURING BIDDING WILL RESULT IN THE DENIAL OF ANY EXTRA'S.
2. VENTING MATERIAL SHALL MATCH THE APPLIANCE TYPE AND BE AS PER THE MANUFACTURER'S REQUIREMENTS.
3. THE VENT TYPE SHOWN IS THE TYPE REQUIRED UNLESS INDICATED OTHERWISE ON THE PLANS. ALTERNATES WILL BE REVIEWED IF THE MANUFACTURER OF THE APPLIANCE APPROVES A DIFFERENT VENTING MATERIAL. THIS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. FAILURE TO PROVIDE THIS DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF ANY ADDITIONAL CHARGES.

8. TESTING, BALANCING AND COMMISSIONING

A. ALL AIR BALANCING SHALL BE IN ACCORDANCE WITH AABC, NEBB STANDARDS, AND ASHRAE 90.1.

B. AIR BALANCING SHALL BE ACCOMPLISHED BY ADJUSTMENT OF FANS AND BRANCH DAMPERS FOR MAJOR ADJUSTMENTS. ADJUSTMENT OF TERMINAL DAMPERS AND DEVICES SHALL BE FOR TRIM OR MINOR ADJUSTMENT ONLY. THIS SHALL BE DONE TO PERMIT THE LEAST NOISE GENERATION IN THE TERMINAL AREAS AND UTILIZE MINIMUM FAN ENERGY.

C. UPON COMPLETION OF THE INSTALLATION, THE CONTRACTOR SHALL REBALANCE ANY EXISTING PORTIONS OF AIR DISTRIBUTION SYSTEM AND WATER DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION AND ALSO BALANCE ALL NEW WORK.

D. THE CONTRACTOR SHALL PROVIDE ALL LABOR, PRESSURE GAUGES, FLOW METERS, SHEAVES, AND BELTS REQUIRED TO BALANCE SYSTEMS.

E. BALANCING REPORT SHALL BE PROVIDED ON AABC-TYPE FORMS.

F. FANS, AIR HANDLING UNITS AND COILS SHALL BE BALANCED TO WITHIN +5% OF THEIR DESIGN CAPACITIES. ALL OTHER AIR QUANTITIES SHALL BE BALANCED TO WITHIN +10% OF THE DESIGN QUANTITIES.

G. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED NEBB OR AABC TECHNICIAN:

H. THE PERFORMANCE AND CAPACITY OF ALL SYSTEMS AND EQUIPMENT TO BE DEMONSTRATED BY THE CONTRACTOR.

I. AIR SYSTEM BALANCING. AIR SYSTEMS SHALL BE BALANCED IN A MANNER TO FIRST MINIMIZE THROTTLING LOSSES. THEN, FOR FANS WITH FAN SYSTEM POWER GREATER THAN 1 HP, FAN SPEED SHALL BE ADJUSTED TO MEET DESIGN FLOW CONDITIONS.

J. HYDRONIC SYSTEM BALANCING. HYDRONIC SYSTEMS SHALL BE PROPORTIONATELY BALANCED IN A MANNER TO FIRST MINIMIZE THROTTLING LOSSES; THEN THE PUMP IMPELLER SHALL BE TRIMMED OR PUMP SPEED SHALL BE ADJUSTED TO MEET DESIGN FLOW CONDITIONS.

EXCEPTIONS: IMPELLERS NEED NOT BE TRIMMED NOR PUMP SPEED ADJUSTED

a. FOR PUMPS WITH PUMP MOTORS OF 10 HP OR LESS OR

b. WHEN THROTTLING RESULTS IN NO GREATER THAN 5% OF THE NAMEPLATE HORSEPOWER DRAW, OR 3 HP,

WHICHEVER IS GREATER, ABOVE THAT REQUIRED IF THE IMPELLER WAS TRIMMED.

K. SYSTEM COMMISSIONING. HVAC CONTROL SYSTEMS SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION. FOR PROJECTS LARGER THAN 50,000 FT2 CONDITIONED AREA, EXCEPT WAREHOUSES AND SEMIHEATED SPACES, DETAILED INSTRUCTIONS FOR COMMISSIONING HVAC SYSTEMS (SEE INFORMATIVE APPENDIX E) SHALL BE PROVIDED BY THE DESIGNER IN PLANS AND SPECIFICATIONS.

9. INSULATION - GENERAL REQUIREMENTS

A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84), (ASA A2.5-1963). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.

B. DEFINITIONS:

1. EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILINGS OR OPENING ACCESS PANELS.

2. CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.

3. OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.

10. DUCTWORK INSULATION

A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

B. MATERIAL (INSULATION R-VALUE (HR·FT²·ºF.)/BTU):

1. DUCTS IN UNCONDITIONED SPACES
i. DUCTS IN UNCONDITIONED ATTICS OR OUTSIDE BUILDING.
1. SUPPLY = 8
2. RETURN = 8
ii.DUCTS IN UNCONDITIONED BASEMENTS, CRAWL SPACES, GARAGES, AND OTHER UNCONDITIONED SPACES
1. SUPPLY = 6
2. RETURN = 6

2. DUCTS ABOVE THE CEILING
1. SUPPLY = 8
2. RETURN = 8

SYSTEMS TO ACHIEVE REQUIRED R-VALUES FOR ASHRAE 90.1 AND IECC

R - 5:
1. AIR DUCT BOARD - 1-1/2" THICK (R 6.5)
2. SHEET METAL DUCTWORK WITH .75 PCF 2" DUCT WRAP (R 5.6 @ 25% COMPRESSION)
3. SHEET METAL DUCTWORK WITH 1.5 PCF 1-1/2" THICK ROTARY* DUCT LINER (R 6.0)

R - 8:
1. AIR DUCT BOARD - 2" THICK (R 8.7)
2. SHEET METAL DUCTWORK WITH .75 PCF 3" THICK DUCT WRAP (R 8.4 @ 25% COMPRESSION)
3. SHEET METAL DUCTWORK WITH 1.5 PCF 2" THICK ROTARY* DUCT LINER (R 8.0)

EXTERIOR DUCTWORK:
1. CELLULAR GLASS, TYPE I, - 2" THICK (R 8) OWENS CORNING FOAMGLAS OR EQUAL
2. VENTURECLAD INSULATION JACKETING SYSTEM - SEAL ALL INSULATION JOINTS WITH 3" ALUMINUM TAPE PRIOR TO INSTALLING VENTURECLAD JACKET

C. INSTALLATION:

1. EQUIPMENT INSULATION-FIBER GLASS

A. APPLY INSULATION TO THE EQUIPMENT SURFACE WITH JOINTS FIRMLY BUTTED AND AS CLOSE AS POSSIBLE TO THE EQUIPMENT SURFACE. INSULATION SHALL BE SECURED AS REQUIRED WITH MECHANICAL FASTENERS OR BANDING MATERIAL. FASTENERS SHALL BE LOCATED A MAXIMUM OF 3" FROM EACH EDGE AND SPACED NO GREATER THAN 12" ON CENTER.

B. FOR BELOW AMBIENT SYSTEMS, VAPOR RETARDER JACKETING SHALL OVERLAP A MINIMUM OF 2" AT ALL SEAMS AND BE SEALED WITH APPROPRIATE PRESSURE-SENSITIVE TAPE OR MASTIC. ALL PENETRATIONS AND FACING DAMAGE SHALL BE COVERED WITH A MINIMUM 2" OVERLAP OF TAPE OR MASTIC.

C. EQUIPMENT INSULATION EXPOSED TO THE ELEMENTS OR IN REFRIGERATED SPACES SHALL BE FINISHED WITH MINIMUM 0.030-INCH THICK, OUTDOOR, WEATHER RESISTANT PVC; LAMINATED SELF-ADHESIVE WATER BASED WEATHERPROOF MASTIC AND GLASS CLOTH; OR METAL. ALL LONGITUDINAL JOINTS SHALL BE POSITIONED SO AS TO SHED WATER; WITH A MINIMUM 3" OVERLAP, AND COMPLETELY WEATHER SEALED. LAMINATED SYSTEMS SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS.

D. FOR HIGH-TEMPERATURE APPLICATIONS, INSULATION MAY EITHER BE MOUNTED IN DIRECT CONTACT WITH THE HOT SURFACE, IN H-BAR CONFIGURATION, OR PRE-FABRICATED PANEL SYSTEMS MOUNTED AWAY FROM THE OPERATING SURFACE. WHEN INSTALLING H-BAR OR PANEL SYSTEMS WHICH ARE MOUNTED AWAY FROM THE OPERATING SURFACE, CONVECTION STOPS SHALL BE INSTALLED AT A MAXIMUM OF 8 FEET ALONG THE VERTICAL SURFACES. INSULATION MAY BE APPLIED OVER WELDED PINS OR STUDS UP TO ½" IN DIAMETER. INSULATION SHALL BE HELD IN PLACE USING MESH REINFORCEMENT OR STEEL BANDS. INSULATION SHALL NOT BE COMPRESSED BEYOND A MAXIMUM OF 1/8 INCH AT ANY POINT. PINS AND STUDS SHALL BE SPACED A MAXIMUM OF 4" FROM EACH EDGE AND NO GREATER THAN 16" ON CENTER. FOR TEMPERATURES ABOVE 500°F (260°C) AND DESIGN THICKNESSES OVER 3", INSULATION SHALL BE APPLIED USING DOUBLE-LAYER WITH STAGGERED JOINTS. FINISH SHALL BE MINIMUM 0.020-INCH THICK PVC JACKETING, INSULATING CEMENT WITH CANVAS, GLASS CLOTH WITH MASTIC, OR METAL AS SPECIFIED ON THE DRAWINGS.

E. FOR EQUIPMENT INSULATION EXPOSED IN MECHANICAL ROOMS OR SUBJECT TO MECHANICAL ABUSE, FINISH WITH MINIMUM 0.020 INCH THICK PVC JACKETING OR METAL OR LAMINATED SELF-ADHESIVE WATER AND WEATHER SEALS. ALL OTHER INSULATION SHALL BE FINISHED AS APPROPRIATE FOR THE LOCATION AND SERVICE OR AS SPECIFIED ON THE DRAWINGS.

2. INTERNAL DUCT LINING

A. DUCT LINING SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARD METAL & FLEXIBLE" AND NAIMA'S "FIBROUS GLASS DUCT LINER STANDARD".

B. LENGTH OF MECHANICAL FASTENERS SHALL BE SELECTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION AS LISTED ON EACH PRODUCT. MECHANICAL FASTENERS SHALL BE INSTALLED PERPENDICULAR TO THE DUCT SURFACE, AND IN NO INSTANCE SHALL THE PIN COMPRESS THE LINER MORE THAN 1/8" RELATIVE TO THE NOMINAL THICKNESS OF THE INSULATION.

C. ALL EXPOSED EDGES OF THE DUCT LINER SHALL BE COATED WITH THE FACTORY APPLIED EDGE COATING OR AN ADHESIVE WHICH CONFORMS TO ASTM C 916.

D. WHEN DUCT LINING IS APPLIED WITH AN ADHESIVE, THE ADHESIVE SHALL BE APPLIED TO THE SHEET METAL WITH A 90% MINIMUM COVERAGE. ALL EXPOSED DUCT LINER EDGES NOT COATED BY THE MANUFACTURER SHALL BE COATED WITH THE SAME ADHESIVE. ALL RIPS AND TEARS SHALL BE REPAIRED USING THIS SAME ADHESIVE.

E. TRANSVERSE JOINTS SHALL BE FIRMLY BUTTED WITH NO GAPS AND COATED WITH ADHESIVE. LONGITUDINAL CORNER JOINTS SHALL BE OVERLAPPED AND COMPRESSED.

F. WHEN AIR VELOCITIES ARE 4000 TO 6000 FPM, METAL NOSING SHALL BE APPLIED TO ALL UPSTREAM TRANSVERSE EDGES TO ADDITIONALLY SECURE THE INSULATION.

3. FLEXIBLE FIBER GLASS BLANKET

A. INSTALL DUCT WRAP USING MANUFACTURER'S STRETCH-OUT TABLES TO OBTAIN SPECIFIED R-VALUE USING A MAXIMUM COMPRESSION OF 25%.

B. INSTALLED R-VALUE SHALL BE PER ASHRAE 90.1; UCC CODE; OR OTHER DESIGN CRITERIA.

C. FIRMLY BUTT ALL JOINTS.

D. THE LONGITUDINAL SEAM OF THE VAPOR RETARDER MUST BE OVERLAPPED A MINIMUM OF 2 INCHES. A 2-INCH TAB SHOULD BE PROVIDED ON DUCT WRAP FOR THE CIRCUMFERENTIAL SEAM.

E. WHERE VAPOR RETARDER PERFORMANCE IS REQUIRED, ALL PENETRATIONS AND DAMAGE TO THE FACING SHALL BE REPAIRED USING PRESSURE-SENSITIVE TAPE MATCHING THE FACING, OR MASTIC PRIOR TO SYSTEM STARTUP. PRESSURE-SENSITIVE TAPES SHALL BE A MINIMUM 3 INCHES WIDE AND SHALL BE APPLIED WITH MOVING PRESSURE USING A SQUEEGEE OR OTHER APPROPRIATE SEALING TOOL. CLOSURE SHALL HAVE A 25/50 FLAME SPREAD/SMOKE DEVELOPED RATING PER UL 723.

F. DUCT WRAP SHALL BE ADDITIONALLY SECURED TO THE BOTTOM OF RECTANGULAR DUCTWORK OVER 24 INCHES WIDE USING MECHANICAL FASTENERS ON 18-INCH CENTERS. CARE SHOULD BE EXERCISED TO AVOID OVER-COMPRESSION OF THE INSULATION DURING INSTALLATION. UNFACED DUCT WRAP SHALL BE OVERLAPPED A MINIMUM OF 2 INCHES AND FASTENED USING 4-INCH TO 6-INCH NAILS OR SKEWERS SPACED 4 INCHES APART, OR SECURED WITH A WIRE/BANDING SYSTEM. CARE SHOULD BE EXERCISED TO AVOID DAMAGE TO THE DUCT WRAP.

4. ROUND DUCTWORK - PIPE & TANK INSULATION

A. APPLY ON CLEAN, DRY SURFACES.

B. CUT TO APPROPRIATE LENGTH USING MANUFACTURERS' STRETCH-OUT GUIDE FOR THE SPECIFIC DUCT SIZE. ADD AN ADDITIONAL 2 INCHES (51 MM) TO 4 INCHES (102 MM) FOR A STAPLE FLAP.

C. WRAP AROUND THE DUCT TO ENSURE PROPER FIT. STAPLE THE LAP ON 3 INCH (76 MM) CENTERS WITH OUTWARD CLINCHING STAPLES.

D. ENDS SHALL BE FIRMLY BUTTED AND SECURED WITH MATCHING BUTT STRIP MATERIAL AT EACH JOINT.

E. ON BELOW AMBIENT DUCTWORK, APPROPRIATE UL APPROVED VAPOR RETARDER SHALL BE APPLIED TO ALL LONGITUDINAL AND CIRCUMFERENTIAL JOINTS BEFORE APPLICATION OF BUTT STRIP MATERIAL.

5. FIBER GLASS DUCTWORK

A. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF NAIMA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARD" AND MANUFACTURER'S RECOMMENDATIONS.

B. CLOSURE SYSTEM SHALL BE UL 181 TESTED AND LISTED: PRESSURE-SENSITIVE ALUMINUM FOIL TAPES: UL 181 PART I (MARKED UL 181 A-P). HEAT SEALABLE CLOSURES: UL 181 PART II (MARKED UL 181 A-H). MASTICS: UL 181 PART III (MARKED UL 181 A-M) WITH 3-INCH WIDE GLASS FABRIC.

C. ALL LONGITUDINAL AND TRANSVERSE JOINTS HAVING A 1½" STAPLE FLAP SHALL BE SECURED WITH OUTWARD-CINCHING STAPLES ON APPROXIMATE 2-INCH CENTERS AND SEALED WITH APPROVED CLOSURE SYSTEM.

D. TRANSVERSE SHIPLAP JOINTS NOT HAVING STAPLES FLAPS, OR TRANSVERSE BUTT JOINTS SHALL BE SECURED WITH 8-INCH LONG CROSS TABS RUNNING PERPENDICULAR TO THE JOINT SEAM ON 12-INCH CENTERS. CROSS TABS SHALL BE MADE FROM AN APPROVED CLOSURE TAPE. THE SEAM OF THE JOINT SHALL THEN BE SEALED WITH AN APPROVED CLOSURE SYSTEM.

E. DUCT SECTIONS SHALL BE ADDITIONALLY REINFORCED PER NAIMA'S AND MANUFACTURER'S RECOMMENDATIONS WHEN NECESSARY. REINFORCEMENT IS DEPENDENT ON DUCT WIDTH AND OPERATING PRESSURE.

F. DUCTWORK SHALL BE SUSPENDED AND SUPPORTED AS REQUIRED ON STRAIGHT RUNS, AT ALL TURNS, AND AT TRANSITIONS TO MAINTAIN PROPER ALIGNMENT. HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH NAIMA'S AND MANUFACTURER'S RECOMMENDATIONS.

11. PIPING INSULATION

A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

INSULATION SCHEDULE - PIPING

1. SERVICE LOW TEMP 40F TO 100F
a. THICKNESS UP TO 4" PIPE SHALL BE 1-1/2" INSULATION MATERIAL TYPE P-1 WITH A VAPORSEAL FINISH.
2. SERVICE - FITTINGS & VALVES LOW TEMP 40 TO 100 F
a. THICKNESS UP TO 4" PIPE SHALL BE 1-1/2" INSULATION MATERIAL TYPE P-2 WITH A F-1 VAPORSEAL FINISH.
3. REFRIGERANT LIQUID SUCTION LINES
a. THICKNESS ALL PIPE SHALL BE 1/2" INSULATION MATERIAL TYPE P-4 WITH A VAPORSEAL FINISH.
4. PIPING, FITTINGS & VALVES MEDIUM TEMP 100 TO 200 F
a. THICKNESS UP TO 4" PIPE SHALL BE 2" INSULATION MATERIAL TYPE P-3 WITH A VAPORSEAL FINISH.
5. HOT WATER
a. THICKNESS UP TO 4" PIPE SHALL BE 2" INSULATION MATERIAL TYPE P-3 WITH A VAPORSEAL FINISH.
6. STEAM
a. THICKNESS UP TO 2" PIPE SHALL BE 2-1/2" INSULATION MATERIAL TYPE P-2 WITH AN F-6 FINISH.
7. STEAM
a. THICKNESS GREATER THAN 2" PIPE SHALL BE 3" INSULATION MATERIAL TYPE P-2 WITH AN F-6 FINISH.

12. PIPING, VALVES AND FITTINGS TO BE INSULATED

A. LOW/MED/HIGH TEMPERATURE PIPING SYSTEMS INCLUDING:

1. CONDENSATE DRAINAGE
2. CHILLED WATER
3. CONDENSER WATER
4. HOT WATER
5. STEAM

B. MATERIAL:

1. TYPE P-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.23 K-FACTOR AT 75 F MEAN TEMPERATURE WITH FACTORY-APPLIED FIRE-RETARDANT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 ASJ.

2. TYPE P-2: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS FITTING, MAXIMUM 0.23 K-FACTOR AT 75 F MEAN TEMPERATURE SIMILAR TO EPOLUX HAMFAB MOLDED FITTINGS.

3. TYPE P-3: MINIMUM 1 LB DENSITY FIBERGLASS FITTING INSERTS, MAXIMUM 0.28 K-FACTOR AT 75 F MEAN TEMPERATURE SIMILAR TO MANVILLE HI-LO TEMP INSULATION INSERTS.

4. TYPE P-4: MINIMUM 6 LB MOLDED FOAMED PLASTIC. MAXIMUM 0.27 K-FACTOR AT 75 F MEAN TEMPERATURE. MAXIMUM 0.08 PERMEANCE. SIMILAR TO ARMSTRONG ARMAFLEX II.

C. FINISH:

1. TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.

2. TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.

3. TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.

4. TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.

D. OUTDOOR PIPING:
1. FOR ALL PIPING, FITTINGS AND VALVES LOCATED OUTDOORS, INCREASE SCHEDULED INSULATION THICKNESS BY A MINIMUM OF 1 IN. AND PROVIDE F-4 FINISH. PROVIDE VAPORSEAL ON ALL OUTDOOR PIPES, VALVES AND FITTINGS SUBJECT TO CONDENSATION.

E. E.INSTALLATION:
1. BEFORE APPLYING INSULATION ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED.
2. ALL INSULATION SHALL BE BUTTED FIRMLY TOGETHER. PROVIDE 2 IN. LAMP STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. USE VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE WHERE REQUIRED. STAPLES NOT PERMITTED. REFRIGERANT PIPING INSULATION SHALL HAVE MITERED FITTINGS.

3. ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS PASSING THROUGH SLEEVES, HANGERS, ETC., OR OTHER OPENINGS. PROVIDE SADDLES OR SHIELDS FOR PROTECTION.

4. INSULATION FOR STRAINERS OR OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

13. VIBRATION ISOLATION

A. GENERAL:

1. PROVIDE ISOLATION FOR EQUIPMENT, PIPING AND DUCTWORK.

2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3. PROVIDE LEVELING DEVICES AND APPROVED RESILIENT RESTRAINING DEVICES AS REQUIRED TO LIMIT EQUIPMENT AND PIPING MOTION IN EXCESS OF 1/4 IN.

4. ACCEPTABLE MANUFACTURERS:

a MASON INDUSTRIES, INC.

b VIBRATION ELIMINATOR CO.

c KORFUND DYNAMICS CORP.

B. CEILING-HUNG FANS AND EQUIPMENT:

1. PROVIDE SPRING HANGER ROD ISOLATORS. STEEL COMPRESSION SPRING AND NEOPRENE SOUND PAD WITHIN A STEEL RETAINER BOX. SIMILAR TO MASON TYPE PCHS. 1 IN. MINIMUM STATIC DEFLECTION. 1/2 IN. MINIMUM.

2. RESERVED DEFLECTION. FACTORY-PRELOADED TO 75% OF RATED LOAD. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE

3. EQUIPMENT OR STRUCTURE CANNOT SUPPORT POINT LOADS.

C. FLOOR MOUNTED EQUIPMENT HAVING INTERNAL ISOLATION:

1. PROVIDE 5/16 IN.-THICK NEOPRENE ACOUSTICAL BASE PADS OF RIBBED OR WAFFLE CONSTRUCTION. SIMILAR TO MASON TYPE W. 50 PSI MAXIMUM LOADING. PROVIDE STEEL BEARING.

2. PLATE TO DISTRIBUTE LOAD WHERE REQUIRED.

14. PIPING - GENERAL REQUIREMENTS

A. COMPLETE WITH: PIPE, FITTINGS, VALVES, STRAINERS, MOTORIZED VALVE OPERATORS, STRAINERS, HANGERS, SUPPORTS, GUIDE, SLEEVES, AND ACCESSORIES.

B. ALL ITEMS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:

1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

2. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).

3. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI). MANUFACTURERS STANDARDIZATION SOCIETY OF THE

4. VALVE AND FITTING INDUSTRY (MSS).

C. ALL PRESSURIZED PIPING TO BE TESTED HYDROSTATICALLY TO 150PSI OR 150% OF OPERATING PRESSURE, WHICHEVER IS GREATER, BUT NEVER EXCEED TEST PRESSURE ANSI B16.1 BASIS. TEST DURATION TO BE 2 HOURS WITH NO PRESSURE CHANGE CORRECTED FOR TEMPERATURE CHANGE. REPAIR OR REPLACE LEAKS OR DEFECTS WITHOUT ADDITIONAL COST.

D. PROVIDE DIELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE TO BE JOINED.

E. PIPE SUPPORTS:

1. PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTENTS TO PREVENT SAGGING, VIBRATION, OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS.

2. HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS TYPE HANGER. MAXIMUM SPACING AS FOLLOWS:

a. STEEL 1 IN. AND SMALLER: 7 FT.

b. STEEL 1-1/4 IN. AND LARGER: 10 FT.

c. COPPER 3 IN. AND SMALLER: 7 FT

d. ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, RUNOUTS, AND CONCENTRATED LOADS DUE TO VALVES, ETC.

3. VERTICAL PIPING:

a. BASE ELBOW SUPPORT WITH BEARING PLATE ON STRUCTURAL SUPPORT.

b. GUIDES AT EVERY SECOND FLOOR (SPACING NOT TO EXCEED 25 FT).

c. TOP SUPPORT HANGER OR SADDLE IN HORIZONTAL CONNECTION WITH PROVISIONS FOR EXPANSION.

d. INTERMEDIATE STEEL RISER CLAMP SUPPORT BOLTED AND WELDED TO PIPE BEARING ON STRUCTURAL STEEL OR BEARING PLATE AT FLOOR.

15. CONDENSATE DRAIN PIPING

A. PIPE: ASTM B88, HARD DRAWN COPPER TUBING TYPE "L".

B. FITTINGS: SOLDERED JOINT FITTINGS, 95/5 SOLDER.

C. PITCH AND DRAIN TO NEAREST AVAILABLE DRAIN, EXCEPT AS NOTED:

1. 1 IN. IN 4 FT PREFERRED.

2. 1 IN. IN 8 FT MINIMUM.

16. REFRIGERANT PIPING

A. REFRIGERANT PIPING

1. PIPE: COPPER TYPE ACR IN ACCORDANCE WITH ASTM B280, NITROGEN CHANGE AND CAPPED. FITTINGS: WROUGHT COPPER WITH SILVER BRAZING

2. ALLOY SOLDER SIMILAR TO HANDY AND HARMAN EASY-FLO.

3. INSULATE ALL REFRIGERANT PIPING.

17. NOISE CRITERIA

A. ALL AIR DISTRIBUTION SYSTEMS, REGISTERS AND RETURNS MUST BE NC 35 OR LESS.

18. DAMPERS
A. MAXIMUM DAMPER LEAKAGE FOR NONMOTORIZED SHALL BE 20CFM PER SQUARE FOOT, MOTORIZED SHALL BE 4CFM PER SQUARE FOOT. IF THE DAMPER IS SERVING AN AREA MAINTAINING A TEMPERATURE LESS THAN 50 DEGREES THE DAMPER SHALL BE MOTORIZED, HAVE A 0CFM(BUBBLE TIGHT) LEAKAGE INSULATED DAMPER WITH SILICONE AND HEATED SEALS.
B. ALL OUTDOOR AIR INTAKE AND EXHAUST SYSTEMS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS.

19. FRACTIONAL HORSEPOWER FAN MOTORS
A. MOTORS FOR FANS THAT ARE 1/12 HP OR GREATER AND LESS THAN 1 HP SHALL BE ELECTRONICALLY-COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR EFFICIENCY OF 70% WHEN RATED IN ACCORDANCE WITH DOE 10 CFR 431. THESE MOTORS SHALL ALSO HAVE THE MEANS TO ADJUST MOTOR SPEED FOR EITHER BALANCING OR REMOTE CONTROL. BELTDRIVEN FANS MAY USE SHEAVE ADJUSTMENTS FOR AIRFLOW BALANCING IN LIEU OF A VARYING MOTOR SPEED.

EXCEPTIONS:

1. MOTORS IN THE AIRSTREAM WITHIN FAN-COILS AND TERMINAL UNITS THAT OPERATE ONLY WHEN PROVIDING HEATING TO THE SPACE SERVE

20. CONTROLS

A. UNLESS OTHERWISE NOTED, EACH THERMOSTAT OR TEMPERATURE SENSOR SHALL CONTROL NO MORE THAN 25,000 SQURE FEET OF SPACE AND SHALL BE LOCATED IN THE ZONE IT IS CONTROLLING.

B. UNLESS OTHERWISE NOTED, EACH ZONE THERMOSTATIC CONTROL FOR BOTH HEATING AND COOLING SHALL HAVE A DEAD BAND CAPABILITY OF AT LEAST 5 DEGREES F.

C. CONTROLS SHALL HAVE SETPOINT OVERLAP RESTRICTION TO PREVENT HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT MINUS ANY APPLICABLE PROPOTIONAL BAND.

D. CONTROLS SHALL HAVE THE ABILITY TO START AND STOP UNDER DIFFERENT TIME SCHEDULES FOR SEVEN DIFFERENT DAY TYPES PER WEEK AND BE CAPABLE OF RETAINING PROGRAMMING AND TIME SETTING DURING A POWER LOSS PERIOD OF AT LEAST TEN HOURS, AND INCLUDE AN ACCESSIBLE MANUAL OVERRIDE, OR EQUIVALENT FUNCTION, THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO TWO HOURS.

E. SETBACK CONTROLS: HEATING ADJUSTABLE AT LEAST 10 DEGREES F BELOW SETPOINT, COOLING ADJUSTABLE AT LEAST 5 DEGREES ABOVE SETPOINT OR TO PREVENT HIGH SPACE HUMIDITY LEVELS.

F. OPTIMUM START CONTROLS THE CONTROL ALGORITHM SHALL, AS A MINIMUM, BE A FUNCTION OF THE DIFFERENCE BETWEEN SPACE TEMPERATURE AND OCCUPIED SETPOINT, THE OUTDOOR TEMPERATURE, AND THE AMOUNT OF TIME PRIOR TO SCHEDULED OCCUPANCY. MASS RADIANT FLOOR SLAB SYSTEMS SHALL INCORPORATE FLOOR TEMPERATURE INTO THE OPTIMUM START ALGORITHM.

G. SHUTOFF DAMPER CONTROLS - AUTOMATICALLY SHUT WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE, DURING PREOCCUPANCY WARMUP, COOLDOWN, AND SETBACK, EXCEPT WHEN VENITLATION REDUCES ENERGY COSTS OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

H. UNLESS OTHERWISE NOTED, VENTILATION FANS SHALL HAVE AUTOMATIC CONTROLS TO SHUT OFF WHEN NOT REQUIRED EXCEPT FOR SYSTEMS INTENDED TO RUN CONTINUOUSLY.

I. DEMAND CONTROL VENTILATION - REQUIRED FOR SPACES LARGER THAN 500 FEET SQUARE AND WITH A DESIGN OCCUPANCY FOR VENTILATION OF GREATER THAN OR EQUAL TO 25 PEOPLE PER 1000 FT2 OF FLOOR AREA AND SERVED BY SYSTEMS WITH ONE OR MORE OF THE FOLLOWING:

A. AIR-SIDE ECONOMIZER
B. AUTOMATIC MODULATING CONTROL OF OUTDOOR AIR DAMPER
C. DESIGN OUTDOOR AIRFLOW GREATER THAN 3000 CFM.

J. HEATING AND/OR AIR CURTAIN HEAT IN VESTIBULES- IF PROVIDED THE VESTIBULE SHALL BE TEMPERATURE CONTROLLED TO A MAXIMUM SETPOINT OF 60 DEGREES F AND SHUT OFF WHEN OUTDOOR AIR TEMPERATURES ARE ABOVE 45 DEGREES F.

K. DIRECT DIGITAL CONTROL(DDC) SHALL BE CAPABLE OF ALL OF THE FOLLOWING:

A. MONITORING ZONE AND SYSTEM DEMAND FOR FAN PRESSURE, PUMP PRESSURE, HEATING, AND COOLING

B. TRANSFERRING ZONE AND SYSTEM DEMAND INFORMATION FROM ZONES TO AIR DISTRIBUTION SYSTEM CONTROLLERS AND FROM AIR DISTRIBUTION SYSTEMS TO HEATING AND COOLING PLANT CONTROLLERS

C. AUTOMATICALLY DETECTING THOSE ZONES AND SYSTEMS THAT MAY BE EXCESSIVELY DRIVING THE RESET LOGIC AND GENERATE AN ALARM OR OTHER INDICATION TO THE SYSTEM OPERATOR

D. READILY ALLOWING OPERATOR REMOVAL OF ZONE(S) FROM THE RESET ALGORITHM

DDC DISPLAY - THE DDC SYSTEM SHALL BE CAPABLE OF TRENDING AND GRAPHICALLY DISPLAYING INPUT AND OUTPUT POINTS.

L. AIR ECONOMIZER SYSTEM(S) SHALL BE CAPABLE OF MODULATING OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100% OF THE DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR FOR COOLING.

CONTROL SIGNAL. ECONOMIZER DAMPERS SHALL BE CAPABLE OF BEING SEQUENCED WITH THE MECHANICAL COOLING EQUIPMENT AND SHALL NOT BE CONTROLLED BY ONLY MIXED-AIR TEMPERATURE.

EXCEPTION: THE USE OF MIXED-AIR TEMPERATURE LIMIT CONTROL SHALL BE PERMITTED FOR SYSTEMS CONTROLLED FROM SPACE TEMPERATURE (SUCH AS SINGLE-ZONE SYSTEMS).

HIGH-LIMIT SHUTOFF. ALL AIR ECONOMIZERS SHALL BE CAPABLE OF AUTOMATICALLY REDUCING OUTDOOR AIR INTAKE TO THE DESIGN MINIMUM OUTDOOR AIR QUANTITY WHEN OUTDOOR AIR INTAKE WILL NO LONGER REDUCE COOLING ENERGY USAGE. HIGH-LIMIT SHUTOFF CONTROL TYPES AND ASSOCIATED SETPOINTS FOR SPECIFIC CLIMATE ZONE 5

DAMPERS. RETURN, EXHAUST/RELIEF, AND OUTDOOR AIR DAMPERS SHALL MEET THE REQUIREMENTS LISTED IN THE DAMPER SECTION OF THE SPECIFICATION.

RELIEF OF EXCESS OUTDOOR AIR. SYSTEMS SHALL PROVIDE A MEANS TO RELIEVE EXCESS OUTDOOR AIR DURING AIR ECONOMIZER OPERATION TO PREVENT OVERPRESSURIZING THE BUILDING. THE RELIEF AIR OUTLET SHALL BE LOCATED SO AS TO AVOID RECIRCULATION INTO THE BUILDING.

SENSOR ACCURACY. OUTDOOR AIR, RETURN AIR, MIXED AIR, AND SUPPLY AIR SENSORS SHALL BE CALIBRATED WITHIN THE FOLLOWING ACCURACIES:

A. DRY-BULB AND WET-BULB TEMPERATURES SHALL BE ACCURATE TO ±2°F OVER THE RANGE OF 40°F TO 80°F.

B. ENTHALPY AND THE VALUE OF A DIFFERENTIAL ENTHALPY SENSOR SHALL BE ACCURATE TO ±3 BTU/LB OVER THE RANGE OF 20 TO 36 BTU/LB.

C. RELATIVE HUMIDITY SHALL BE ACCURATE TO ±5% OVER THE RANGE OF 20% TO 80% RH

HEATING SYSTEM IMPACT. THE ECONOMZIER CONTROLS SHALL BE SUCH THAT ECONOMIZER OPERATION DOES NOT INCREASE THE BULDING HEATING ENERGY USE DURING NORMAL OPERATION UNLESS VAV'S ARE USED ON THE PROJECT AND THE VAV SYSTEM(S) SHALL CAUSE ZONE-LEVEL HEATING TO INCREASE DUE TO A REDUCTION IN SUPPLY AIR TEMPERATURE.

M. ZONE THERMOSTATIC CONTROLS SHALL PREVENT

A. REHEATING;

B. RECOOLING;

C. MIXING OR SIMULTANEOUSLY SUPPLYING AIR THAT HAS BEEN PREVIOUSLY MECHANICALLY HEATED AND AIR THAT HAS BEEN PREVIOUSLY COOLED, EITHER BY MECHANICAL COOLING OR BY
ECONOMIZER SYSTEMS; AND

D. OTHER SIMULTANEOUS OPERATION OF HEATING AND COOLING SYSTEMS TO THE SAME ZONE

N. CONTROLS SHALL PREVENT REHEATING, MIXING OF HOT AND COLD AIRSTREAMS, OR OTHER MEANS OF SIMULTANEOUS HEATING AND COOLING OF THE SAME AIRSTREAM

O. FAN CONTROL - FANS IN MECHANICAL COOLING SYSTEM SHALL BE MODULTING TYPE AND MODULATE BASED UPON SPACE TEMPERATURE AND/OR VENTILATION REQUIREMENTS.

P. DOOR SWITCHES - PROVIDE DOOR SWITCHES AT ALL OUTSIDE DOORS. UPON A DOOR BEING LEFT OPEN FOLLOW SEQUENCE BELOW:
1. DISABLE MECHANICAL HEATING OR RESET THE HEATING SETPOINT TO 55°F OR LOWER WITHIN FIVE MINUTES OF THE DOOR OPENING AND
2. DISABLE MECHANICAL COOLING OR RESET THE COOLING SETPOINT TO 90°F OR GREATER WITHIN FIVE MINUTES OF THE DOOR OPENING. MECHANICAL COOLING SHALL REMAIN ENABLED IF OUTDOOR AIR TEMPERATURE IS BELOW SPACE TEMPERATURE.

EXCEPTIONS:
1. BUILDING ENTRIES WITH AUTOMATIC CLOSING DEVICES
2. ANY SPACE WITHOUT A THERMOSTAT
3. ALTERATIONS TO EXISTING BUILDINGS
4. LOADING DOCKS

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

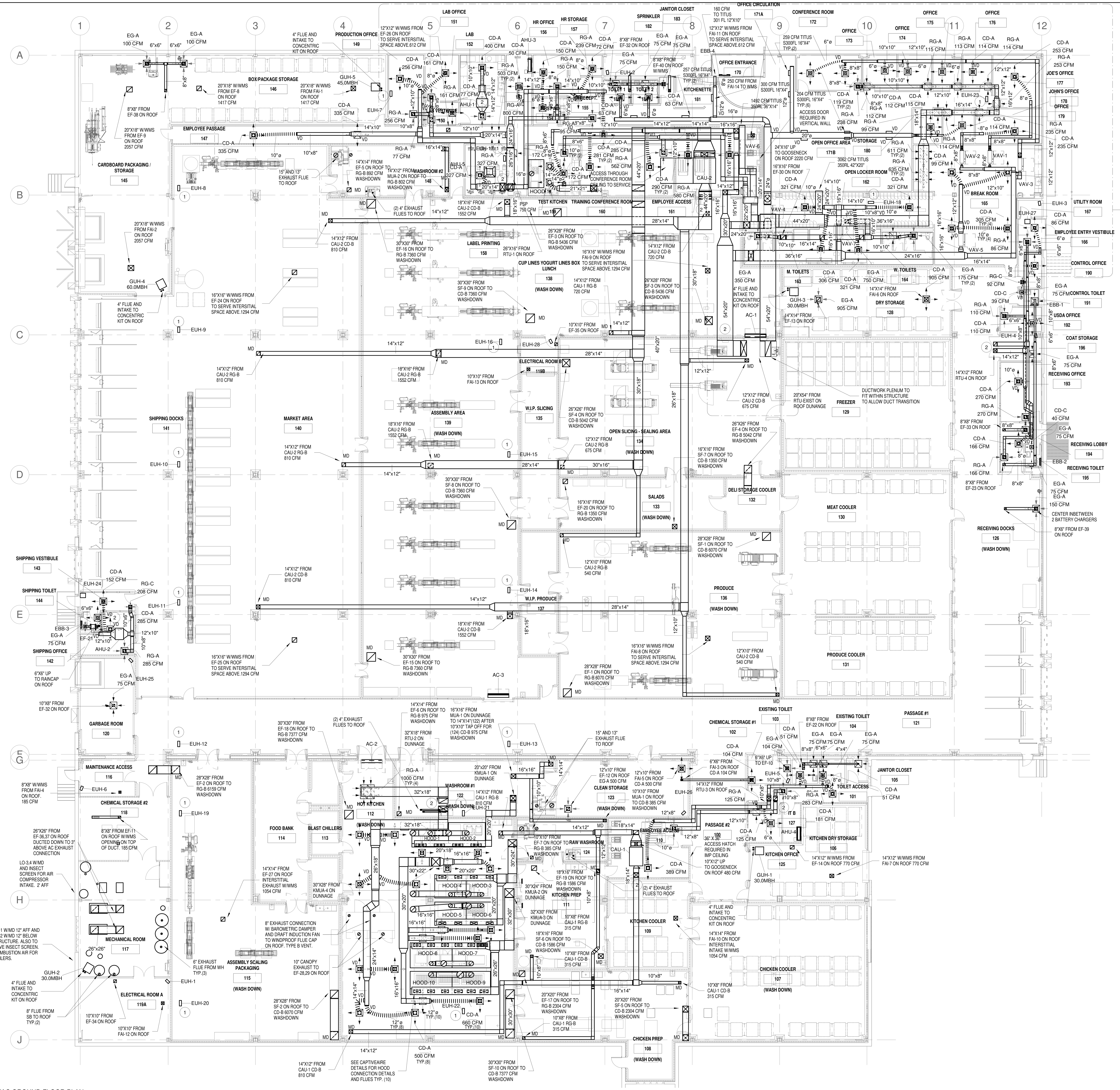
SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC SPECIFICATIONS
scale:	
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-101.00
DOB BARCODE:	

Total

9/24/2021 2:58:35 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 HVAC GROUND FLOOR PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL HVAC EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.
2. VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
3. PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.
4. PROVIDE PHASE LOSS PROTECTION FOR ALL POLY-PHASE MOTOR DEVICES.
5. THE FINAL LOCATION OF AIR DEVICES MUST BE COORDINATED WITH THE REFLECTED CEILING PLAN AND ALL OTHER MECHANICAL, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL, AND STRUCTURAL SYSTEMS.
6. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO VIBRATING EQUIPMENT. THESE CONNECTIONS SHALL BE INSTALLED IN CLOSE PROXIMITY TO SUCH EQUIPMENT.
7. ALL CEILING MOUNTED EQUIPMENT MUST BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH COMBINATION SPRING AND NEOPRENE-IN-SHEAR HANGERS AND ROD. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE LOAD.
8. ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS. WHEN MINIMUM REQUIRED DISTANCE CAN NOT BE MAINTAINED, IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL CODE COMPLIANT SAFETY RAILS.
9. SUPPLY AND RETURN GRILLES FOR WASHDOWN VENTILATION ARE STAINLESS STEEL WITH MOTORIZED DAMPERS AND A DRAIN. SEE THE DETAIL ON M-301.

HVAC KEY NOTES

Number	Text
1	UNIT HEATER LOCATED ABOVE CEILING TO SERVE INTERSTITIAL SPACE
2	PLACE UV LIGHT IN SUPPLY DUCT. SEE M-302 FOR UV LIGHT SPECIFICATIONS

CYBUL CYBUL WILHELM ARCHITECTS A.I.A.
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT ■
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

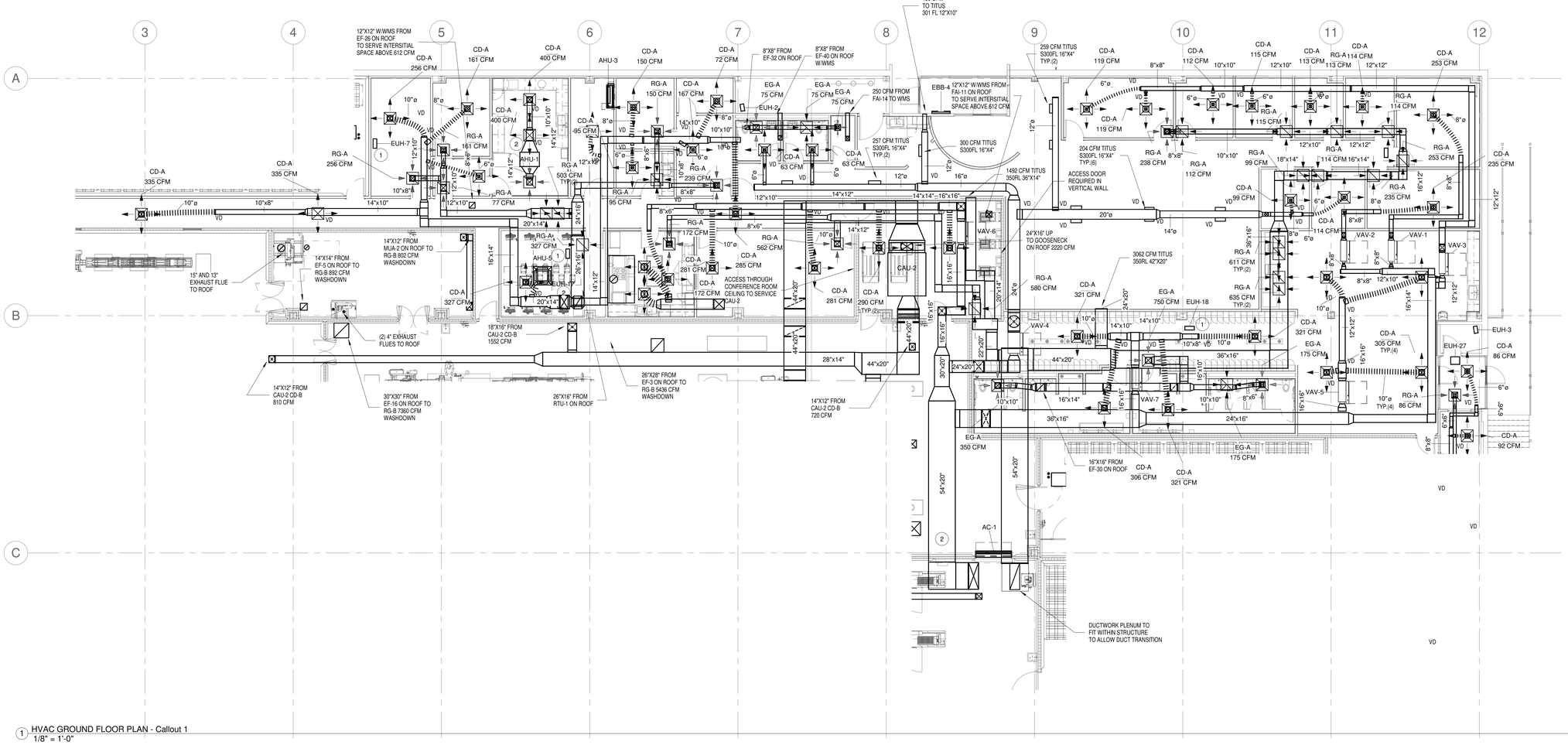
drawing name:	HVAC GROUND FLOOR PLAN
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-200.00
DOB BARCODE:	Total

9/24/2021 2:59:04 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GENERAL NOTES:

1. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL HVAC EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.
2. VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
3. PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.
4. PROVIDE PHASE LOSS PROTECTION FOR ALL POLY-PHASE MOTOR DEVICES.
5. THE FINAL LOCATION OF AIR DEVICES MUST BE COORDINATED WITH THE REFLECTED CEILING PLAN AND ALL OTHER MECHANICAL, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL, AND STRUCTURAL SYSTEMS.
6. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO VIBRATING EQUIPMENT. THESE CONNECTIONS SHALL BE INSTALLED IN CLOSE PROXIMITY TO SUCH EQUIPMENT.
7. ALL CEILING MOUNTED EQUIPMENT MUST BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH COMBINATION SPRING AND NEOPRENE-IN-SHEAR HANGERS AND ROD. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE LOAD.
8. ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS. WHEN MINIMUM REQUIRED DISTANCE CAN NOT BE MAINTAINED, IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL CODE COMPLIANT SAFETY RAILS.
9. SUPPLY AND RETURN GRILLES FOR WASHDOWN VENTILATION ARE STAINLESS STEEL WITH MOTORIZED DAMPERS AND A DRAIN. SEE THE DETAIL ON M-301.



1 HVAC GROUND FLOOR PLAN - Callout 1
1/8" = 1'-0"

HVAC KEY NOTES

Number	Text
1	UNIT HEATER LOCATED ABOVE CEILING TO SERVE INTERSTITIAL SPACE
2	PLACE UV LIGHT IN SUPPLY DUCT. SEE M-302 FOR UV LIGHT SPECIFICATIONS

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

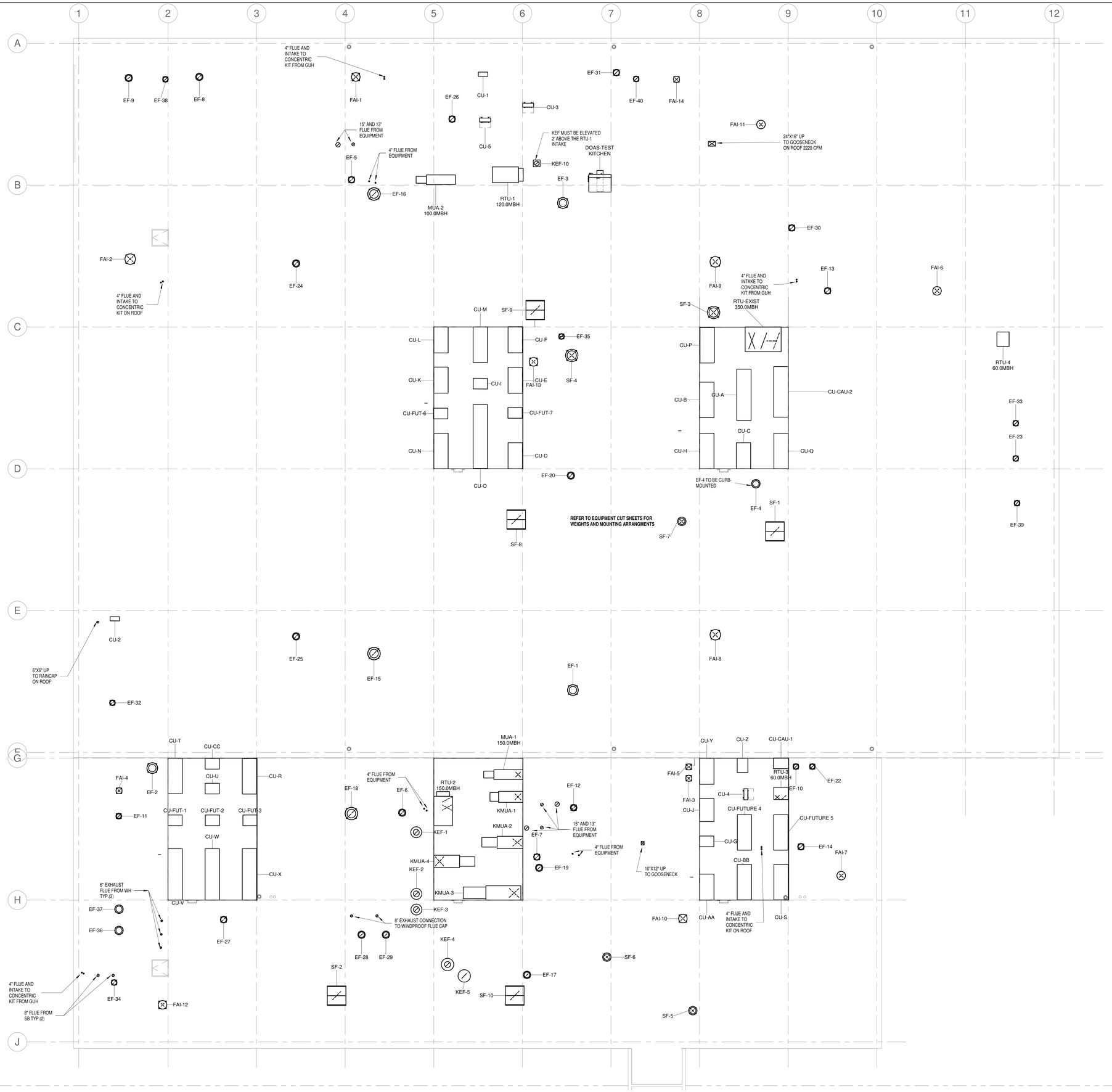
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC OFFICES
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-201.00
DOB BARCODE:
Total

9/24/2021 2:59:13 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 HVAC ROOF PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL HVAC EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.
2. VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
3. PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.
4. PROVIDE PHASE LOSS PROTECTION FOR ALL POLY-PHASE MOTOR DEVICES.
5. THE FINAL LOCATION OF AIR DEVICES MUST BE COORDINATED WITH THE REFLECTED CEILING PLAN AND ALL OTHER MECHANICAL, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL, AND STRUCTURAL SYSTEMS.
6. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO VIBRATING EQUIPMENT. THESE CONNECTIONS SHALL BE INSTALLED IN CLOSE PROXIMITY TO SUCH EQUIPMENT.
7. ALL CEILING MOUNTED EQUIPMENT MUST BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH COMBINATION SPRING AND NEOPRENE-IN-SHEAR HANGERS AND ROD. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE LOAD.
8. ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS. WHEN MINIMUM REQUIRED DISTANCE CAN NOT BE MAINTAINED, IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL CODE COMPLIANT SAFETY RAILS.
9. SUPPLY AND RETURN GRILLES FOR WASHDOWN VENTILATION ARE STAINLESS STEEL WITH MOTORIZED DAMPERS AND A DRAIN. SEE THE DETAIL ON M-301.

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE NO. GE 45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC ROOF PLAN
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-202.00
DOB BARCODE:
Total

9/24/2021 2:59:17 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

HVAC ROOFTOP UNIT SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	FAN SECTION: SUPPLY CFM	E.S.P (W.C)	OUTDOOR AIR CFM	SUPPLY FAN HP/QTY	HEATING SECTION: FUEL	STAGES	INPUT MBH	OUTPUT MBH	REQUIRED GAS PRESSURE ("WC)	COOLING DATA: TOTAL COOLING CAPACITY MBH	SENSIBLE COOLING CAPACITY MBH	ENTERING AIR TEMPERATURE DB	LEAVING AIR TEMPERATURE DB	COMPRESSOR QTY	ELECTRICAL SECTION: VOLTAGE	PHASE	MINIMUM CIRCUIT AMP	MAXIMUM OVERCURRENT PROTECTION	MAX FUSE	MISCELLANEOUS SECTION: WEIGHT	REFRIGERANT USED	EFFICIENCY SEER/EER/HSPF/COP/AFUE%	MISCELLANEOUS SECTION: NOTES
RTU-1	REST OF OFFICES	TRANE	YHC092F4RLA**H000C1A000A00	2500 CFM	1	178 CFM	2.75/1	NAT GAS	1	120.0	96.0	4.5"-14"	88.0	64.0	80.00 °F	56.00 °F	1	460	3	20.0	25.0		1291.0 lb	R410A	14.5/12.6	1-6,8-21
RTU-2	HOT KITCHEN	TRANE	YHC120F4RLA**H000C1A000A00	4000 CFM	1	499 CFM	2.75/1	NAT GAS	2	150.0	120.0	4.5"-14"	114.0	94.0	80.00 °F	58.00 °F	1	460	3	22.0	25.0		1608.0 lb	R410A	14.7/12.4	1-10,12-21
RTU-3	101,103,104,105,110,125	TRANE	4YCC4024A1060A	800 CFM	.4	70 CFM	3/1	NAT GAS	1	60.0	48.6	4.5"-14"	23.0				1	208	1	19.1		30.0	432.0 lb	R410A	14/11.3	1-10,12-21
RTU-4	166,190,191,192,193,194,195	TRANE	4YCC4024A1060A	800 CFM	.4	98 CFM	3/1	NAT GAS	1	60.0	48.6	4.5"-14"	23.0				1	208	1	19.1		30.0	432.0 lb	R410A	14/11.3	1-6,8-21
RTU-EXIST	OFFICES	TRANE	YSD210G3RHA0X0000A1000000	8400 CFM	1	770 CFM		NAT GAS		350.0	284.0	2.5"-14"	210.0					208	3	77.0	100.0		3000.0 lb	R410A		1-10,12-21

1. SELECTION IS BASED ON PACKAGED ROOFTOP UNIT WITH DX COOLING
2. 30% FILTERS
3. WEATHERPROOF DISCONNECT SWITCH
4. ULTRA HIGH EFFICIENCY BLOWER MOTOR
5. HIGH CAPACITY DX COIL
6. 1" DEFLECTION SPRINGS FOR SUPPLY AIR BLOWER ASSEMBLY
7. MOUNT ON DUNNAGE
8. ALUMINIZED STEEL GAS HEAT EXCHANGER
9. PROVIDE A SMOKE DUCT DETECTOR FAN FOR SHUTDOWN. COORDINATE WITH THE FIRE ALARM CONTRACTOR.
10. COLD START UP KIT
11. PROVIDE A CURB AND POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL ENGINEER. THE CURB AND UNIT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET
12. MOTOR/BLOWER VIBRATION ISOLATION
13. AIR FLOW PROVING SWITCH
14. TIMED-FREEZE PROTECTION
15. STEP-DOWN TRANSFORMER
16. RAINHOOD W/ INSECT SCREEN
17. DOWNWARD DISCHARGE
18. UV LIGHTS IN SUPPLY DUCT
19. DISCHARGE SENSOR TIED TO DDC SYSTEM
20. DUAL ENTHALPY ECONOMIZER
21. PROVIDE CONDENSATE PIPING WITH TRAP TO DISCHARGE ONTO SPLASH BACK

HVAC INDOOR AIR HANDLER UNIT SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	SUPPLY CFM'S	OUTDOOR AIR CFM	FAN SECTION: E.S.P (W.C)	SUPPLY FAN HP/QTY	TOTAL COOLING CAPACITY(MBH)	HEATING SECTION: FUEL	STAGES	OUTPUT MBH	ELECTRICAL SECTION: VOLTAGE	PHASE	FLA	MAXIMUM OVERCURRENT PROTECTION	MINIMUM CIRCUIT AMP	MAX FUSE	MISCELLANEOUS SECTION: WEIGHT	REFRIGERANT USED	EFFICIENCY SEER/EER/HSPF/COP/AFUE%	MISCELLANEOUS SECTION: NOTES
AHU-1	152	TRANE	TPEADA0121AA70A	494	66 CFM	.1		12.0	ELEC		18.0	208	1					58.0 lb	R410A	21.1/13	1-5
AHU-2	142,143,144	TRANE	TPEADA0121AA70A	494	34 CFM	.15		12.0	ELEC		18.0	208	1					58.0 lb	R410A	21.1/13	1-5
AHU-3	IT ROOM	TRANE	TPKA0A0241KA70A	775	0 CFM			24.0	ELEC	N/A	0.0	208	1					46.0 lb	R410A	21.4/12.2	1-5
AHU-4	IT ROOM	TRANE	TPKA0A0241KA70A	775	0 CFM			24.0	ELEC	N/A	0.0	208	1					46.0 lb	R410A	21.4/12.2	1-5
AHU-5	LABEL PRINTING	TRANE	TPLA0A0121EA70A	530	0 CFM			12.0	ELEC	N/A	0.0	208	1					46.0 lb	R410A	27/16.4	1-5

1. TO BE SUPPLIED WITH STANDARD 2" THROWAWAY FILTERS
2. SUPPLY WITH CONDENSATE PUMP, LITTLE GIANT VCMA-15 OR EQUAL PIPED TO NEAREST AVAILABLE DRAIN
3. SUPPLY WITH 7-DAY PROGRAMMABLE THERMOSTAT
4. POWERED BY CONDENSING UNIT
5. PROVIDE LOW AMBIENT WIND BAFFLE WB-PA5

HVAC MAKE-UP AIR UNIT SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	FAN SECTION: SUPPLY CFM	SUPPLY FAN BHP/QTY	HEATING SECTION: FUEL	INPUT MBH	OUTPUT MBH	REQUIRED GAS PRESSURE ("WC)	TOTAL COOLING CAPACITY MBH	LEAVING AIR TEMPERATURE	ELECTRICAL SECTION: VOLTAGE	PHASE	FLA	MINIMUM CIRCUIT AMP	MAXIMUM OVERCURRENT PROTECTION	AFC RATING	MISC. SECTION: WEIGHT	NOTES
KMUA-1	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS																
KMUA-2	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS																
KMUA-3	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS																
KMUA-4	SPACE BALANCE	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS																
MUA-1	WASHROOM #1, RAW WASHROOM	TRANE	GRCA15PFGF0	1360 CFM	.63/1	NAT GAS	150.0	120.0	7"-14"			460	3		3.5	5.2		679.0 lb	1-2,7-13
MUA-2	WASHROOM #2	TRANE	GRCA10PFGF0	820 CFM	.4/1	NAT GAS	100.0	80.0	7"-14"			460	3		2.7	3.9		651.0 lb	1-5,7-13

1. WEATHERPROOF DISCONNECT SWITCH
2. ULTRA HIGH EFFICIENCY INVERTER DUTY RATED BLOWER MOTOR
3. 1" DEFLECTION SPRINGS FOR SUPPLY AIR BLOWER ASSEMBLY
4. 14" FULL PERIMETER CURB
5. PROVIDE A CURB AND POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. THE CURB AND UNIT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET.
6. PROVIDE A SMOKE DUCT DETECTOR FOR FAN SHUTDOWN. COORDINATE WITH THE FIRE ALARM CONTRACTOR.
7. MOTOR/BLOWER VIBRATION ISOLATION
8. UV LIGHTS IN SUPPLY DUCT
9. AIR FLOW PROVING SWITCH
10. STEP-DOWN TRANSFORMER
11. RAIN HOOD W/ INSECT SCREEN
12. DOWNWARD DISCHARGE
13. ALUMINIZED STEEL GAS HEAT EXCHANGER

HVAC GAS FIRED UNIT HEATER SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	AIR FLOW	INPUT MBH	OUTPUT MBH	REQUIRED GAS PRESSURE ("WC)	HP	ELECTRICAL SECTION: VOLTAGE	PHASE	FLA	MAXIMUM OVERCURRENT PROTECTION	CONTROL	EFFICIENCY	MISC. SECTION: WEIGHT	VENT TYPE	MISC. SECTION: NOTES
GUH-1	KITCHEN DRY STORAGE	REZNOR	UDZ-30	456 CFM	30.0	24.6	7-11" WC	0.06	115	1	1.9	15.0	THERMOSTAT	82	58.0 lb	CONCENTRIC	1-6
GUH-2	MECHANICAL ROOM	REZNOR	UDZ-30	456 CFM	30.0	24.6	7-11" WC	0.06	115	1	1.9	15.0	THERMOSTAT	82	58.0 lb	CONCENTRIC	1-6
GUH-3	DRY STORAGE	REZNOR	UDZ-30	456 CFM	30.0	24.6	7-11" WC	0.06	115	1	1.9	15.0	THERMOSTAT	82	58.0 lb	CONCENTRIC	1-6
GUH-4	CARDBOARD PACKAGING	REZNOR	UDZ-60	769 CFM	60.0	49.8	7-11" WC	0.06	115	1	2.4	15.0	THERMOSTAT	82	71.0 lb	CONCENTRIC	1-6
GUH-5	BOX/PACKAGE STORAGE	REZNOR	UDZ-45	629 CFM	45.0	37.4	7-11" WC	0.06	115	1	2.4	15.0	THERMOSTAT	82	63.0 lb	CONCENTRIC	1-6

1. ELECTRONIC IGNITION AND ENCLOSED MOTOR
2. 4-POINT SUSPENSION KIT
3. SINGLE STAGE COMBINATION GAS VALVE AND SEPARATED COMBUSTION
4. PROVIDE WITH CC-2 VERTICAL -OR- CC6 HORIZONTAL CONCENTRIC COMBUSTION AIR INTAKE FLUE VENT KIT
5. PROVIDE WITH DIFFERENTIAL AIR PRESSURE SWITCH TO VERIFY COMBUSTION AIR FLOW, POLISHED ALUMINUM REFLECTORS
6. PROVIDE WITH STEP-DOWN TRANSFORMER FOR 24V CONTROLS
7. FURNISH AND INSTALL CONDENSATE PIPING AND ACID NEUTRALIZER TO NEAREST AVAILABLE DRAIN OR STANDPIPE
8. ATTACH AXIOM NEUTRALIZATION CAPSULE NC-1
9. SUPPLY WITH CONDENSATE PUMP, LITTLE GIANT VCMA-15 OR EQUAL PIPED TO NEAREST DRAIN OR STANDPIPE

HVAC EXHAUST FAN SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	AIR FLOW	E.S.P (W.C)	RPM	DRIVE	HP	ELECTRICAL SECTION: VOLTAGE	PHASE	AMPS	CONTROL	MISCELLANEOUS SECTION: WEIGHT	NOTES
EF-1	WASHDOWN PRODUCE	GREENHECK	CUE-200-B	6070 CFM	.1	1140	DIRECT	2.00	460	3		WASHDOWN SWITCH, INTERLOCK W/ SF-1	236.0 lb	1-6
EF-2	WASHDOWN ASSEMBLY SCALING	GREENHECK	CUE-200-B	6159 CFM	.1	1140	DIRECT	2.00	460	3		WASHDOWN SWITCH, INTERLOCK W/ SF-2	236.0 lb	1-6
EF-3	WASHDOWN CUPLINES	GREENHECK	CUE-200-B	5436 CFM	.1	1140	DIRECT	2.00	460	3		WASHDOWN SWITCH, INTERLOCK W/ SF-3	236.0 lb	1-6
EF-4	WASHDOWN OPEN SLICE	GREENHECK	CUE-160-A	5042 CFM	.1	1725	DIRECT	2.00	460	3	3.4	WASHDOWN SWITCH, INTERLOCK W/ SF-4	141.0 lb	1-6
EF-5	WASHROOM #2 EXHAUST	GREENHECK	CUE-095-D	892 CFM	.2	1550	DIRECT	0.13	115	1		PRESSURE SENSOR, INTERLOCK W/MUA-2	73.0 lb	1-6
EF-6	WASHROOM #1 EXHAUST	GREENHECK	CUE-120-A	975 CFM	.1	1725	DIRECT	0.50	460	3	1.1	PRESSURE SENSOR, INTERLOCK W/MUA-1	100.0 lb	1-6
EF-7	RAW WASHROOM EXHAUST	GREENHECK	CUE-090-G	385 CFM	.2	1300	DIRECT	0.04	115	1		PRESSURE SENSOR, INTERLOCK W/MUA-1	66.0 lb	1-6
EF-8	VENTILATION BOX PACKAGE	GREENHECK	CUE-100-A	1417 CFM	.1	1725	DIRECT	0.25	460	3	1.1	TSTAT,INTERLOCK W/ FAI-1	102.0 lb	1-6
EF-9	VENTILATION CARDBOARD	GREENHECK	CUE-120-A	2057 CFM	.1	1725	DIRECT	0.50	115	1	9.8	TSTAT,INTERLOCK W/ FAI-2	78.0 lb	1-6
EF-10	CHEMICAL STORAGE 1 EXHAUST	GREENHECK	CUE-060-G	104 CFM	.1	1300	DIRECT	0.01	115	1		TIMECLOCK	55.0 lb	1-6
EF-11	CHEMICAL STORAGE 2 EXHAUST	GREENHECK	CUE-060-VG	185 CFM	.1	1725	DIRECT	0.07	115	1	1.3	TIMECLOCK	56.0 lb	1-6
EF-12	VENTILATION CLEAN STORAGE	GREENHECK	CUE-080-VG	500 CFM	.1	1725	DIRECT	0.10	115	1	1.4	TSTAT, INTERLOCK W/ FAI-5	70.0 lb	1-6
EF-13	VENTILATION DRY STORAGE	GREENHECK	CUE-095-D	905 CFM	.1	1550	DIRECT	0.13	115	1		TSTAT, INTERLOCK W/ FAI-6	73.0 lb	1-6
EF-14	VENTILATION KITCHEN DRY STORAGE	GREENHECK	CUE-090-D	770 CFM	.1	1550	DIRECT	0.07	115	1		TSTAT, INTERLOCK W/ FAI-7	66.0 lb	1-6
EF-15	WASHDOWN ASSEMBLY	GREENHECK	CUE-240HP-VG	7360 CFM	.1	1200	DIRECT	3.00	208	3	8.0	WASHDOWN SWITCH, INTERLOCK W/ SF-8,9	241.0 lb	1-6
EF-16	WASHDOWN ASSEMBLY	GREENHECK	CUE-240HP-VG	7360 CFM	.1	1200	DIRECT	3.00	208	3	8.0	WASHDOWN SWITCH, INTERLOCK W/ SF-8,9	241.0 lb	1-6
EF-17	WASHDOWN CHICKEN PREP	GREENHECK	CUE-130-A	2304 CFM	.1	1725	DIRECT	0.75	460	3	1.6	WASHDOWN SWITCH, INTERLOCK W/ SF-5	112.0 lb	1-6
EF-18	WASHDOWN HOT KITCHEN	GREENHECK	CUE-240-C	7377 CFM	.1	860	DIRECT	2.00	460	3		WASHDOWN SWITCH, INTERLOCK W/ SF-10	252.0 lb	1-6
EF-19	WASHDOWN KITCHEN PREP	GREENHECK	CUE-120-A	1586 CFM	.1	1725	DIRECT	0.50	460	3	1.1	WASHDOWN SWITCH, INTERLOCK W/ SF-6	100.0 lb	1-6
EF-20	WASHDOWN SALAD	GREENHECK	CUE-100-A	1350 CFM	.1	1725	DIRECT	0.25	460	3	1.1	WASHDOWN SWITCH, INTERLOCK W/ SF-7	102.0 lb	1-6
EF-21	BATHROOM 144	GREENHECK	CSP-B110	75 CFM	.15	950	DIRECT		115	1	1.2	TIMECLOCK	11.0 lb	1,3,4
EF-22	BAHTROOMS 103,104,105	GREENHECK	CUE-060-VG	200 CFM	.1	1725	DIRECT	0.07	115	1	1.3	TIMECLOCK	56.0 lb	1-5
EF-23	BATHROOM CONTROL AND RECIEVING	GREENHECK	CUE-070-G	225 CFM	.15	1300	DIRECT	0.02	115	1		TIMECLOCK	56.0 lb	1-5
EF-24	INTERSTITIAL MIDDLE ZONE	GREENHECK	CUE-100-A	1294 CFM	.1	1725	DIRECT	0.25	460	3	1.1	TSTAT, INTERLOCK W/ FAI-8,9	102.0 lb	1-6
EF-25	INTERSTITIAL MIDDLE ZONE	GREENHECK	CUE-100-A	1294 CFM	.1	1725	DIRECT	0.25	460	3	1.1	TSTAT, INTERLOCK W/ FAI-8,9	102.0 lb	1-6
EF-26	INTERSTITIAL TOP ZONE	GREENHECK	CUE-090-G	612 CFM	.1	1300	DIRECT	0.04	115	1		TSTAT, INTERLOCK W/ FAI-11	66.0 lb	1-6
EF-27	INTERSTITIAL BOTTOM ZONE	GREENHECK	CUE-095-VG	1054 CFM	.1	1725	DIRECT	0.17	115	1	2.2	TSTAT, INTERLOCK W/ FAI-10	72.0 lb	1-6
EF-28	DOUBLE RACK OVEN	GREENHECK	CUE-100-A	1000 CFM	.1	1725	DIRECT	0.25	115	1	5.8	INTERLOCK W/ OVEN	89.0 lb	1-6
EF-29	DOUBLE RACK OVEN	GREENHECK	CUE-100-A	1000 CFM	.1	1725	DIRECT	0.25	115	1	5.8	INTERLOCK W/ OVEN	89.0 lb	1-6
EF-30	BATHROOMS AND LOCKER ROOM	GREENHECK	CUE-120-A	1475 CFM	.1	1725	DIRECT	0.50	460	3	1.1	TIMECLOCK	100.0 lb	1-5
EF-31	BATHROOMS 185,184,183	GREENHECK	CUE-070-G	225 CFM	.1	1300	DIRECT	0.02	115	1		TIMECLOCK	56.0 lb	1-5
EF-32	GARBAGE EXHAUST	GREENHECK	CUE-070-D	300 CFM	.1	1550	DIRECT	0.03	115	1	0.0	TIMECLOCK	56.0 lb	1-5
EF-33	CONTROL AND RECIEVING	GREENHECK	CUE-070-G	225 CFM	.15	1300	DIRECT	0.02	115	1		TIMECLOCK	56.0 lb	1-5
EF-34	ELEC ROOM A	GREENHECK	CUE-070-VG	400 CFM	.1	1725	DIRECT	0.06	115	1		TIMECLOCK	33.0 lb	1-5
EF-35	ELEC ROOM B	GREENHECK	CUE-070-VG	400 CFM	.1	1725	DIRECT	0.06	115	1		TIMECLOCK	33.0 lb	1-5
EF-36	AIR COMPRESSOR	GREENHECK	CUE-160-A	4800 CFM	.1	1725	DIRECT	2.00	460	3	3.4	INTERLOCK W/ AC AND TSTAT	145.0 lb	1-5
EF-37	AIR COMPRESSOR	GREENHECK	CUE-160-A	4800 CFM	.1	1725	DIRECT	2.00	460	3	3.4	INTERLOCK W/ AC AND TSTAT	145.0 lb	1-5
EF-38	BATTERY CHARGER 1	GREENHECK	CUE-060-VG	200 CFM	.1	1725	DIRECT	0.03	115	1	1.3	TIMECLOCK	33.0 lb	1-5
EF-39	BATTERY CHARGER 2	GREENHECK	CUE-060-D	150 CFM	.1	1550	DIRECT	0.03	115	1	1.3	TIMECLOCK	33.0 lb	1-5
EF-40	SPRINKLER ROOM	GREENHECK	CUE-070-G	250 CFM	.1	1300	DIRECT	0.03	115	1		TSTAT, INTERLOCK W/ FAI-14	33.0 lb	1-5
KEF-1	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS											
KEF-2	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS											
KEF-3	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS											
KEF-4	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS											
KEF-5	HOODS	CAPTIVE AIRE	SEE CAPTIVE AIRE DETAILS											
KEF-10														

1. WEATHERPROOF DISCONNECT SWITCH
2. ROOF CURB
3. BACKDRAFT DAMPER
4. PROVIDE VFD FOR CONTROL
5. PROVIDE A CURB AND POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL ENGINEER. THE CURB AND UNIT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET.
6. PROVIDE WITH MOTORIZED DAMPER WITH ACTUATOR AND END SWITCH. INTERLOCK ASSOCIATED EXHAUST FAN WITH END SWITCH TO START FAN ONCE DAMPER IS PROVED TO BE FULLY OPEN VIA ENDSWITCH, HVAC TO PROVIDE FUSED CONTROL XFMR IN HOFFMAN BOX FOR MOTORIZED DAMPER TO BE INSTALLED BY EC.

HVAC AIR COOLED CONDENSING UNIT SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	TOTAL COOLING CAPACITY MBH	TOTAL HEATING CAPACITY MBH	ELECTRICAL SECTION: VOLTAGE	PHASE	MINIMUM CIRCUIT AMP	MAXIMUM OVERCURRENT PROTECTION	FLA	MISCELLANEOUS SECTION: WEIGHT	REFRIGERANT USED	EFFICIENCY SEER/EER/HSPF/COP/AFUE%	MISCELLANEOUS SECTION: NOTES
CU-1	152	TRANE	TRUYA0121KA70	12.0	18.0	208	1	11.0	28.0	0.5	93.0 lb	R410A	21.1/13	1-4
CU-2	142,143,144	TRANE	TRUYA0121KA70	12.0	18.0	208	1	11.0	28.0	0.5	93.0 lb	R410A	21.1/13	1-4
CU-3	IT ROOM	TRANE	TRUYA0241HA70	24.0	0.0	208	1	19.0	26.0	0.4	151.0 lb	R410A	21.4/12.2	1-4
CU-4	IT ROOM	TRANE	TRUYA0241HA70	24.0	0.0	208	1	19.0	26.0	0.4	151.0 lb	R410A	21.4/12.2	1-4
CU-5	LABEL PRINTING	TRANE	TRUYA0121KA70	12.0	0.0	208	1	11.0	28.0	0.5	92.0 lb	R410A	27/16.4	1-4
CU-CAU-1	CAU-1	BOHN	2DD3R63KE	54.0	0.0	460	3	15.0	20.0		751.0 lb	R448A		1-5
CU-CAU-2	CAU-2	BOHN	4DJNR28ME	262.0	0.0	460	3	65.7	110.0		1860.0 lb	R448A		1-5

1. PROVIDE LOW AMBIENT KIT, THERMAL EXPANSION VALVE AND ACCUMULATOR WITH ALL UNITS
2. PROVIDE WITH ANTI-SHORT CYCLE TIMER, DISCONNECT SWITCH AND RUBBER ISOLATORS
3.POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL ENGINEER. THE MEANS OF POSITIVE ATTACHMENT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET.
4. PROVIDE EQUIPMENT RAILS LONG ENOUGH TO SPAN THE REQUIRED # OF EXISTING ROOF JOUSTS AS DETERMINED BY THE ARCHTECT AND STRUCTURAL ENGINEER.
5. CONTACT GARY LA FATA @ 732-994-4700/917-417-0678 FOR BOHN QUOTE R1736462 FOR QUESTIONS AND SPECIFIC SUBMITAL

HVAC LOUVER SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	AIR FLOW	Dimensions	FREE AREA VELOCITY	Free Area	NOTES

1. MOTORIZED DAMPER
2. PROVIDE END SWITCHES
3. PROVIDE BELIMO AF120-S-US 120-VOLT DAMPER ACTUATOR, KH-AF CRANKARM AND ZG-108 MOUNTING BRACKET.

HVAC DIFFUSER SCHEDULE

TAG	SERVICE	DESCRIPTION	DIFFUSER SIZE	MANUFACTURER	NOTES
CD-A	SUPPLY	ALUMINUM SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER	24" X 24"	TITUS OMNI-AA	1-6
CD-C	SUPPLY	ALUMINUM SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER	12"X12"	TITUS OMNI-AA	1-6
EG-A	EXHAUST	PERFORATED FACE DIFFUSER, 3/16" HOLES, OPPOSED BLADE DAMPER	SEE DWG	TITUS PAR-AA	1-6
PSP	SUPPLY	ALUMINUM SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER	24" X 24"	TITUS OMNI-AA	1-6
RG-A	RETURN	ALUMINUM SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER	24" X 24"	TITUS PAR-AA	1-6
RG[illegible]	RETURN	ALUMINUM SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER	12"X12"	TITUS PAR-AA	1-6

NOTES:
1. COORDINATE DIFFUSER MOUNTING TYPE WITH CEILING, DUCT OR WALL TYPE
2. COORDINATE DIFFUSER FINISH WITH OWNER OR OWNER'S REPRESENTATIVE
3. ORIENT DIFFUSER TO DIRECT AIRFLOW AT WINDOW OR WALL AND AVOID DISCHARGING DIRECTLY ON OCCUPANTS.
4. MAXIMUM NOISE CRITERION RATING <20
5. MOUNTING FRAME TYPE SHALL BE COORDINATED WITH CEILING CONSTRUCTION TYPE
6. NECK DIAMETER SHALL BE AS SCHEDULED IN TABLE 1

TABLE 1 -ROUND NECK SIZE SCHEDULE
1 TO 150 CFM - 6" DIAMETER
151 TO 275 CFM - 8" DIAMETER
276 TO 380 CFM - 10" DIAMETER
381 TO 500 CFM - 12" DIAMETER
501 TO 700 CFM - 14" DIAMETER
701 TO 900 CFM - 16" DIAMETER

CD-B AND RG-B ARE SHOWN ON M-301 DETAIL SHEET.

HVAC FAI SCHEDULE

Mark	SERVICE	MANUFACTURER	MODEL	AIR FLOW	THROAT VELOCITY(FT/MIN)	WEIGHT	CONTROL	NOTES
FAI-1	VENTILATION BOX PACKAGE	GREENHECK	GRSI-16	1417 CFM	977	21.0 lb	TSTAT, INTERLOCK W/ EF-8	1-3,6
FAI-2	VENTILATION CARDBOARD	GREENHECK	GRSI-20	2057 CFM	914	29.0 lb	TSTAT, INTERLOCK W/ EF-9	1-3,6
FAI-3	CHEMICAL STORAGE 1 INTAKE	GREENHECK	GRSI-8	104 CFM	281	12.0 lb	TIMECLOCK	1-3,6
FAI-4	CHEMICAL STORAGE 2 INTAKE	GREENHECK	GRSI-8	185 CFM	500	12.0 lb	TIMECLOCK	1-3,6
FAI-5	VENTILATION CLEAN STORAGE	GREENHECK	GRSI-10	500 CFM	877	13.0 lb	TSTAT, INTERLOCK W/ EF-12	1-3,6
FAI-6	VENTILATION DRY STORAGE	GREENHECK	GRSI-15	905 CFM	808	18.0 lb	TSTAT, INTERLOCK W/ EF-13	1-3,6
FAI-7	VENTILATION KITCHEN DRY STORAGE	GREENHECK	GRSI-12	770 CFM	939	15.0 lb	TSTAT, INTERLOCK W/ EF-14	1-3,6
FAI-8	INTERSTITIAL MIDDLE ZONE	GREENHECK	GRSI-18	1294 CFM	707	24.0 lb	TSTAT, INTERLOCK W/ EF-24,25	1-3,6
FAI-9	INTERSTITIAL MIDDLE ZONE	GREENHECK	GRSI-18	1294 CFM	707	24.0 lb	TSTAT, INTERLOCK W/ EF-24,25	1-3,6
FAI-10	INTERSTITIAL BOTTOM ZONE	GREENHECK	GRSI-16	1054 CFM	727	21.0 lb	TSTAT, INTERLOCK W/ EF-27	1-3,6
FAI-11	INTERSTITIAL TOP ZONE	GREENHECK	GRSI-12	612 CFM	746	15.0 lb	TSTAT, INTERLOCK W/ EF-26	1-3,6
FAI-12	ELEC ROOM A	GREENHECK	GRSI-16	400 CFM	276	21.0 lb	TIMECLOCK	1-3,6
FAI-13	ELEC ROOM B	GREENHECK	GRSI-16	400 CFM	276	21.0 lb	TIMECLOCK	1-3,6
FAI-14	SPRINKLER ROOM	GREENHECK	GRSI-8	250 CFM	676	7.0 lb	TIMECLOCK	1-3,6

1. INSECT SCREENS
2. PROVIDE BELIMO AF120-S-US 120-VOLT DAMPER ACTUATOR, KH-AF CRANKARM AND ZG-108 MOUNTING BRACKET. INTERLOCK ASSOCIATED EXHAUST FAN WITH END-SWITCH TO START EXHAUST FAN ONCE DAMPER IS PROVED TO BE FULLY OPEN VIA END-SWITCH
3. PROVIDE REQUIRED SLEEVE TO ACCOMMODATE MOTORIZED DAMPER INSTALLATION
4. PROVIDE SAFE-AIR-DOWCO MODEL-600 PARALLEL BLADE DAMPER AT EACH LOUVER SIZED TO FIT EACH LOUVER'S CONFIGURATION.
5. PROVIDE WITH GREENHECK MP-210 MOTORIZED DAMPER, INTERLOCK ASSOCIATED EXHAUST FAN WITH END-SWITCH TO START FAN ONCE DAMPER IS PROVED TO BE FULLY OPEN VIA END-SWITCH
6. PROVIDE A CURB AND POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL ENGINEER. THE CURB AND UNIT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET.

HVAC ELECTRIC HEATER SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	ELECTRICAL SECTION: KW	OUTPUT MBH	AMPS	VOLTAGE	PHASE	CONTROL	NOTES
EBB-1	BATHROOM	Q-MARK	2512W	0.4	0.1	3.3	120	1	TSTAT	1
EBB-2	BATHROOM	Q-MARK	2512W	0.4	0.1	3.3	120	1	TSTAT	1
EBB-3	BATHROOM	Q-MARK	2512W	0.4	0.1	3.3	120	1	TSTAT	1
EBB-4	OFFICE ENTRANCE	Q-MARK	2513W	0.75	2.4	6.3	120	1	TSTAT	1
EUH-1	ELECTRICAL ROOM	Q-MARK	MUH05-41	3	17.0	6.0	480	3	TSTAT	1
EUH-2	SPRINKLER ROOM	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1
EUH-3	UTILITY ROOM	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1
EUH-4	COAT STORAGE	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1
EUH-5	CHEMICAL STORAGE	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1
EUH-6	CHEMICAL STORAGE	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1
EUH-7	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-8	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-9	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-10	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-11	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-12	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-13	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-14	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-15	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-16	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-17	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-18	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-19	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-20	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-21	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-22	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-23	INTERSTITIAL SPACE	Q-MARK	MUH07-4	7.5	25.6	9.0	480	3	TSTAT	1
EUH-24	SHIPPING VESTIBULE	Q-MARK	EFF1500	1.5	5.1	12.5	120	1	TSTAT	1
EUH-25	GARBAGE ROOM	Q-MARK	MUH05-41	3	17.0	6.0	480	3	TSTAT	1
EUH-26	CLEAN STORAGE	Q-MARK	MUH05-41	3	17.0	6.0	480	3	TSTAT	1
EUH-27	EMPLOYEE ENTREE VESTIBULE	Q-MARK	EFF1500	1.5	5.1	12.5	120	1	TSTAT	1
EUH-28	ELEC ROOM	Q-MARK	MUH03-41	3	10.2	3.6	480	3	TSTAT	1

1. INTEGRAL TSTAT
2. REMOTE WALL TSTAT

HVAC AIR CURTAIN HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	ELECTRICAL SECTION: KW	CFM	AMPS	VOLTAGE	PHASE	CONTROL	AFC RATING	NOTES
AC-1	MARS	LPV272-1A-0B	CUPLINES		1800.0	2.6	115	1	DOOR SWITCH		1,2
AC-2	MARS	LPV272-1A-0B	HOT KITCHEN		1800.0	2.6	115	1	DOOR SWITCH		1,2
AC-3	MARS	LPV272-1A-0B	ASSEMBLY		1800.0	2.6	115	1	DOOR SWITCH		1,2

1. DISCONNECT SWITCH
2. DOORSWITCH

Variable Air Volume Single Duct Terminal Units

Schedule

Unit Tags	Quantity	Unit model	Primary inlet	Airflow: Design cooling airflow cfm	Min cooling airflow cfm	Valve heating airflow cfm	Electric Heating: Coil heating capacity MBh	Electric heater kilowatt	Electric heater voltage	Electric heater stage	Notes
VAV-1	1	VCEF (Electric Heating)	5" (127mm)	253	105	105	3.41	1	120/1	1	1, 2, 3, 4, 5
VAV-2	1	VCEF (Electric Heating)	5" (127mm)	235	105	105	3.41	1	120/1	1	1, 2, 3, 4, 5
VAV-3	1	VCEF (Electric Heating)	8" (203mm)	693	208	208	8.54	2.5	120/1	1	1, 2, 3, 4, 5
VAV-4	1	VCEF (Electric Heating)	16" (406mm)	3062	951	951	44.4	13	480/3	1	1, 2, 3, 4, 5
VAV-5	1	VCEF (Electric Heating)	10" (254mm)	1223	367	367	15.37	4.5	480/3	1	1, 2, 3, 4, 5
VAV-6	1	VCEF (Electric Heating)	10" (254mm)	1313	394	394	15.37	4.5	480/3	1	1, 2, 3, 4, 5
VAV-7	1	VCEF (Electric Heating)	10" (254mm)	1270	381	381	15.37	4.5	480/3	1	1, 2, 3, 4, 5

NOTES:
1 Units to be Trane model, size, and configuration as indicated in schedule and on drawings
2 Provide factory-mounted and pre-programmed, pressure-independent, BACnet DDC controller with airflow measurement and wireless communication receiver
3 Provide with wireless zone temperature sensor
4 Provide with factory-wired discharge air temperature sensor
5 Provide unit-mounted control power transformer, disconnect, and power fuse

HVAC CAU SCHEDULE

HEATCRAFT WORLDWIDE REFRIGERATION
Stone Mountain Operations
Phone: 800-537-7775
E Mail: HRPAHAE@heatcraftrpd.com

QUOTE #
BB071421MDA

DATE: 7/14/2021

to: **GARY LA FATA**
from: DANIEL ALMEIDA
subject: Air Handler Quote
ABCO - Lorenzo Foods Teterboro NJ

We are pleased to quote you on the items described below.

TAG	CAU-1	CAU-2
UNIT SIZE	**HCL03FC**	**HCS14FC**
TOTAL CFM	**1440**	**6660**
ESP	0.75	1.00
TSP	1.56	1.88
MOTOR 460/3/60	1 HP ODP	5 HP ODP
FLA/MCA/MOPD	1.6 / 2.0 / 15	6.2 / 7.8 / 15
DRIVE	120% ADJUSTABLE	120% ADJUSTABLE
ISOLATION	INTERNAL SPRING	INTERNAL SPRING
COOLING COIL	6 ROW / 10 FPI ONE CIRCUIT WITH ASC	6 ROW / 10 FPI ONE CIRCUIT WITH ASC
CIRCUITS	(HOT GAS TEE)	(HOT GAS TEE)
CAPACITY	**50.97 MBH**	**245.57 MBH**
ENTERING AIR TEMP	55.67° / 59.8% RH	55.67° / 59.8% RH
SST / REF	30° / 448A	30° / 448A
REF. PESSURE DROP	1.63 PSI	1.81 PSI
LEAVING AIR TEMP	32.27° / 96.88% RH	31.57° /96.88% RH
VALVE	FACTORY MOUNTED TXV	FACTORY MOUNTED TXV
CONSTRUCTION	DOUBLE WALL / INSULATED	DOUBLE WALL / INSULATED
ELECTRIC HEATER	SCR ELECTRIC	SCR ELECTRIC
CAPACITY / CFM	3.5 KW - 480CFM	15 KW - 2220CFM
VOLTAGE	460V - 3Φ - 60 Hz	460V - 3Φ - 60 Hz
FLA	4.39	18.83
ENTERING AIR	14°	14°
LEAVING AIR	36.9°	35.2°
FILTER SECTION	FLAT	FLAT
PRE-FILTERS	2" - 35% EFFICIENT	2" - 35% EFFICIENT
ECONOMIZER	WITH DAMPERS (ALL CONTROLS & ACTUATORS BY OTHERS)	WITH DAMPERS (ALL CONTROLS & ACTUATORS BY OTHERS)
UNIT SPLIT SHIP	COIL AND BLOWER SECTION SHIPPED SEPARATE	COIL AND BLOWER SECTION SHIPPED SEPARATE

CONTRACTOR TO PROVIDE CAU-1,2 VFD AND INDICATED MOTORIZED DAMPERS. INTERGRATE INTO BMS SYSTEM.

ALL CONTROLS BY OTHERS; Motor VFD Compatible - VFD & CONTROLLER BY OTHERS
No valves are included; unless called out in unit description or added as an option.

ESTIMATED UNIT WEIGHT LBS **702** **1,750**

DOUBLE WALL CONSTRUCTION - Insulation is 2" - 1-1/2 lb. Density and is sandwiched between the unit and the outer skin for the blower, coil sections. Filter section and economizer are single wall and not insulated. Standard drain pan is double wall construction wih insulation sandwiched between pan and bottom panel. All panels and drain pan are 16 gauge galvanized steel.

All units size 20 and greater, VCS18FC, and any size unit with an accessory section other than a flat filter section, will ship in multiple sections, due to shipping restrictions and best practices to ensure unit quality. Sections are shipped with required gasketing and hardware.

Published Lead time* , subject to change upon receipt of an order. All orders must have unit details and specifications complete at the time of purchase order.

Above units are for indoor application. When applying units in outdoor applications, gasketed & silicone sealed panels should be use. This design is not meant to guarantee that the unit will be completely weather tight. Heatcraft assumes no responsibility for unit modified for outdoor use. Leakage associated problems are the contractors responsibility.

HVAC SUPPLY FAN SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	AIR FLOW	E.S.P (W.C)	RPM	DRIVE	ELECTRICAL SECTION: HP	VOLTAGE	PHASE	AMPS	CONTROL	MISCELLANEOUS SECTION: WEIGHT	NOTES
SF-1	WASHDOWN PRODUCE	GREENHECK	RPDR-24-417-A7	6070 CFM	.1	1750	DIRECT	0.75	460	3		WASHDOWN SWITCH	382.0 lb	1-3
SF-2	WASHDOWN ASSEMBLY SCALING	GREENHECK	RPDR-24-417-A7	6159 CFM	.1	1750	DIRECT	0.75	460	3		WASHDOWN SWITCH	382.0 lb	1-3
SF-3	WASHDOWN CUPLINES	GREENHECK	AS-20-428-A15	5436 CFM	.1	1750	DIRECT	1.5	115	1		WASHDOWN SWITCH	170.0 lb	1-3
SF-4	WASHDOWN OPEN SLICE	GREENHECK	AS-20-428-A15	5042 CFM	.1	1750	DIRECT	1.5	115	1		WASHDOWN SWITCH	170.0 lb	1-3
SF-5	WASHDOWN CHICKEN PREP	GREENHECK	AS-14-440-A5	2304 CFM	.1	1750	DIRECT	0.5	115	1		WASHDOWN SWITCH	97.0 lb	1-3
SF-6	WASHDOWN KITCHEN PREP	GREENHECK	AS-14-428-A4	1586 CFM	.1	1750	DIRECT	0.25	115	1		WASHDOWN SWITCH	91.0 lb	1-3
SF-7	WASHDOWN SALAD	GREENHECK	AS-12-433-A4	1350 CFM	.1	1750	DIRECT	0.25	115	1		WASHDOWN SWITCH	88.0 lb	1-3
SF-8	WASHDOWN ASSEMBLY	GREENHECK	RPDR-24-421-A10	7360 CFM	.1	1750	DIRECT	1	460	3		WASHDOWN SWITCH	384.0 lb	1-3
SF-9	WASHDOWN ASSEMBLY	GREENHECK	RPDR-24-421-A10	7360 CFM	.1	1750	DIRECT	1	460	3		WASHDOWN SWITCH	384.0 lb	1-3
SF-10	WASHDOWN HOT KITCHEN	GREENHECK	RPDR-24-421-A10	7377 CFM	.1	1750	DIRECT	1	460	3		WASHDOWN SWITCH	384.0 lb	1-3

1. WEATHER PROOF DISCONNECT AND ROOF CURB
2. PROVIDE VFD FOR CONTROL
3. PROVIDE WITH MOTORIZED DAMPER WITH ACTUATOR AND ENDSWITCH. INTERLOCK WITH ASSOCIATED SUPPLY FAN WITH END SWITCH TO START ONCEDAMPER IS PROVEN TO BE FULLY OPEN.

CYBUL CYBUL WILHELM ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

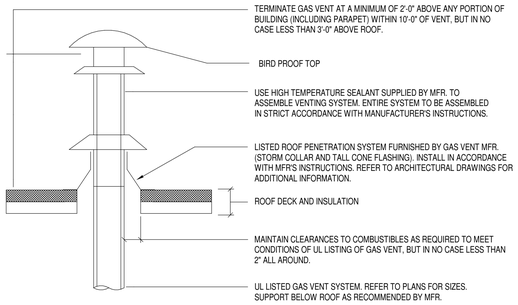
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC SCHEDULES
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-300.00
DOB BARCODE:
Total

9/24/2021 2:59:29 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



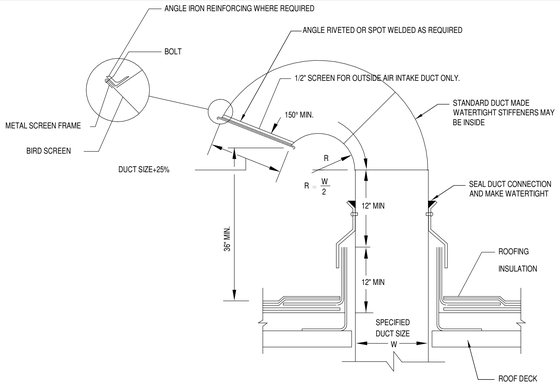
(ANSI) VENT SYSTEM CATEGORIES

NON-CONDENSING			
NEGATIVE PRESSURE	Category I Vent Type: B-Vent Double Wall	Category III Vent Type: Forced Draft: UL P-Stack Double Wall Direct Vent: AL29-4C Double Wall	POSITIVE PRESSURE
	Category II Vent Type: AL-294C Double Wall	Category IV Vent Type: AL-294C Double Wall	
CONDENSING			

NOTES:

1. THIS VENT SYSTEM CATEGORY MATRIX IS PROVIDED TO INDICATE THE VENT MATERIAL TYPE THAT WILL BE REQUIRED BASED UPON THE APPLIANCE VENTING REQUIREMENTS.
2. VENTING MATERIAL SHALL MATCH THE APPLIANCE TYPE AND BE PER THE MANUFACTURERS REQUIREMENTS.
3. THE VENT TYPE SHOWN IS THE TYPE REQUIRED UNLESS OTHERWISE NOTED ON THE PLANS. ALTERNATES WILL BE REVIEWED IF THE MANUFACTURER OF THE APPLIANCE APPROVES A DIFFERENT VENTING MATERIAL. THIS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. FAILURE TO PROVIDE THIS DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF ANY ADDITIONAL CHARGES.

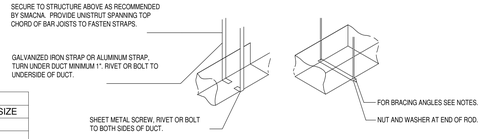
GAS FLUE DETAIL
SCALE: NONE



GOOSENECK DETAIL
SCALE: NONE

RECTANGULAR DUCT HANGER SCHEDULE (MINIMUM SIZES)

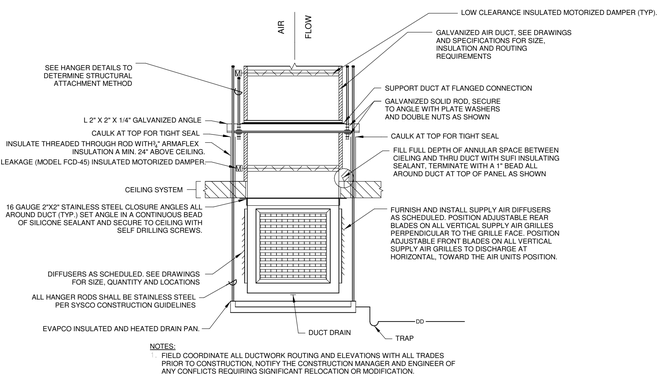
HALF DUCT PERIMETER RANGE	PAIR AT 10' SPACING		PAIR AT 8' SPACING		PAIR AT 5' SPACING		PAIR AT 4' SPACING	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 = 30"	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	12 GA. (0.106")	1"x 22 GA.	12 GA. (0.106")
P/2 = 72"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"	1"x 22 GA.	1/4"	1"x 22 GA.	1/4"
P/2 = 96"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	3/8"	1"x 22 GA.	1/4"
P/2 = 120"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"
P/2 = 168"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"
P/2 = 192"		1/2"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 16 GA.	3/8"



DUCT HANGER DETAILS
SCALE: NONE

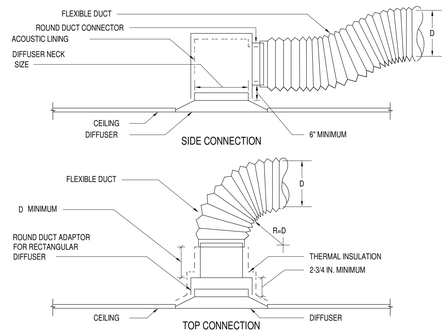
MINIMUM CONDENSATE PIPE SIZES	
TONS OF COOLING	MIN DRAIN SIZE
0-20	1"
21-40	1-1/4"
41-60	1-1/2"
61-100	2"
100-250	3"
250 AND LARGER	4"

HVAC UNIT CONDENSATE PIPING SIZING CHART
SCALE: NONE



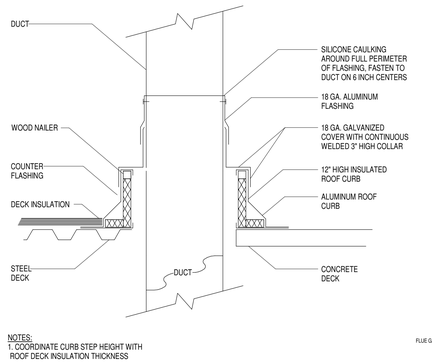
NOTES:
1. FIELD COORDINATE ALL DUCTWORK ROUTING AND ELEVATIONS WITH ALL TRADES PRIOR TO CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS REQUIRING SIGNIFICANT RELOCATION OR MODIFICATION.

CRITICAL AIR/WASHDOWN EXHAUST/MAKE-UP AIR PLENUM DETAIL: CD-B AND RG-B
SCALE: NONE



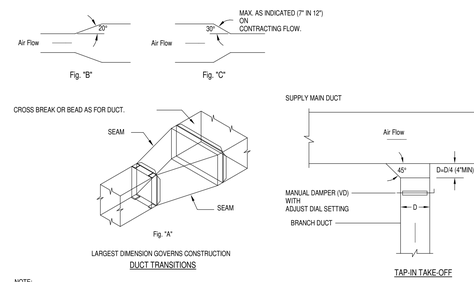
NOTE: MAXIMUM FLEXIBLE DUCT LENGTH IS 5'-0". PROVIDE HARD DUCT AS REQUIRED TO NOT EXCEED THIS MAXIMUM FLEX DUCT LENGTH

DIFFUSER CONNECTION DETAIL
SCALE: NONE



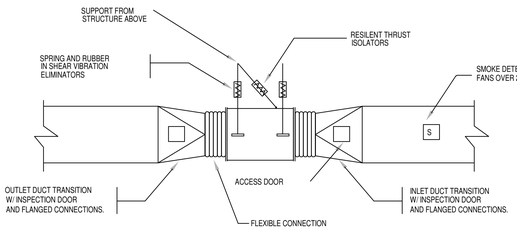
NOTES:
1. COORDINATE CURB STEP HEIGHT WITH ROOF DECK INSULATION THICKNESS

DUCT PENETRATION THROUGH ROOF DETAIL
SCALE: NONE

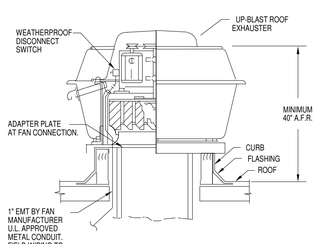


NOTE:
1. DUCT TRANSITIONS TYPICAL AFTER EACH TAKE-OFF(S) WHERE CHANGE IN DUCT SIZE IS INDICATED.

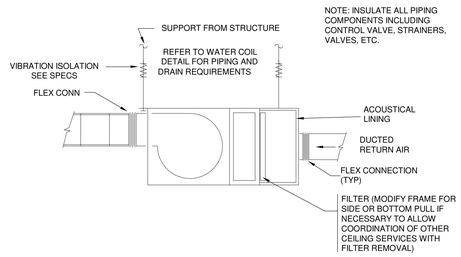
DUCT TRANSITION DETAILS
SCALE: NONE



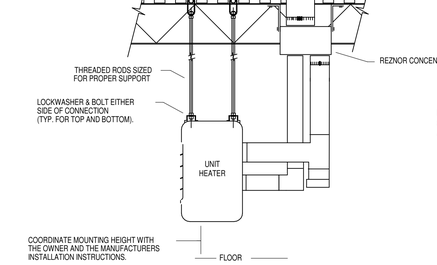
VANE-AXIAL FAN INSTALLATION DETAIL



UPBLAST FAN DETAIL
SCALE: NONE



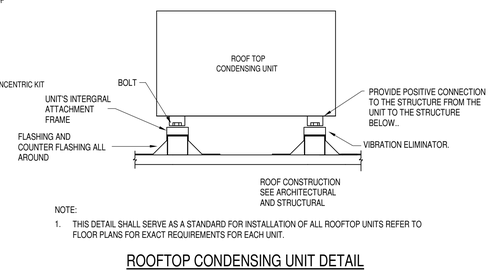
FAN POWERED VAV DETAIL
SCALE: NONE



* ALL GAS PIPING BY PLUMBING CONTRACTOR

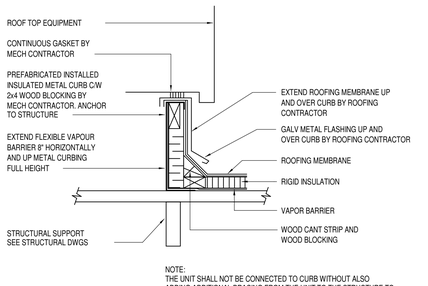
NOTE: THIS DETAIL IS PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MAUNFACTURER'S INSTALLATION MANUAL FOR DETAILED INSTALLATION INFORMATION AND GUIDELINES.

REZNOR UDAS UNIT HEATER DETAIL
SCALE: NONE



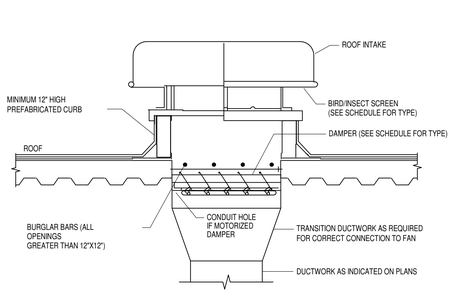
NOTE:
1. THIS DETAIL SHALL SERVE AS A STANDARD FOR INSTALLATION OF ALL ROOFTOP UNITS REFER TO FLOOR PLANS FOR EXACT REQUIREMENTS FOR EACH UNIT.

ROOFTOP CONDENSING UNIT DETAIL
SCALE: NONE

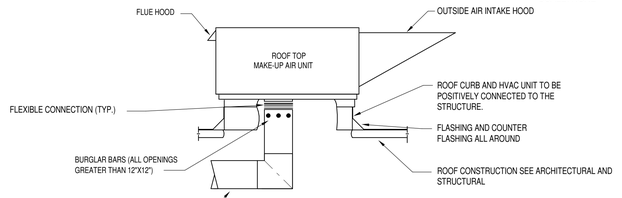


NOTE:
THE UNIT SHALL NOT BE CONNECTED TO CURB WITHOUT ALSO ADDING ADDITIONAL BRACING FROM THE UNIT TO THE STRUCTURE TO PROVIDE A POSITIVE CONNECTION TO THE STRUCTURE BELOW. REFER TO THE STRUCTURAL PLANS FOR ADDITIONAL INFORMATION.

ROOFTOP EQUIPMENT CURB DETAIL
SCALE: NONE

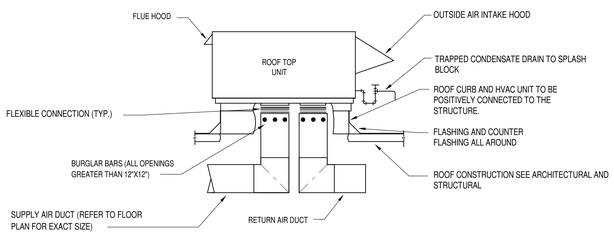


ROOFTOP INTAKE DETAIL
SCALE: NONE



NOTES:
1. THIS DETAIL IS DIAGRAMMATIC AND SERVES TO SHOW THE INTENT FOR A STANDARD INSTALLATION OF ALL ROOFTOP MAKE-UP AIR UNITS. PROVIDE AN APPROPRIATE CURB PER THE SIZE OF THE HVAC UNIT.
2. ALL ROOF PENETRATIONS ARE BASED ON MANUFACTURERS EQUIPMENT SUPPLY AIR TO RETURN AIR OPENING SIZE UNLESS NOTED OTHERWISE. EXTEND FULL SIZE DUCT DOWN TO ABOVE CEILING AND TRANSITION AS SHOWN ON PLANS

ROOFTOP MAKE-UP AIR UNIT DETAIL
SCALE: NONE



NOTES:
1. THIS DETAIL IS DIAGRAMMATIC AND SERVES TO SHOW THE INTENT FOR A STANDARD INSTALLATION OF ALL ROOFTOP UNITS. PROVIDE AN APPROPRIATE CURB PER THE SIZE OF THE HVAC UNIT.
2. ALL ROOF PENETRATIONS ARE BASED ON MANUFACTURERS EQUIPMENT SUPPLY AIR TO RETURN AIR OPENING SIZE UNLESS NOTED OTHERWISE. EXTEND FULL SIZE DUCT DOWN TO ABOVE CEILING AND TRANSITION AS SHOWN ON PLANS

ROOFTOP HVAC UNIT DETAIL
SCALE: NONE

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORK AND ENGINEERING DESIGN **CONCEPTS**, ARE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL PROPER FEES HAVE BEEN PAID TO THE COMPANY OR INDIVIDUAL WHO HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH ALL LOCAL MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group
Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

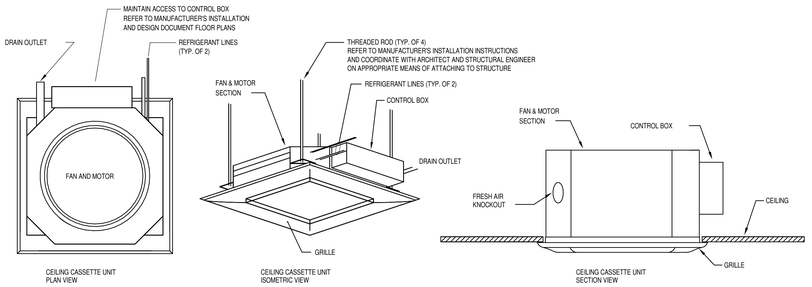
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
SIGN & SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC DETAILS
scale:	
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-301.00
DOB BARCODE:	
	Total

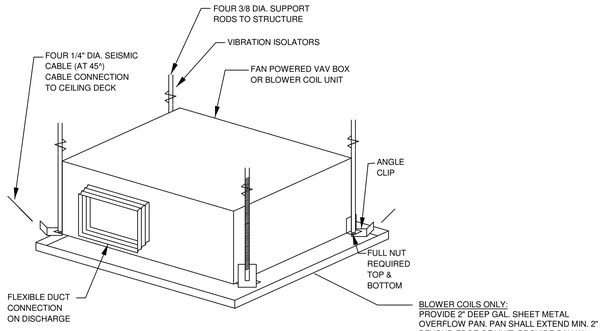
9/24/2021 2:59:34 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



CEILING CASSETTE UNIT DETAIL

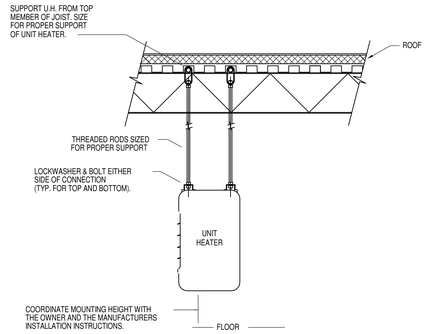
SCALE: NONE



TYPICAL VAV BOX MOUNTING DETAIL

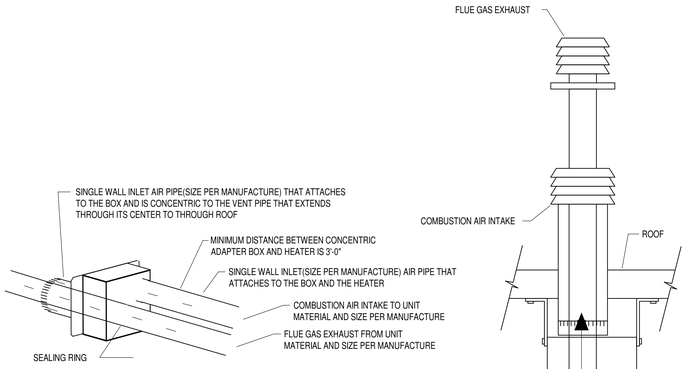
SCALE: NONE

NOTE:
SEISMIC CABLE FOR SEISMIC
PROJECTS ONLY.



ELECTRIC UNIT HEATER DETAIL

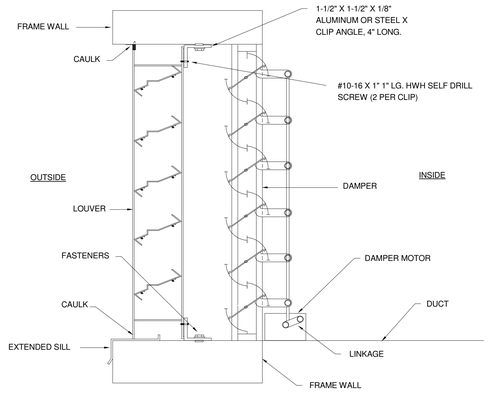
SCALE: NONE



Air Flow Through Box Detail

REZNOR OPTION CC2 CONCENTRIC COMBUSTION AIR/GAS FLUE DETAILS

SCALE: NONE



FRESH AIR LOUVER & DAMPER DETAIL

NO SCALE

AIR CURTAIN SEQUENCE OF OPERATIONS
- ACTIVATE UPON DOOR OPENING(DOOR SWITCH)
- WHEN DOOR CLOSES THERE IS A 30 SECOND (ADJ) TIME DELAY BEFORE THE FAN SHUTS OFF

KITCHEN HOOD SEQUENCE OF OPERATIONS
- SEE CAPTIVE AIRE FOR SEQUENCE OF OPERATION

ELECTRIC UNIT HEATER SEQUENCE OF OPERATIONS
- WHEN ROOM SPACE TEMPERATURE DROPS BELOW SET POINT(ADJ)
- HEATER ACTIVATES UNTIL SET POINT IS REACHED

EXHAUST FAN SEQUENCE OF OPERATIONS
- IF EXHAUST IS FOR BATHROOM , TURNS ON BASED ON TIMECLOCK.
- IF EXHAUST IS FOR INTERSTITIAL SPACE TURNS ON WHEN SPACE TEMPERATURE IS ABOVE 80 DEGREES F. THE CORRESPONDING SUPPLY FANS ARE ALSO ACTIVATED.
- IF EXHAUST IS FOR PROCESSING ROOM TURNS ON WITH WALL SWITCH ALONG WITH CORRESPONDING SUPPLY FANS AND LOCKS OUT REFRIGERATION. MAINTAIN POSITIVE PRESSURIZATION TO ADJACENT ROOMS
- IF EXHAUST IS FOR BATTERY CHARGER OR CHEMICAL ROOM, UNIT IS CONSTANTLY IS RUNNING
- WHEN THE AIR COMPRESSOR CALLS, THE MOTORIZED DAMPER FOR THE FRESH AIR INTAKE WILL OPEN. WHEN THE DAMPER PROVES OPEN, THE EXHAUST FAN WILL START. WHEN THE AIR COMPRESSOR SHUTS OFF, THE FAN WILL STOP AND THE DAMPER WILL CLOSE.

RTU SEQUENCE OF OPERATIONS
- CONTROLLED BY AVERAGING ROOM TEMP SENSORS
- WHEN ROOM REACHES SET TEMP(ADJ)
- ONCE DESIRED TEMP IS REACHED, RTU TURNS OFF
- DEMAND VENTILATION MODULATES OUTDOOR DAMPER PER CARBON DIOXIDE CONCENTRATION.
- SUPPLY FAN WILL MODULATE FAN SPEED BASED ON A PRESSURE TRANSDUCER IN THE SUPPLY DUCT TO MATCH VAV AIRFLOWS

VAV SEQUENCE OF OPERATIONS
WHEN THE UNIT IS IN COOLING MODE, THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE HEATING/COOLING SETPOINT BY MODULATING THE AIRFLOW BETWEEN THE ACTIVE MINIMUM AIRFLOW SETPOINT TO THE MAXIMUM AIRFLOW SETPOINT.

SUPPLY FAN/FAI SEQUENCE OF OPERATIONS
- IF SUPPLY IS FOR INTERSTITIAL SPACE, TURNS ON BASED ON SET THERMOSTAT TEMP(ADJ), TIED TO MATCHING EXHAUST FANS
- IF SUPPLY IS FOR PROCESSING ROOM, TURNS ON BASED ON A WALL SWITCH, TIED TO MATCHING EXHAUST FANS
- IF SUPPLY IS FOR AIR COMPRESSORS, UNITS TIED TO AIR COMPRESSORS AND TURN ON WHEN CALLED TO

HVAC CONDENSING UNIT SEQUENCE OF OPERATIONS
- TIED TO AHU UNITS
- THERMOSTAT TO CONTROL CONDENSING UNIT AND AHU
- BASED ON SET POINT(ADJ) THERMOSTAT WILL ACTIVATE CONDENSING UNIT AND AHU TO PROVIDE HEATING OR COOLING AS REQUIRED

GAS UNIT HEATER SEQUENCE OF OPERATIONS
- WHEN ROOM SPACE TEMPERATURE DROPS BELOW SET POINT(ADJ)
- HEATER ACTIVATES UNTIL SET POINT IS REACHED

BOILER SEQUENCE OF OPERATIONS
- WHEN THE BOILER CALLS, THE MOTORIZED DAMPERS WILL OPEN
- WHEN THE BOILER SHUTS OFF, THE DAMPERS WILL CLOSE

ELECTRIC BASEBOARD HEATER SEQUENCE OF OPERATIONS
- WHEN ROOM DROPS BELOW SET TEMP(ADJ) UNIT ACTIVATES
- TURNS OFF ONCE ROOM REACHES DESIRED TEMP

WASHDOWN SEQUENCE OF OPERATIONS
- WHEN WASHDOWN SWITCH IS ACTIVATED SHUT DOWN REFRIGERATION AND CRITICAL PROCESS AIR UNIT AND ACTIVATE SUPPLY AND EXHAUST FANS.

AHU SEQUENCE OF OPERATIONS
- INTERLOCKED WITH CU UNIT
- WHEN SENSOR HITS SET LOWPOINT, AHU TURNS ON HEATING AND CALLS FOR CU TO TURN ON (IF HEAT PUMP)
- WHEN SENSOR HITS SET HIGHPOINT, AHU TURNS ON COOLING MODE AND CALLS FOR CU TO TURN ON

CRITICAL AIR UNIT SEQUENCE OF OPERATIONS
- MAINTAIN PROCESS AREA POSITIVELY PRESSURIZED
- DISCHARGE AIR TEMPERATURE TO BE MAINTAINED TO SPACE TEMPERATURE.

BLAST CHILLER SEQUENCE OF OPERATIONS
- UPON START REQUEST FROM MANUAL SWITCH SEND SIGNAL TO CONDENSING UNIT TO START SYSTEM.
- TEMPERATURE SENSORS ARE FOR MONITORING PURPOSES, THERMOSTATS ARE TO BE PROVIDED TO CONDENSING UNIT SO SYSTEM CAN MAINTAIN TEMPERATURE. UPON A DROP IN ROOM TEMPERATURE SEND ALARM.
- THE COIL WILL RUN A PRESET DEFROST CYCLE BASED ON A CONTROLLER IN THE CONDENSING UNIT CONTROL PANEL
- UPON A RISE IN TEMPERATURE IN THE COIL, A DEFROST TERMINATION SENSOR IN THE COIL WILL TERMINATE THE DEFROST AND SWITCH THE SYSTEM TO REFRIGERATION MODE

REFRIGERATION SEQUENCE OF OPERATIONS
- UPON START REQUEST SIGNAL TO CONDENSING UNIT TO START SYSTEM.
- TEMPERATURE SENSORS ARE FOR MONITORING PURPOSES, THERMOSTATS ARE TO BE PROVIDED TO CONDENSING UNIT SO SYSTEM CAN MAINTAIN TEMPERATURE. UPON A DROP IN ROOM TEMPERATURE SEND ALARM.

MUA SEQUENCE OF OPERATIONS
- INTERLOCKED WITH CORRESPONDING EXHAUST FANS AND SWITCH
- MUA IS SERVING WASHDOWN SPACES- WHEN SWITCH IS ACTIVATED MUA AND EF RAMP UP
- WHEN SWITCH IS TURNED OFF MUA AND EF TURN OFF

** SET POINTS SHALL BE FIELD COORDINATED WITH THE OWNER BUT FOR INITIAL SETUP PURPOSES SET THE SPACE TEMPERATURES TO THE FOLLOWING:

NON REFRIGERATED AREAS:
COOLING - 70 DEGREES F
HEATING - 72 DEGREES F

REFRIGERATED AREAS:
AS INDICATED ON THE ARCHITECTS PLANS

** ALL EQUIPMENT WITH CURRENT SENSORS SHALL MONITOR FOR LOSS OF POWER AND INCREASE IN POWER USAGE. DURING INSTALL COMMISSION THE EQUIPMENT WITH BASELINE CURRENT DRAWS. IF THE CURRENT DRAW INCREASES BY 10% FOR MORE THAN 30 SECONDS SEND AN ALARM INDICATING THE EQUIPMENT IS IN NEED OF MAINTENANCE.

** EQUIPMENT WITH MOTORIZED DAMPERS SUCH AS SUPPLY AND EXHAUST FANS SHALL NOT ENERGIZE THE FAN UNTIL THE DAMPER END SWITCH IS ACTIVATED.

ADPL Series
IN AHU AND IN DUCT UVC FIXTURES

Polluted indoor air contaminants (pollution) can include airborne particulates, germs (virus, bacteria, and fungus), chemicals, and gasses.

Our ADPL Series UVC Fixtures are engineered for residential and light commercial applications in split system air handlers (AHUs). These In-AHU and In-Duct UVC fixtures provide solutions for disinfection throughout homes and can also be used in some light commercial applications. Benefits include:

- Reduces odors
- Reduces HVAC maintenance
- Reduces pathogens that cause sickness and disease
- Improves occupant performance
- Increases energy savings

Models

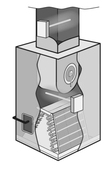
The ADPL is available in three lamp sizes (35W, 60W, 95W), and single and double lamp configurations, to provide options for various duct sizes. All lamps are non-proprietary Philips lamps that are chill corrected down to 40 degrees Fahrenheit.

Works invisibly within existing HVAC systems to create a safe, comfortable, germ-free indoor environment.

Installed at the coil plenum and designed to achieve disinfection of the cooling coil surfaces.

24 Works 24/7 to keep air free and clear of airborne contaminants.

Neutralizes and eliminates the infectious airborne pathogens that cause respiratory illness and disease.



ADPL Series
IN AHU AND IN DUCT UVC FIXTURES

ADPL UV Air Fixture Product Specifications
(Single and Dual Lamp Models)

Standard Specifications	
Lamp Specs	PL-L 35W, 60W, 95W TUV (non-proprietary)
Wavelength	254 Nanometers*
Expected Lamp/ Bulb Rated Life[1]	18 months
Lamp Socket	Single Ended, 4 Pin, 2G11
Input Voltage	Self Regulated Electronic UV Ballast 120V to 277V
Electrical Requirement	1.3A @ 120V to 0.56A @ 240V, 50-60Hz
Housing Finish	Aluminum
Weight	ADPL 1 Light - 8 lbs. ADPL 2 Light - 12 lbs.
Certifications:	ASHRAE meets ASHRAE TC 2.09; EPA[2] EST. NO. 91347-TN-001; ETL CDR100230620ATL-001A
Warranty	Lamps/2 years; Parts/5 years

*Lumalier ADPL Fixtures don't produce ozone. UVC technology is endorsed by the EPA, ASHRAE, FEMA, the CDC, and many other health organizations.

Ordering Guide	
Model#	**Description**
ADPL-135	Fixture Series with one 35W lamp
ADPL-235	Fixture Series with two 35W lamps
ADPL-160	Fixture Series with one 60W lamp
ADPL-260	Fixture Series with two 60W lamps
ADPL-195	Fixture Series with one 95W lamp
ADPL-295	Fixture Series with two 95W lamps
Daisy Chain Option	
ADPL-135-DC	Fixture Series with one 35W lamp
ADPL-235-DC	Fixture Series with two 35W lamps
ADPL-160-DC	Fixture Series with one 60W lamp
ADPL-260-DC	Fixture Series with two 60W lamps
ADPL-195-DC	Fixture Series with one 95W lamp
ADPL-295-DC	Fixture Series with two 95W lamps
Accessories	
PCO-35	Photocatalytic Oxidation Grid 35 Watt Lamp
PCO-60	Photocatalytic Oxidation Grid 60 Watt Lamp
PCO-95	Photocatalytic Oxidation Grid 95 Watt Lamp

ADPL-135/160/195

ADPL-235/260/295

Due to continuing research, Lumalier reserves the right to change specifications without notice.

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

UV LIGHT SELECTIONS ARE SHOWN BELOW BASED OFF CUTSHEET ABOVE:
- **ADPL-135- #6- FOR AHU-1,2, MUA-1,2, AND RTU-3,4**
- **ADPL-235-#8- FOR CAU-1,2, RTU-1, RTU-2 (HAS 2 DAISY CHAINED), RTU-EXIST(HAS 3 DAISY CAHNED)**

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS AND ARCHITECTURAL DESIGN CONTAINED THEREIN, ARE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY AGREEMENTS AND PAYMENTS HAVE BEEN MADE AND HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group
Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC DETAILS AND SEQUENCE OF OPERATIONS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-302.00
DOB BARCODE:
Total

9/24/2021 2:59:37 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

VENTILATION SCHEDULE

Room Name	Area Served	Gross Area, SF	Occupancy or Fixtures	Required CFM/Occ	Required CFM/Sq.Ft.	Required CFM (Total)	Supply Air Total, CFM	Outdoor Air Provided, CFM	Return Air Total, CFM	Exhaust Air Required, CFM	Exhaust Air Total, CFM
HVAC AREAS											
SHIPPING VESTIBULE(NEG)	143	81	1	5	0.06	9.86	152.14	9.86	152.14		
SHIPPING TOILET-WD	144	30	1	0	0	0.00	56.35	0.00	56.35	50.00	75.00
SHIPPING OFFICE	142	152	3	5	0.06	24.12	285.51	24.12	285.51		
							0.00	0.00			
KITCHEN OFFICE	125	121	3	5	0.06	22.26	125.06	22.26	125.06		
EXIST TOILET	103	50					51.68			50.00	75.00
EXIST TOILET	104	50					51.68			50.00	75.00
							0.00	0.00			
LAB	152	256	2	10	0.18	66.08	315.08	66.08	315.08	256.00	256.00
							0.00	0.00			
EMPLOYEE PASSAGE	147	781		0	0.06	46.86	1006.96	46.86	1006.96		
PRODUCTION OFFICE	149	199	4	5	0.06	31.94	256.58	31.94	256.58		
LAB OFFICE	151	125	2	5	0.06	17.50	161.17	17.50	161.17		
LAB VESTIBULE	150	60	1	5	0.06	8.60	77.36	8.60	77.36		
LABEL PRINTING	158	254	2	5	0.06	25.24	327.49	25.24	327.49		
IT	153	143	0	0	0	0.00	184.37	0.00	184.37		
HR OFFICE	156	117	2	5	0.06	17.02	150.85	17.02	150.85		
FIRST AID	154	74	2	5	0.06	14.44	95.41	14.44	95.41		
TEST KITCHEN	159	140	2	7.5	0.12	31.80	172.31	31.80	172.31	98.00	
TRAINING CONFERENCE ROOM	160	457	18	5	0.06	117.42	562.46	117.42	562.46		
HR STORAGE	157	56	0	0	0	0.00	72.20	0.00	72.20	75.00	75.00
HR RECEPT	155	130	2	5	0.06	17.80	167.61	17.80	167.61		
TOILET 1	185	51	1	0	0	0.00	62.77	0.00	62.77	75.00	
TOILET 2	184	51	1	0	0	0.00	62.77	0.00	62.77	75.00	
JANITOR CLOSET	183	31	0	0	0	0.00	38.15	0.00	38.15	75.00	75.00
KITCHENETTE	181	97	3	7.5	0.12	34.14	300.00	34.14	300.00		
EMPLOYEE ACCESS-WD	161	472	2	5	0.06	38.32	580.92	38.32	580.92		
OFFICE ENTRANCE	170	90	1	5	0.06	10.40	150.00	10.40	150.00		
OFFICE CIRCULATION	171A	755	2	5	0.06	55.30	929.23	55.30	929.23		
CONFERENCE ROOM	172	193	8	5	0.06	51.58	237.54	51.58	237.54		
OPEN OFFICE AREA	171B	1004	14	5	0.06	130.24	1235.69	130.24	1235.69		
OFFICE	173	91	2	5	0.06	15.46	112.00	15.46	112.00		
OFFICE	174	94	2	5	0.06	15.64	115.69	15.64	115.69		
OFFICE	175	92	2	5	0.06	15.52	113.23	15.52	113.23		
OFFICE	176	93	2	5	0.06	15.58	114.46	15.58	114.46		
JOES OFFICE	177	206	2	5	0.06	22.36	253.54	22.36	253.54		
JOHNS OFFICE	178	191	2	5	0.06	21.46	235.08	21.46	235.08		
OFFICE	179	92	2	5	0.06	15.52	113.23	15.52	113.23		
STORAGE	180	81		0	0	0.00	99.69	0.00	99.69	75.00	75.00
BREAK ROOM	165	994	24	5	0.06	179.64	1223.38	179.64	1866.00		
OPEN LOCKER ROOM	162	523	0	0	0	0.00	643.69	0.00	0.00	775.00	775.00
M TOILETS-WD	163	249	4	0	0	0.00	306.46	0.00	306.46	200.00	350.00
W TOILETS-WD	164	261	4	0	0	0.00	321.23	0.00	321.23	200.00	350.00
EMPLOYEE ENTRY VESTIBULE	166	63	1	5	0.06	8.78	86.01	8.78	86.01		
CONTROL OFFICE	190	68	1	5	0.06	9.08	92.83	9.08	92.83		
CONTROL TOILET-WD	191	25	1	5	0.06	6.50	34.13	6.50	34.13	50.00	75.00
USDA OFFICE	192	81	2	5	0.06	14.86	110.58	14.86	110.58		
RECEIVING OFFICE	193	198	5	5	0.06	36.88	270.31	36.88	270.31		
RECEIVING LOBBY(NEG)	194	122	3	5	0.06	22.32	166.55	22.32	166.55	75.00	75.00
RECEIVING toilet wd	195	29	1	0	0	0.00	39.59	0.00	39.59	50.00	75.00
						0.00		0.00			
SPINKLER-CONFIRM HVAC OR HEAT	182	31				0.00	38.15	0.00	38.15		
UTILITY ROOM-CONFIRM HVAC OR HEAT	167	34				0.00	41.85	0.00	41.85		
						0.00		0.00			
AMBIENT AREAS						0.00		0.00			
BOX/PACKAGE STORAGE	146	1251				0.00		0.00	0.00		
CARDBOARD PACKING/STORAGE	145	1815				0.00		0.00	0.00		
WASHROOM #2-WD	148	506	1			0.00		0.00	0.00		
DRY STORAGE-WD	128	970				0.00		0.00	0.00		
COAT STORAGE	196	92				0.00		0.00	0.00	75.00	75.00
CHEMICAL STORAGE #2	118	164				0.00		0.00	0.00		
MECHANICAL ROOM	117	1121				0.00		1000.00	0.00		
ELECTRICAL ROOM	119	484				0.00		0.00	0.00		
HOT KITCHEN-WD	112	3405	12	7.5	0.12	498.60	4540.00	498.60	4540.00		
WASHROOM #1-WD	122	750	2			0.00	857.14	0.00	857.14		
CLEAN STORAGE-WD	123	625	1			0.00	714.29	0.00	714.29		
RAW WASHROOM-WD	124	321	2			0.00	366.86	0.00	366.86		
EMPLOYEE ACCESS-WD	110	377	2	5	0.06	32.62	389.66	32.62	389.66		
CHEMICAL STORAGE #1	102	92				0.00		0.00	0.00		
KITCHEN DRY STORAGE	106	825				0.00		0.00	0.00		
JANITOR CLOSET-WD	105	40				0.00		0.00	0.00	50.00	50.00
TOILET ACCESS	101	176	1	5	0.06	15.56	181.91	15.56	181.00		
						0.00		0.00	0.00		
REFRIGERATION AREAS						0.00		0.00	0.00		
SHIPPING DOCKS-WD	141	6355				0.00		0.00	0.00		
CUP LINES YOGURT LINES BOX LUNCH-WD	138	2718	12	15		180.00		180.00	180.00		
ASSEMBLY AREA-WD	139	6543	75	15		1125.00		1125.00	1125.00		
WIP SLICING-WD	135	581				0.00		0.00	0.00		
OPEN SLICING SEALING AREA-WD	134	2521	14	15		210.00		210.00	210.00		
SALADS-WD	133	675	4	15		60.00		60.00	60.00		
BLAST CHILLER-WD	132	252				0.00		0.00	0.00		
FREEZER	129	1790				0.00		0.00	0.00		
GARBAGE ROOM-WD	120	632				0.00		0.00	0.00		
MAINTENANCE ACCESS	116	363				0.00		0.00	0.00		
MARKET AREA-WD	140	4593	49	15		735.00		735.00	735.00		
ASSEMBLY SCALING PACKING-WD	115	2843	20	15		300.00		300.00	300.00		
FOOD BANK-WD	114	646	1	15		15.00		15.00	15.00		
BLAST CHILLERS-WD	113	328				0.00		0.00	0.00		
WIP PRODUCE-WD	137	376				0.00		0.00	0.00		
PASSAGE #1-WD	121	3767				0.00		0.00	0.00		
PRODUCE-WD	136	3035	27	15		405.00		405.00	405.00		
MEAT COOLER-WD	130	1989				0.00		0.00	0.00		
PRODUCE COOLER-WD	131	1110				0.00		0.00	0.00		
RECEIVING DOCKS-WD	126	2910				0.00		0.00	0.00		
PASSAGE #2-WD	100	683				0.00		0.00	0.00		
KITCHEN PREP-WD	111	793	8	15		120.00		120.00	120.00		
KITCHEN COOLER-WD	109	595				0.00		0.00	0.00		
CHICKEN PREP-WD	108	1152	8	15		120.00		120.00	120.00		
CHICKEN COOLER-WD	107	1982				0.00		0.00			
								0.00			
TOTALS						Required CFM (Total)	Supply Air Total, CFM	Outdoor Air Provided, CFM	Return Air Total, CFM	Exhaust Air Required, CFM	Exhaust Air Total, CFM
						4987.30	19450.90	5987.30	22615.55	2354.00	2531.00

NOTES:

TOTAL SUPPLY CFM	19450.9010989011
TOTAL O.A. SUPPLY CFM	5987.3
TOTAL RETURN CFM	22615.5528579947
TOTAL EXHAUST AIR	2531
BLDG POS. PRESS. TOTAL	291.648240906376

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

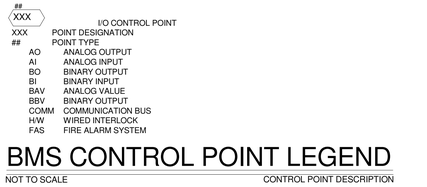
SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC VENTILATION INDEX
scale:	
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-303.00
DOB BARCODE:	

Total

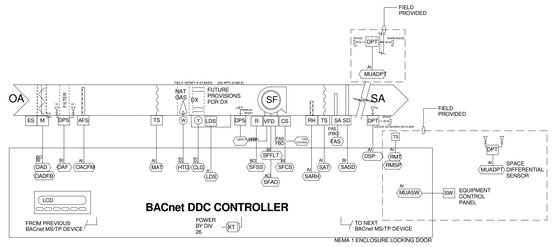
9/24/2021 2:59:38 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



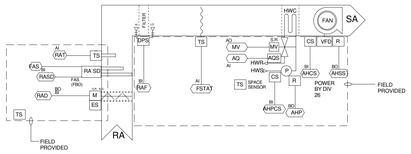
BMS CONTROL POINT LEGEND

NOT TO SCALE — CONTROL POINT DESCRIPTION



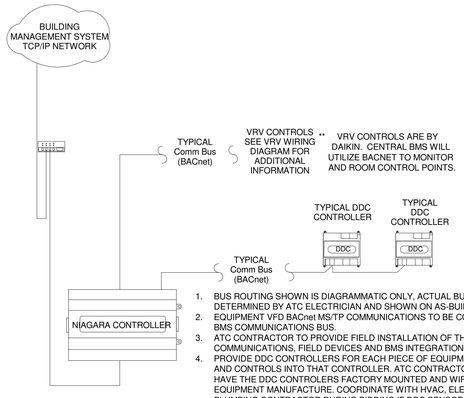
MUA - use with equipment not a cooking hood

NOT TO SCALE — MAKE UP AIR - NG HEAT



ROOFTOP AIR HANDLER

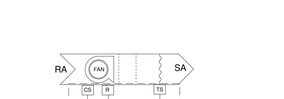
NOT TO SCALE — DDC CONTROLLED



1. BUS ROUTING SHOWN IS DIAGRAMMATIC ONLY, ACTUAL BUS ROUTING TO BE DETERMINED BY ATC ELECTRICIAN AND SHOWN ON AS-BUILT DRAWINGS
2. EQUIPMENT VFD BACnet MS/TP COMMUNICATIONS TO BE CONNECTED TO RESPECTIVE BMS COMMUNICATIONS BUS.
3. ATC CONTRACTOR TO PROVIDE FIELD INSTALLATION OF THE BACnet COMMUNICATIONS, FIELD DEVICES AND BMS INTEGRATION.
4. PROVIDE DDC CONTROLLERS FOR EACH PIECE OF EQUIPMENT AND TIE SENSORS AND CONTROLS INTO THAT CONTROLLER. ATC CONTRACTOR HAS THE OPTION TO HAVE THE DDC CONTROLERS FACTORY MOUNTED AND WIRED IF AVAILABLE WITH THE EQUIPMENT MANUFACTURE. COORDINATE WITH HVAC, ELECTRICAL AND/OR PLUMBING CONTRACTOR DURING BIDDING IF DDC SENSORS WILL BE FACTORY MOUNTED OR PROVIDED IN FIELD.

BMS NETWORK ARCHITECTURE

NOT TO SCALE



- PROVIDE CUSTOMIZED 3-D WEB-BASED GRAPHICS FOR NEW BMS HVAC SYSTEMS. INCORPORATE ALL OF THE NEW HONEYWELL AND UNIT MANUFACTURER DDC CONTROLLERS INTO ONE SEAMLESS AND COMPLETELY FUNCTIONAL SYSTEM.

BMS WEB-BASED GRAPHIC USER INTERFACE

NOT TO SCALE

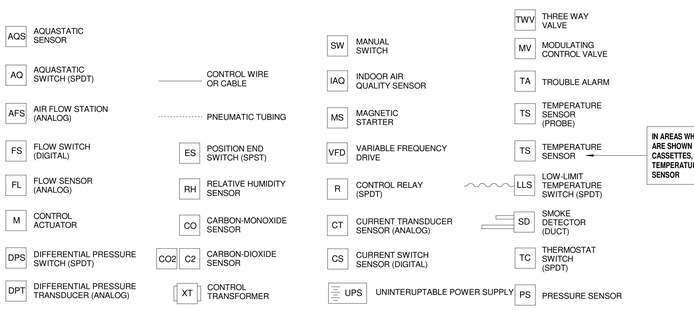
REFRIGERATION CONDENSING UNIT

NOT TO SCALE — DDC CONTROLLED

1. PROVIDE A RELAY AND CONTACTOR TO TURN POWER TO EVAP FANS ON AND OFF FOR WASHDOWN PURPOSES
2. PROVIDE A RELAY TO CONTROL POWER TO THE LIQUID LINE SOLENOID.
3. BASE BUILDING TEMPERATURE SENSOR SHALL BE A LINE VOLTAGE SWITCH TO OPERATE THE LIQUID LINE SOLENOID.
4. COORDINATE WITH MANUFACTURER IF TO BE IN SERIES OR PARALLEL TO DISABLE EVAPORATORS DURING WASHDOWN.
5. TEMPERATURE SENSOR FOR MONITORING ONLY

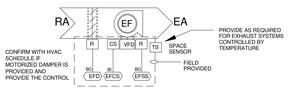
REFRIGERATION

NOT TO SCALE — POSSIBLY DDC CONTROLLED



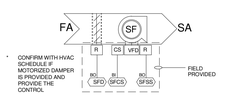
BMS DEVICE LEGEND

NOT TO SCALE — CONTROL DEVICE SYMBOLS



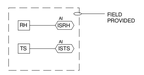
EXHAUST FAN

NOT TO SCALE — DDC CONTROLLED



SUPPLY FAN

NOT TO SCALE — DDC CONTROLLED

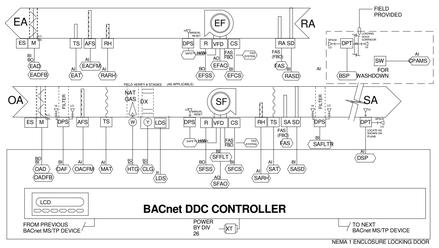


INTERSTITIAL SPACE

NOT TO SCALE — DDC CONTROLLED

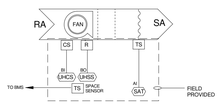
WASHDOWN

NOT TO SCALE — DDC CONTROLLED



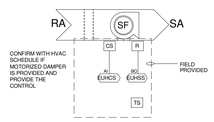
CRITICAL PROCESS AIR UNIT(CAU)

NOT TO SCALE — MAKE UP AIR - NG HEAT -DX COOLING



GAS UNIT HEATER

NOT TO SCALE — DDC CONTROLLED



ELECTRIC UNIT HEATER

NOT TO SCALE — DDC CONTROLLED

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS AND ENGINEERING DESIGNS **COPYRIGHTED**, ARE RESERVED. THE RIGHT TO HAVE THIS WORK REPRODUCED, **FABRICATED**, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN OBTAINED AND YOU HAVE BEEN PROPERLY TOLD BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS COMPLY WITH ALL CODES AND REGULATIONS ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH ALL FEDERAL, MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

copyright - BD ENGINEERING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group
Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

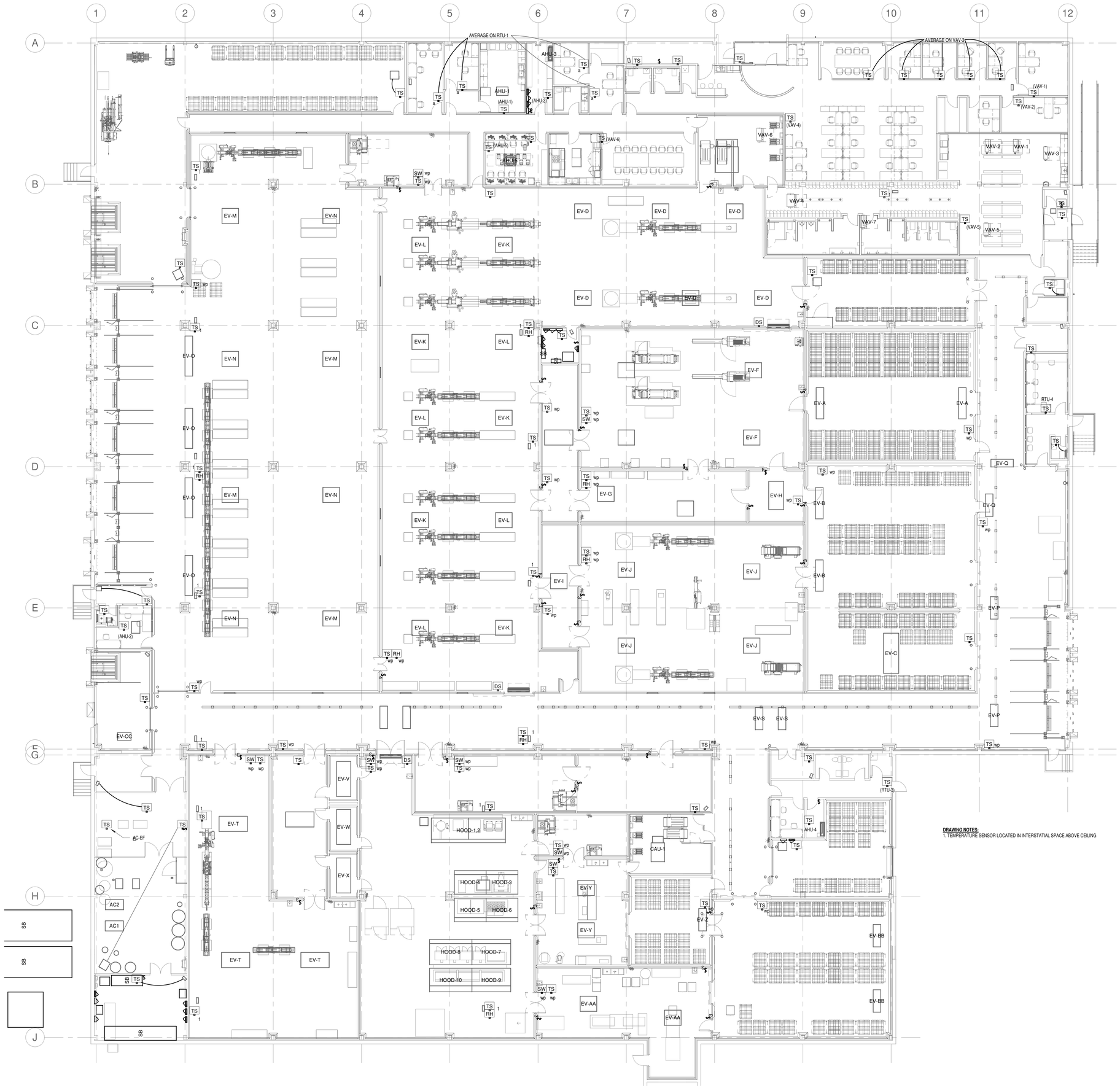
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
SIGN & SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC WIRING DIAGRAMS
scale:
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-400.00
DOB BARCODE:
Total

9/24/2021 2:59:39 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 HVAC GROUND FLOOR CONTROL PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, ARE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES AND COMPENSATIONS HAVE BEEN PROPERLY PAID BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

GENERAL NOTES:

1. THIS PLAN IS DIAGRAMMATIC. REFER TO THE HVAC WIRING DIAGRAMS AND SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION

DRAWING NOTES:
1. TEMPERATURE SENSOR LOCATED IN INTERSTATIAL SPACE ABOVE CEILING

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC GROUND FLOOR CONTROLS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-401.00
DOB BARCODE:	Total

9/24/2021 2:59:49 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

HOOD INFORMATION – 4967555

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	HOOD CONFIG ROW
1		7224 VHB-G-PSP-F-ND	CAPTIVEAIRE	10' 6"	700 DEG	II	N/A	150	1575			4"	16"	1575	1128	-0.134"	1260	430 SS 100%	LEFT	ALONE
2		7224 VHB-G-PSP-F-ND	CAPTIVEAIRE	10' 6"	700 DEG	II	N/A	150	1575			4"	16"	1575	1128	-0.134"	1260	430 SS 100%	RIGHT	ALONE
3		6624 ND-2-PSP-F	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	200	1600			4"	14"	1600	1497	-0.734"	1300	430 SS WHERE EXPOSED	LEFT	BACK
4		6624 ND-2-PSP-F	CAPTIVEAIRE	9' 0"	450 DEG	I	MEDIUM	175	1575			4"	14"	1575	1473	-0.680"	1300	430 SS WHERE EXPOSED	RIGHT	BACK
5		7224 ND-2-PSP-F	CAPTIVEAIRE	9' 0"	450 DEG	I	MEDIUM	175	1575			4"	14"	1575	1473	-0.680"	1300	430 SS WHERE EXPOSED	LEFT	FRONT
6		7224 ND-2-PSP-F	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	200	1600			4"	14"	1600	1497	-0.734"	1300	430 SS WHERE EXPOSED	RIGHT	FRONT
7		7224 ND-2-PSP-F	CAPTIVEAIRE	11' 0"	450 DEG	I	MEDIUM	200	2200			4"	14"	2200	2058	-0.935"	1760	430 SS WHERE EXPOSED	LEFT	BACK
8		7224 ND-2-PSP-F	CAPTIVEAIRE	11' 0"	450 DEG	I	MEDIUM	175	1925			4"	14"	1925	1801	-0.716"	1700	430 SS WHERE EXPOSED	RIGHT	BACK
9		6024 ND-2-PSP-F	CAPTIVEAIRE	11' 0"	600 DEG	I	HEAVY	275	3025			4"	18"	3025	1712	-0.977"	2400	430 SS WHERE EXPOSED	LEFT	FRONT
10		6024 ND-2-PSP-F	CAPTIVEAIRE	11' 0"	600 DEG	I	HEAVY	275	3025			4"	18"	3025	1712	-0.977"	2450	430 SS WHERE EXPOSED	RIGHT	FRONT
11	Test Kitchen	5424 ND-2	CAPTIVEAIRE	7' 0"	600 DEG	I	HEAVY	215	1505			4"	14"	1505	1408	-0.722"	0	430 SS WHERE EXPOSED	ALONE	ALONE

PERFORATED SUPPLY PLENUMS

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1		Front	126"	12"	6"	MUA	8"	36"		630	0.152"
						MUA	8"	36"		630	0.152"
2		Front	126"	12"	6"	MUA	8"	36"		630	0.152"
						MUA	8"	36"		630	0.152"
3		Front	108"	14"	6"	MUA	10"	24"		650	0.194"
						MUA	10"	24"		650	0.194"
4		Front	109"	14"	6"	MUA	10"	24"		650	0.194"
						MUA	10"	24"		650	0.194"
5		Front	109"	14"	6"	MUA	10"	24"		650	0.194"
						MUA	10"	24"		650	0.194"
6		Front	108"	14"	6"	MUA	10"	24"		650	0.194"
						MUA	10"	24"		650	0.194"
7		Front	132"	14"	6"	MUA	10"	24"		586	0.186"
						MUA	10"	24"		586	0.186"
8		Front	144"	14"	6"	MUA	10"	24"		566	0.174"
						MUA	10"	24"		566	0.174"
9		Front	144"	20"	6"	MUA	12"	24"		800	0.278"
						MUA	12"	24"		800	0.278"
10		Front	132"	20"	6"	MUA	12"	28"		816	0.247"
						MUA	12"	28"		816	0.247"

HOOD OPTIONS

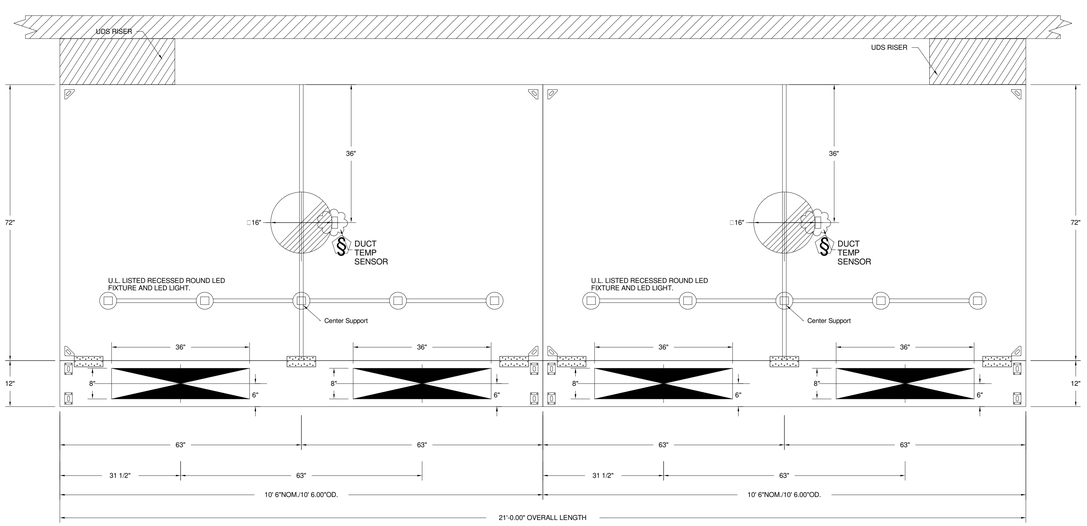
HOOD NO	TAG	OPTION
1		FIELD WRAPPER 40.00" HIGH FRONT, LEFT.
		BALANCE DAMPERS.
2		FIELD WRAPPER 40.00" HIGH FRONT, RIGHT.
		BALANCE DAMPERS.
3		FIELD WRAPPER 40.00" HIGH FRONT, LEFT.
		BALANCE DAMPERS.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
4		FIELD WRAPPER 40.00" HIGH FRONT, RIGHT.
		RIGHT END STANDOFF (FINISHED) 1" WIDE 66" LONG INSULATED.
		BALANCE DAMPERS.
5		FIELD WRAPPER 40.00" HIGH FRONT, LEFT.
		LEFT END STANDOFF (FINISHED) 1" WIDE 72" LONG INSULATED.
		BALANCE DAMPERS.
6		FIELD WRAPPER 40.00" HIGH FRONT, RIGHT.
		BALANCE DAMPERS.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
7		FIELD WRAPPER 40.00" HIGH FRONT, LEFT.
		BALANCE DAMPERS.
8		FIELD WRAPPER 40.00" HIGH FRONT, RIGHT.
		BALANCE DAMPERS.
9		FIELD WRAPPER 40.00" HIGH FRONT, LEFT.
		BALANCE DAMPERS.
10		FIELD WRAPPER 40.00" HIGH FRONT, RIGHT.
		BALANCE DAMPERS.
11	Test Kitchen	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.

HOOD INFORMATION – 4967555

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1							5	RECESSED ROUND	NO							NO	553 LBS
2							5	RECESSED ROUND	NO							NO	553 LBS
3		CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO	LEFT	12"x66"x24"	TANK FIRE SUPPRESSION	4.0/4.0/4.0/4.0			YES	1064 LBS
4		CAPTRATE SOLO FILTER	6	16"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO							YES	560 LBS
5		CAPTRATE SOLO FILTER	6	16"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO							YES	580 LBS
6		CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO	RIGHT	12"x72"x24"	TANK FIRE SUPPRESSION	4.0/4.0	DCV-2111	1 LIGHT 1 FAN	YES	934 LBS
7		CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO							YES	696 LBS
8		CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	NO	RIGHT	12"x72"x24"	TANK FIRE SUPPRESSION	4.0/4.0/4.0	DCV-2111	1 LIGHT 1 FAN	YES	1136 LBS
9		CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO	LEFT	12"x60"x24"	TANK FIRE SUPPRESSION	4.0/4.0/4.0			YES	1064 LBS
10		CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO							YES	707 LBS
11	Test Kitchen	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0	SC-210110FP	1 LIGHT 1 FAN	YES	579 LBS

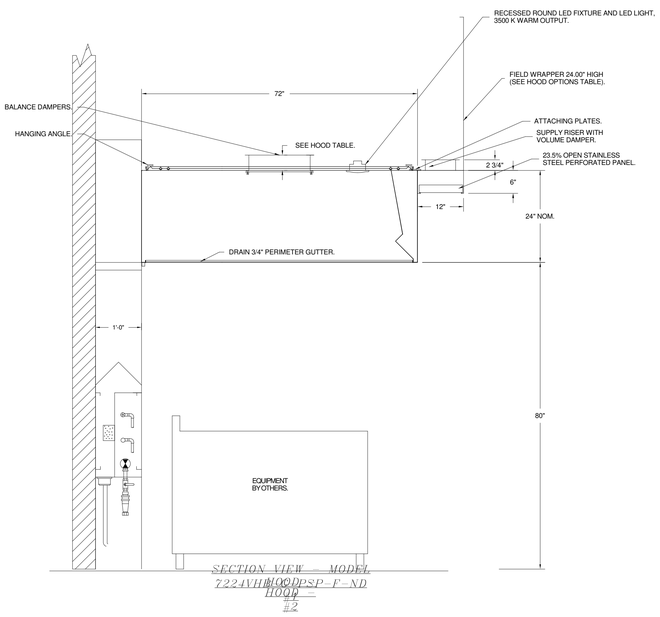
FIRE SYSTEM INFORMATION – 4967555

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION SYSTEM	INSTALLATION LOCATION ON HOOD
1		TANK FS	4.0/4.0/4.0/4.0	TBD	FIRE CABINET LEFT	LEFT, HOOD 3
2		TANK FS	4.0/4.0	TBD	FIRE CABINET RIGHT	RIGHT, HOOD 6
3		TANK FS	4.0/4.0/4.0	TBD	FIRE CABINET RIGHT	RIGHT, HOOD 8
4		TANK FS	4.0/4.0/4.0	TBD	FIRE CABINET LEFT	LEFT, HOOD 9
5		TANK FS	4.0	TBD	FIRE CABINET LEFT	LEFT, HOOD 11



PLAN VIEW – HOOD
10' 6.00" LONG
7224VHR-G-PSP-F-ND

PLAN VIEW – HOOD
10' 6.00" LONG
7224VHR-G-PSP-F-ND



SECTION VIEW – MODEL 7224VHR-G-PSP-F-ND HOOD – #2

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, **FABRICATED**, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY AGREEMENTS HAVE BEEN EXECUTED AND ALL PAYMENTS DUE HAVE BEEN PROPERLY TILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND INSTALLATION SHOWN ON THIS DRAWING IS IN COMPLIANCE ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE WORK IN COMPLIANCE WITH ALL MAJOR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CAPTIVE AIRE

North New Jersey Mechanical
, Summit, N.J. PHONE: (201) 308-6647 FAX: (919) 516-6752 EMAIL: reg136@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-500.00
DOB BARCODE:

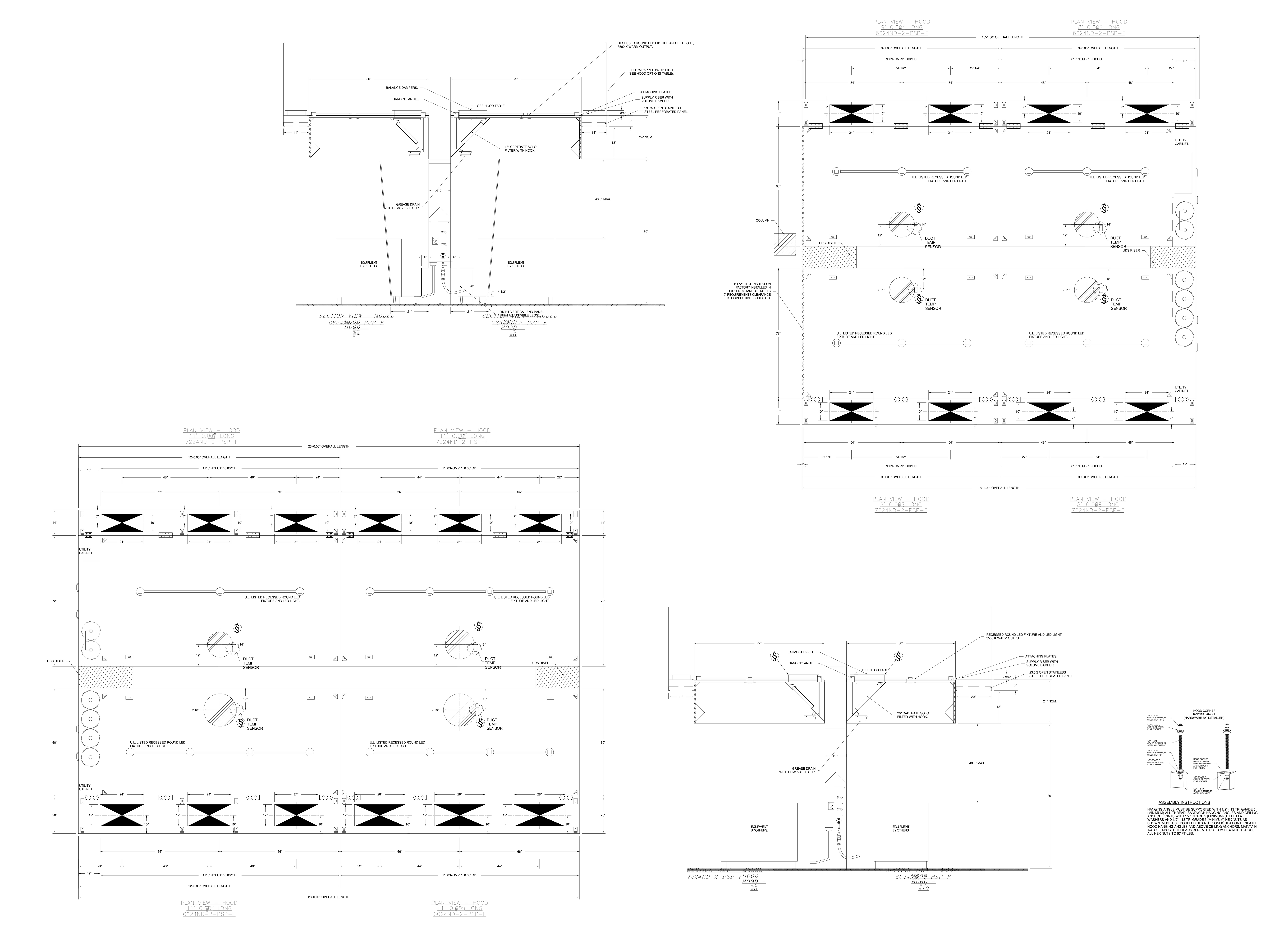
Total

9/24/2021 2:59:50 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE SPECIFICATIONS, ARE THE EXCLUSIVE PROPERTY OF **BD ENGINEERING** WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL GOVERNMENTAL PERMITS, LICENSES, AS WELL AS INSURANCE REQUIREMENTS, HAVE BEEN PROPERLY FILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE DIMENSIONS, AND/OR CONDITIONS AT THE JOB SITE ARE AS REPRESENTED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND COMPLY WITH ALL BUILDING AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CAPTIVEAIRE
North New Jersey Mechanical
Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021
4967555
ZDK
1/2" = 1'-0"
MASTER DRAWING
2

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

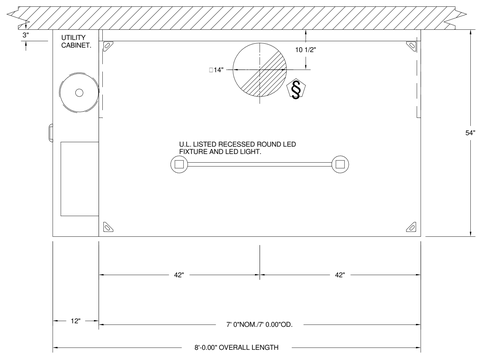
SEAL & SIGNATURE
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC CAPTIVE AIRE DETAILS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-501.00
DOB BARCODE:	

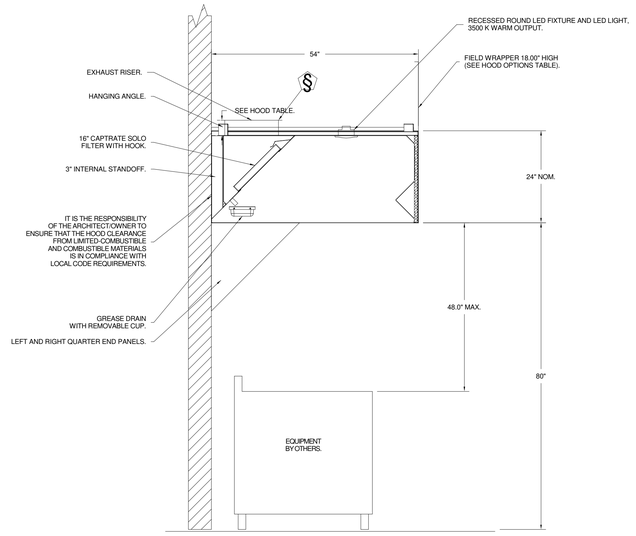
Total

9/24/2021 2:59:51 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

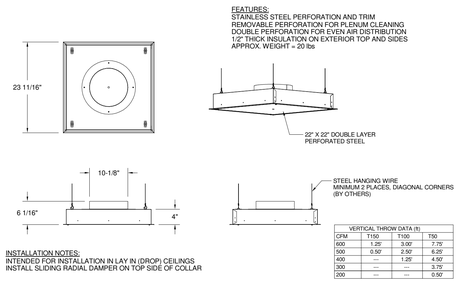


PLAN VIEW – HOOD #11 (Test Kitchen)



SECTION VIEW – MODEL HOOD 424ND-4 (Test Kitchen)

QTY 3-DROP-IN PERFORATED SUPPLY PLENUM DIFFUSER (DI-PSP)



VERTICAL THROW DATA (ft)			
CFM	T150	T100	T50
600	1.25'	3.00'	7.75'
500	0.50'	2.50'	6.25'
400	---	1.25'	4.50'
300	---	---	3.75'
200	---	---	0.50'

INSTALLATION NOTES:
INTENDED FOR INSTALLATION IN LAY IN (DROP) CEILINGS
INSTALL SLIDING RADIAL DAMPER ON TOP SIDE OF COLLAR

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ARE THE PROPERTY OF **BD ENGINEERING.** WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN PROPERLY EXECUTED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND SYSTEMS SHOWN ON THIS DRAWING ARE SUITABLE AND SHOWN ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CAPTIVE AIRE
North New Jersey
Mechanical
, Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

3

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: Author
approved by: Approver
project no.: 2102
drawing no.: M-502.00
DOB BARCODE:
Total

9/24/2021 2:59:52 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

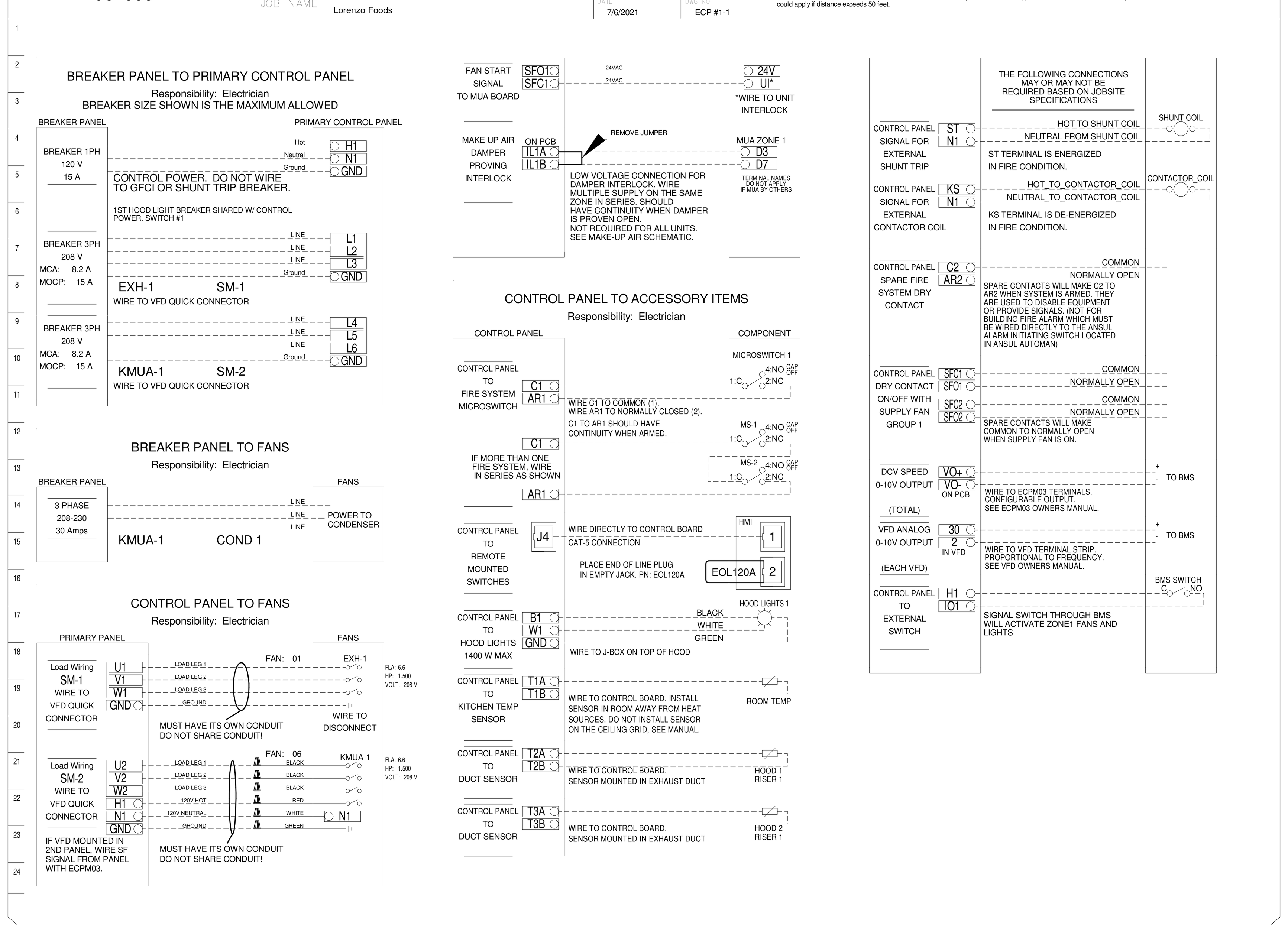
GENERAL CONDITIONS NOTE:

ELECTRICAL PACKAGE – JOB#4967555

NO	TAG	PACKAGE #	LOCATION	SWITCHES: LOCATION	SWITCHES: QUANTITY	OPTION	FANS CONTROLLED: FAN TAG	TYPE	ϕ	HP	VOLT	FLA
1		DCV-1111	WALL MOUNT IN SS BOX	01 - FACE MOUNT LEFT SIDE OF HOOD	1 LIGHT	SMART CONTROLS DCV	KEF-1	EXHAUST	3	1.500	208	6.6
				HOOD # 1	1 FAN		KMUA-1	SUPPLY	3	1.500	208	6.6
2		DCV-2111	UTILITY CABINET RIGHT	04 - UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	KEF-2	EXHAUST	3	3.000	208	9.5
							KEF-3	EXHAUST	3	3.000	208	9.5
				HOOD # 6	1 FAN		KMUA-2	SUPPLY	3	5.000	208	15.8
3		DCV-2111	UTILITY CABINET RIGHT	04 - UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	KEF-4	EXHAUST	3	5.000	208	15.8
							KEF-5	EXHAUST	3	5.000	208	15.8
				HOOD # 8	1 FAN		KMUA-3	SUPPLY	3	5.000	208	15.8
4	Test Kitch	SC-210110FP	UTILITY CABINET LEFT	03 - UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS THERMOSTATIC CONTROL	KEF-TestKitchen	EXHAUST	1	0.750	208	5.2
				HOOD # 11	1 FAN							

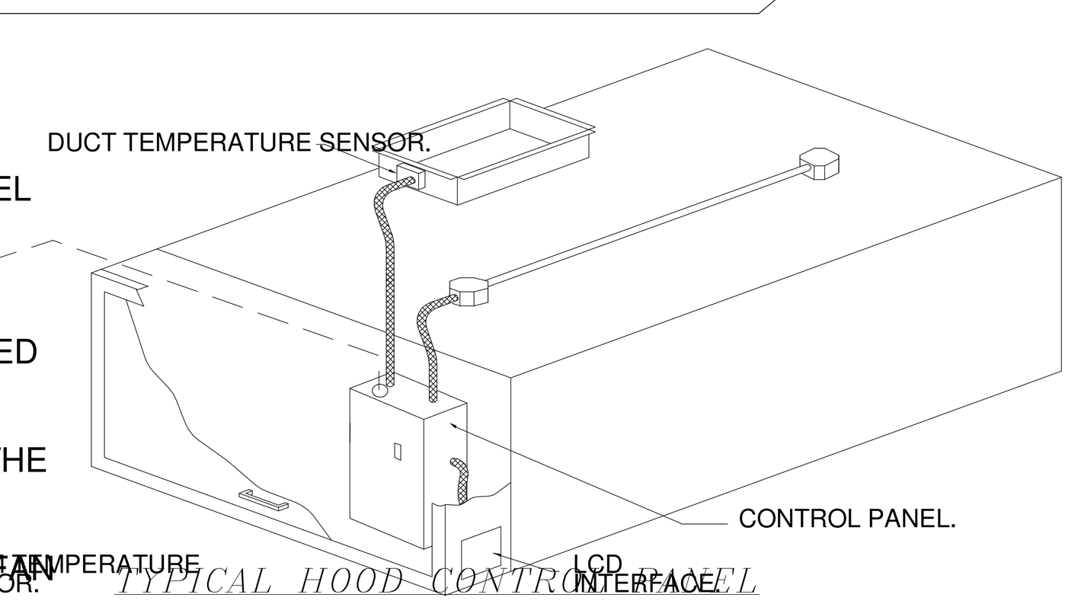
JOB NO 4967555 | MODEL NUMBER DCV-1111 | JOB NAME Lorenzo Foods | SCHEMATIC TYPE INSTALL | DATE 7/6/2021 | DWG NO ECP #1-1

DESCRIPTION OF OPERATION: Demand Control Ventilation, w/ control for 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.



DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



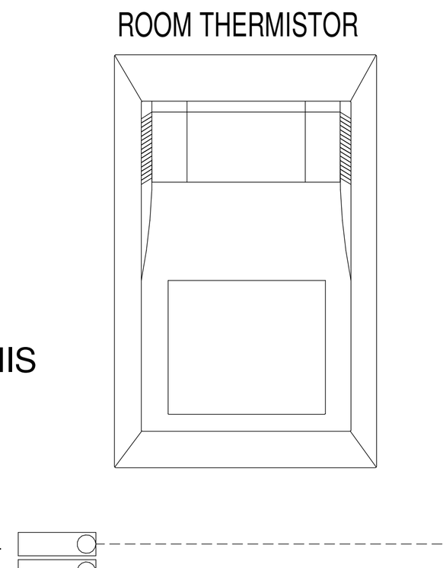
TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

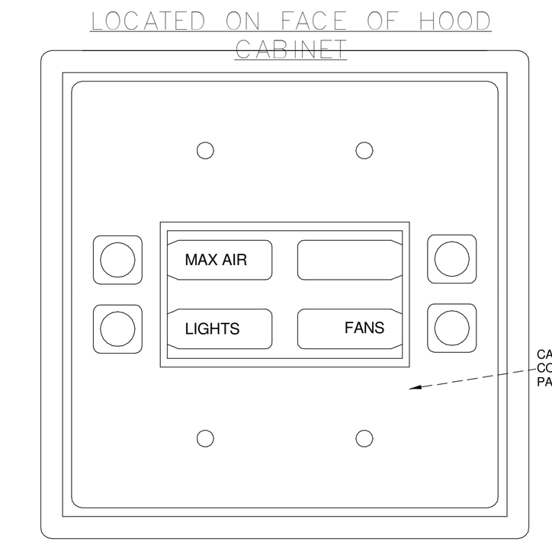
THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTORS (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE CONDITION: ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

ROOM THERMISTOR



HOOD CONTROL PACKAGE INTERFACE with LCD Screen LOCATED ON FACE OF HOOD CABINET



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

JOB NO 4967555 | MODEL NUMBER DCV-2111 | JOB NAME Lorenzo Foods | SCHEMATIC TYPE INSTALL | DATE 7/6/2021 | DWG NO ECP #2-3

DESCRIPTION OF OPERATION: Fire System #2 TANK Fire Suppression - 4.0/4.0. Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.

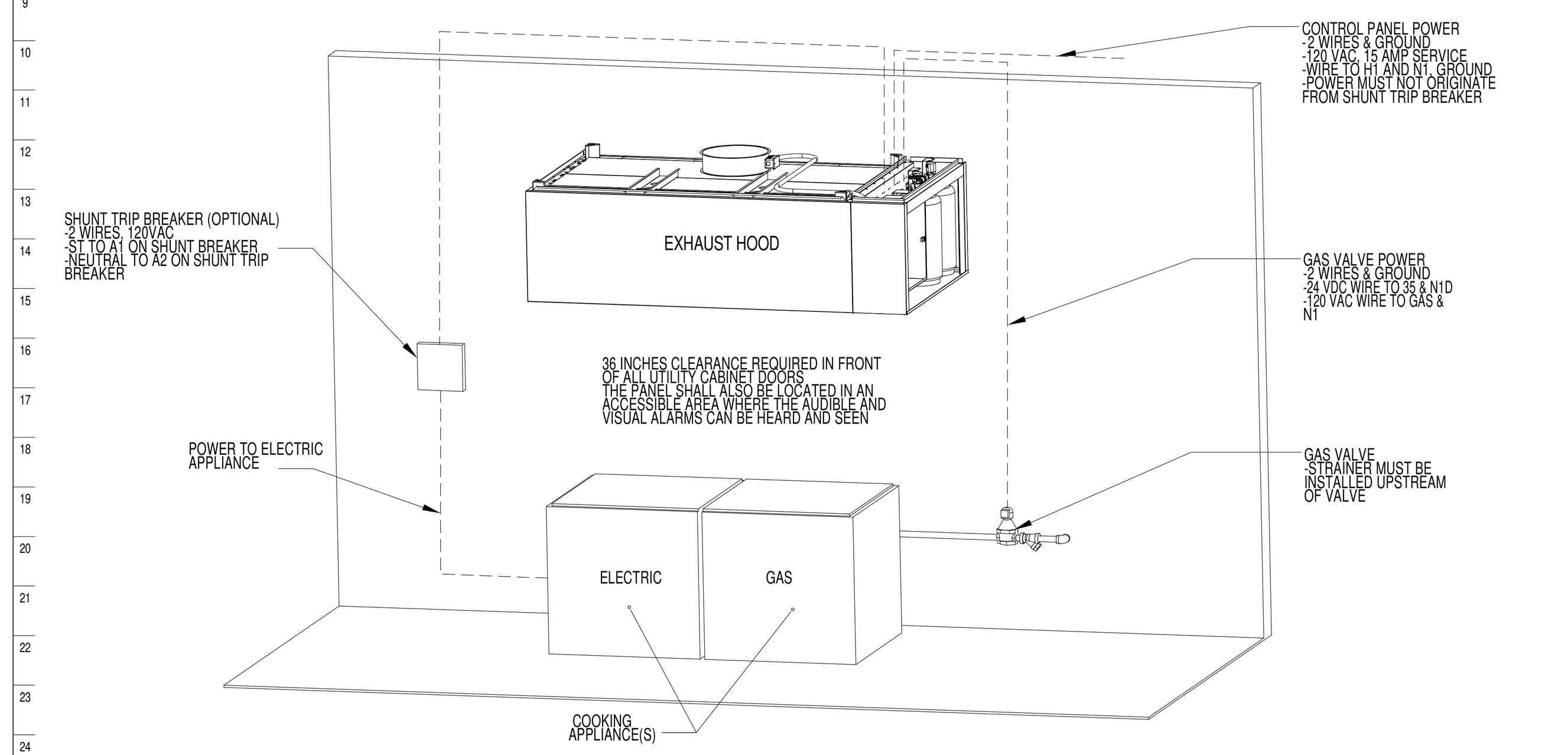
TANK PROTECTION ELECTRICAL DETAIL

02/10/2021 Rev. 2

FS-2: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	35 & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, 35 TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 4967555 | MODEL NUMBER DCV-2111 | JOB NAME Lorenzo Foods | SCHEMATIC TYPE INSTALL | DATE 7/6/2021 | DWG NO ECP #2-4

DESCRIPTION OF OPERATION: Fire System #2 TANK Fire Suppression - 4.0/4.0. Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.

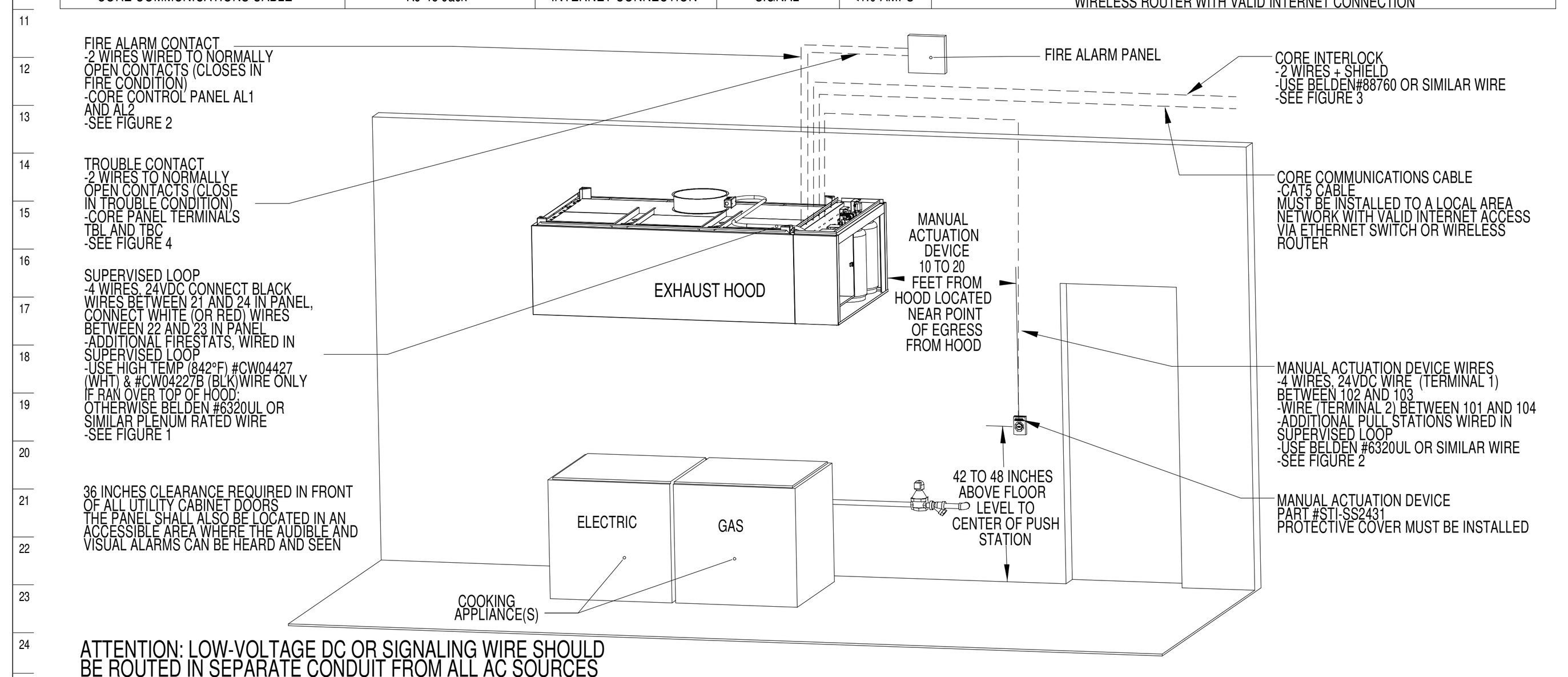
TANK PROTECTION LOW-VOLTAGE DETAIL

02/10/2021 Rev. 2

FS-2: MASTER

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #CW04427 (WHT) & #CW04427B (BLK)WIRE OR SIMILAR ONLY IF RAN OVER TOP OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	ILA, ILB, ILC	ILA, ILB, ILC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) ILA, TO CORE SYSTEM (2) ILA. CORE SYSTEM (1) ILB, TO CORE SYSTEM (2) ILB. CORE SYSTEM (1) ILC, TO CORE SYSTEM (2) ILC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

CAPTIVE AIRE — North New Jersey Mechanical

, Summit, NJ, PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021
4967555
ZDK
3/4" = 1'-0"
MASTER DRAWING
4

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ 07608

DOB STAMP:

ISSUED FOR: REVIEW, PLANNING BOARD, BUILDING DEPT, BID, CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC CAPTIVE AIRE DETAILS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-503.00
DOB BARCODE:	

Total

9/24/2021 2:59:53 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

EXHAUST FAN INFORMATION – (4967555)

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1	1	DU180HFA	CAPTIVEAIRE	3150	0.750	1130	ODP,PREMIUM	1.500	1.0310	3	208	6.6	727 FPM	167	15.5
2	KEF-2	1	DU180HFA	CAPTIVEAIRE	3175	1.500	1336	ODP,PREMIUM	3.000	1.7120	3	208	9.5	733 FPM	181	19.9
3	KEF-3	1	DU180HFA	CAPTIVEAIRE	3175	1.500	1336	ODP,PREMIUM	3.000	1.7120	3	208	9.5	733 FPM	181	19.9
4	KEF-4	1	DU240HFA	CAPTIVEAIRE	4125	2.000	999	ODP,PREMIUM	5.000	2.7930	3	208	15.8	938 FPM	301	21
5	KEF-5	1	DU240HFA	CAPTIVEAIRE	6050	2.000	1114	ODP,PREMIUM	5.000	4.0860	3	208	15.8	1375 FPM	301	26
10	KEF-TESTKITCHEN	1	DU85HFA	CAPTIVEAIRE	1505	1.000	1275	TEAO-ECM	0.750	0.3760	1	208	5.2	476 FPM	88	11.2

MUA FAN INFORMATION – (4967555)

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
6	KMUA-1	1	A2-D.250-20D	20MF-2-MOD	A2-D.250	2000	2520	0.500	1109	ODP,PREMIUM	1.500	0.7660	3	208	6.6	8.3A	15A	673	9.1
7	KMUA-2	1	A3-D.500-24D	24MF-3-MOD	A3-D.500	3500	5200	0.500	1261	ODP,PREMIUM	5.000	3.9720	3	208	15.8	19.8A	35A	909	12
8	KMUA-3	1	A4-D.1000-30D	30MF-4-MOD	A4-D.1000	6000	8310	0.500	960	ODP,PREMIUM	5.000	2.9380	3	208	15.8	19.8A	35A	1434	14.3
9	KMUA-K	1	A3-D.500-24D	24MF-3-MOD	A3-D.500	3500	6600	0.500	1541	ODP,PREMIUM	10.000	7.3480	3	208	27.0	35A	60A	962	16.5

GAS FIRED MAKE-UP AIR (FAN(S))

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
6	KMUA-1	175528	161486	60°F	1 LB. - 5 LB.	NATURAL	92
7	KMUA-2	362202	333226	60°F	1 LB. - 5 LB.	NATURAL	92
8	KMUA-3	578826	532520	60°F	1 LB. - 5 LB.	NATURAL	92
9	KMUA-K	459717	422940	60°F	1 LB. - 5 LB.	NATURAL	92

FAN OPTIONS

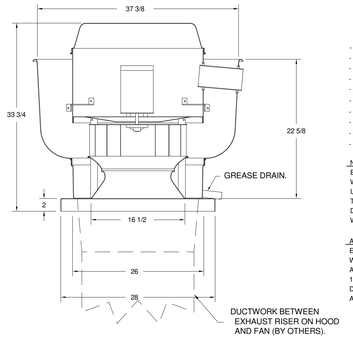
FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF-1	1	2 YEAR PARTS WARRANTY.
		1	GREASE BOX.
2	KEF-2	1	2 YEAR PARTS WARRANTY.
		1	GREASE BOX.
3	KEF-3	1	2 YEAR PARTS WARRANTY.
		1	GREASE BOX.
4	KEF-4	1	2 YEAR PARTS WARRANTY.
		1	GREASE BOX.
5	KEF-5	1	2 YEAR PARTS WARRANTY.
6	KMUA-1	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	CURB DUCT HANGER.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE. USED ON HEATERS UNDER 2500 CFM.
		1	1", 10 PSI HIGH GAS PRESSURE REGULATOR.
		1	2 YEAR PARTS WARRANTY.
7	KMUA-2	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	CURB DUCT HANGER.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	1", 10 PSI HIGH GAS PRESSURE REGULATOR.
		1	2 YEAR PARTS WARRANTY.
8	KMUA-3	1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	MOTORIZED BACKDRAFT DAMPER FOR A4-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	CURB DUCT HANGER.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	INLET PRESSURE GAUGE, 0-15#.
		1	2 YEAR PARTS WARRANTY.
9	KMUA-K	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
		1	CURB DUCT HANGER.
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED).
		1	VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR TEMPERED SUPPLY FAN.
		1	1", 10 PSI HIGH GAS PRESSURE REGULATOR.
		1	2 YEAR PARTS WARRANTY.
10	KEF-TESTKITCHEN	1	GREASE BOX.
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION.
		1	2 YEAR PARTS WARRANTY.

CURB ASSEMBLIES

NO	FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	41 LBS	CURB	26.500"W X 26.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	KEF-2	41 LBS	CURB	26.500"W X 26.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
3	# 3	KEF-2	41 LBS	CURB	26.500"W X 26.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
4	# 4	KEF-4	48 LBS	CURB	31.500"W X 31.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
5	# 5	KEF-5	48 LBS	CURB	31.500"W X 31.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
6	# 6	KMUA-1	80 LBS	CURB	31.000"W X 79.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED.
7	# 7	KMUA-2	84 LBS	CURB	35.000"W X 84.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED.
8	# 8		93 LBS	RAIL	6.000"W X 42.000"L X 20.000"H RIGHT.
8	# 8	KMUA-3	93 LBS	CURB	42.000"W X 42.000"L X 20.000"H ALONG LENGTH, RIGHT INSULATED.
9	# 9	KMUA-K	84 LBS	CURB	35.000"W X 84.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED.
10	# 10	KEF-TESTKITCHEN	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
11	# 11	DOAS-TESTKITCHEN	85 LBS	CURB	41.000"W X 71.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED.

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

FAN #1 DU180HFA - EXHAUST FAN (KEF-1)
FAN #2 DU180HFA - EXHAUST FAN (KEF-2)
FAN #3 DU180HFA - EXHAUST FAN (KEF-3)



FEATURES:

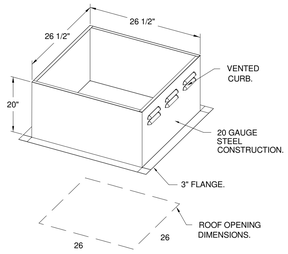
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

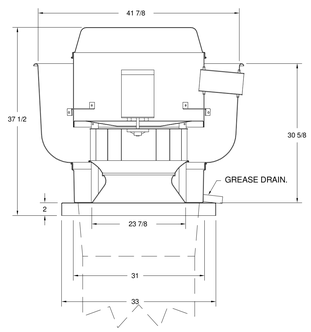
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

GREASE BOX.
2 YEAR PARTS WARRANTY.



FAN #4 (KEF-4) - DU240HFA EXHAUST FAN
FAN #5 (KEF-5) - DU240HFA EXHAUST FAN



FEATURES:

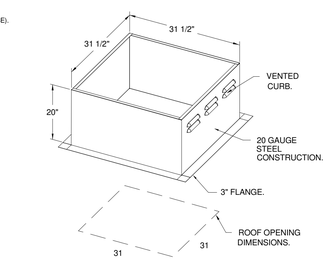
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

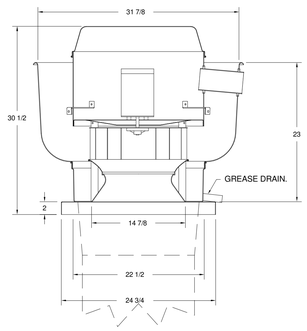
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

GREASE BOX.
2 YEAR PARTS WARRANTY.



FAN #10 DU85HFA - EXHAUST FAN (KEF-TESTKITCHEN)



FEATURES:

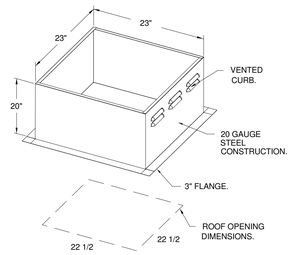
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

GREASE BOX.
ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION.
2 YEAR PARTS WARRANTY.



CAPTIVEAIRE
North New Jersey
Mechanical
Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

5

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

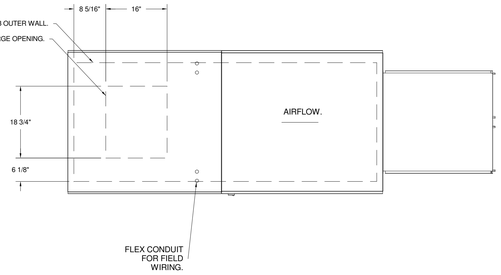
BRIAN D. TANNENHAUS
SIGNATURE
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-504.00
DOB BARCODE:
Total

9/24/2021 2:59:54 PM

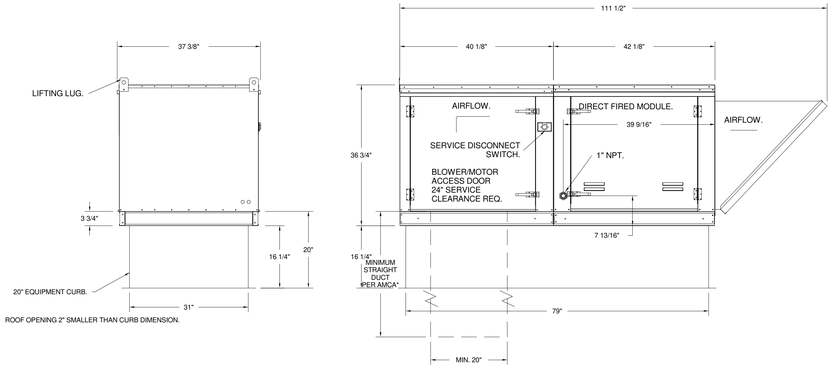
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

FAN #6 A2-D.250-20D - MAKEUP AIR UNIT WITH HEATER (KMUA-1)
FAN DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE
2 PREASSEMBLED WITH EZ FILTERS-LOW CFM.
3 MANUFACTURER SHALL BE EQUIPPED WITH ETHERNET/IP CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE,
4 CAT 5E SHIELDED PATCH CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
5 MODULATING GAS VALVE WITH ELECTRIC ACTUATOR, 3/4" STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
6 DUCT PRESSURE MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
7 CURB ADAPTER, CURB ANGLES ORDERED SEPARATELY. WELDED TO CURB TO SUPPORT STANDARD SIZE DUCTWORK. PRICED PER CURB.
8 SERVICE DISCONNECT SWITCH WIRING PACKAGE. PROVIDES 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
9 2" DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
10 2 YEAR PARTS WARRANTY.
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".



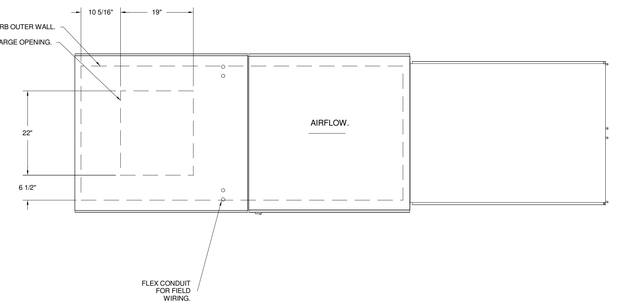
SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 15°F.
TEMP. RISE = 60°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT
BTUs AT ALTITUDE OF 0.0 FT. = 161533.
INPUT BTUs AT ALTITUDE OF
0.0 FT. = 175579.
OUTPUT BTUs AT ALTITUDE OF 8 FT. = 161486.
INPUT BTUs AT ALTITUDE OF 8 FT. = 175529.



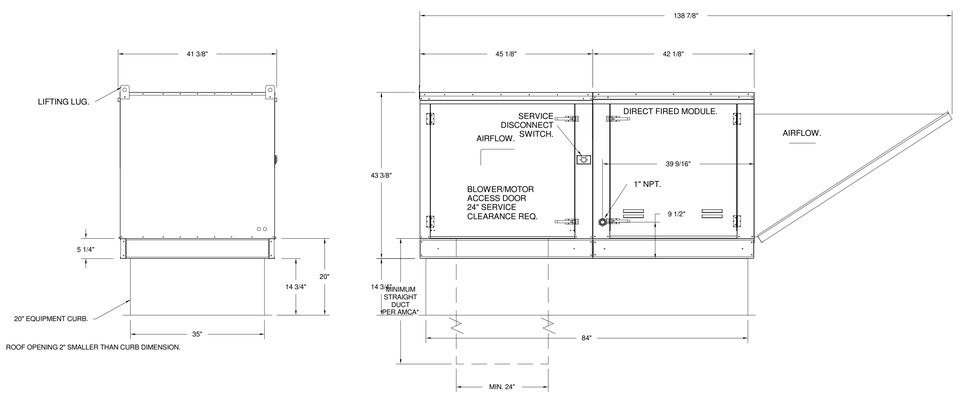
ROOF OPENING 2" SMALLER THAN CURB DIMENSION.

FAN #7 A3-D.500-24D - MAKEUP AIR UNIT WITH HEATER (KMUA-2)
FAN DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 24" MIXED FLOW DIRECT DRIVE FAN
2 PREASSEMBLED WITH EZ FILTERS.
3 MANUFACTURER SHALL BE EQUIPPED WITH ETHERNET/IP CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE,
4 CAT 5E SHIELDED PATCH CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
5 MODULATING GAS VALVE WITH ELECTRIC ACTUATOR, 3/4" STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, NFBUP-S ACTUATOR INCLUDED.
6 DUCT PRESSURE MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
7 CURB ADAPTER, CURB ANGLES ORDERED SEPARATELY. WELDED TO CURB TO SUPPORT STANDARD SIZE DUCTWORK. PRICED PER CURB.
8 SERVICE DISCONNECT SWITCH WIRING PACKAGE. PROVIDES 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
9 2" DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
10 2 YEAR PARTS.
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 24" x 24".



SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 15°F.
TEMP. RISE = 60°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT
BTUs AT ALTITUDE OF 0.0 FT. = 333322.
INPUT BTUs AT ALTITUDE OF
0.0 FT. = 362307.
OUTPUT BTUs AT ALTITUDE OF 8 FT. = 333226.
INPUT BTUs AT ALTITUDE OF 8 FT. = 362202.



ROOF OPENING 2" SMALLER THAN CURB DIMENSION.

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

CAPTIVE AIRE
North New Jersey
Mechanical
. Summit, NJ. PHONE: (201) 306-6647 FAX: (919) 516-8752 EMAIL: reg139@captiveaire.com

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

6

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT.
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-505.00
DOB BARCODE:
Total

9/24/2021 2:59:55 PM

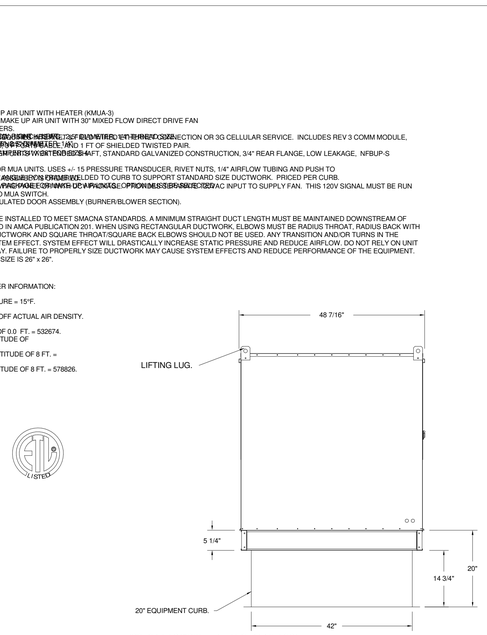
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

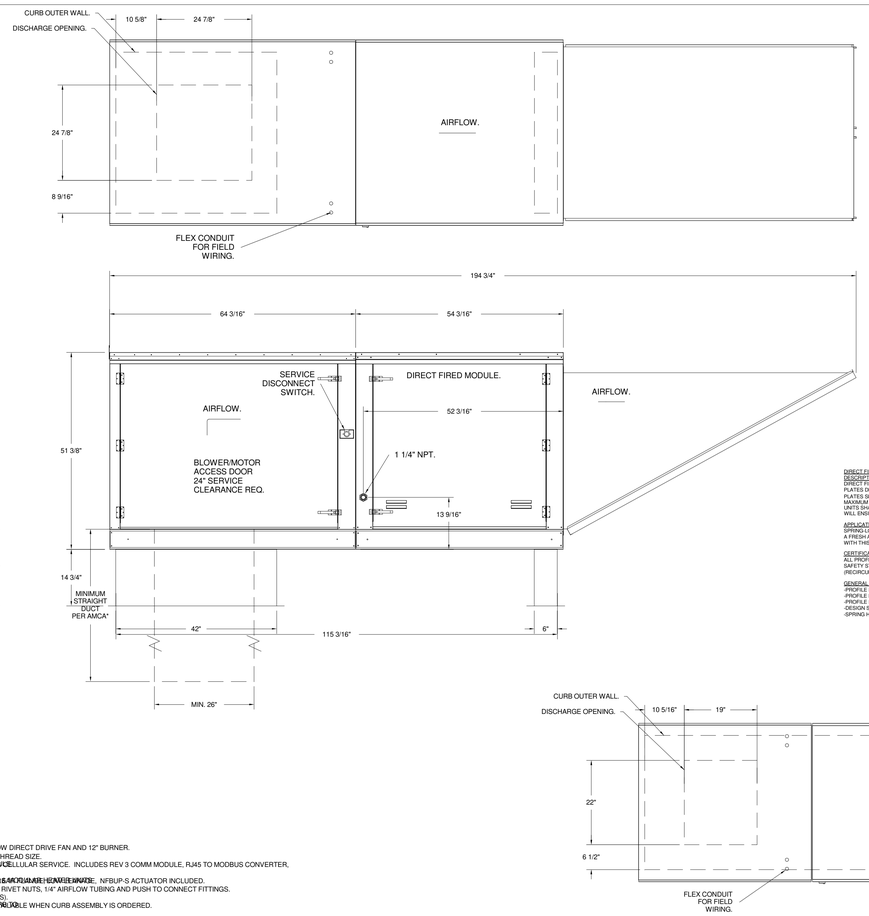
FAN #8 A4-D.1000-30D - MAKEUP AIR UNIT WITH HEATER (KMUA-3)
1. DIRECT FIRED HEATED MAKE UP AIR UNIT WITH 30" MIXED FLOW DIRECT DRIVE FAN
2. HEATSHIELD WITH EZ FILTERS.
3. SUPPLIED AS [illegible] SECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 5 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
4. [illegible] 24" DIAMETER, 1/4" THREAD SIZE.
5. [illegible] SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE. NFBUP-S ACTUATOR INCLUDED.
6. CONTROLS: MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
7. [illegible] INCLUDED TO CURB TO SUPPORT STANDARD SIZE DUCTWORK. PRICED PER CURB.
8. [illegible] 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
9. HARDWARE: DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
12. 2 YEAR PARTS

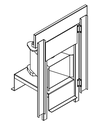
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 26" x 26".

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 15°F.
TEMP. RISE = 60°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT
BTUs AT ALTITUDE OF 0.0 FT. = 532674.
INPUT BTUs AT ALTITUDE OF
0.0 FT. = 578994.
OUTPUT BTUs AT ALTITUDE OF 8 FT. = 532520.
INPUT BTUs AT ALTITUDE OF 8 FT. = 578826.







DIRECT FIRED PROFILE PLATE SPECIFICATIONS:
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO.: US9629528D), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2). DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

APPLICATION:
SPRING LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNITS ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING OF HEATERS) AND ANSI Z83.18 (RECIRCULATING OF HEATERS).

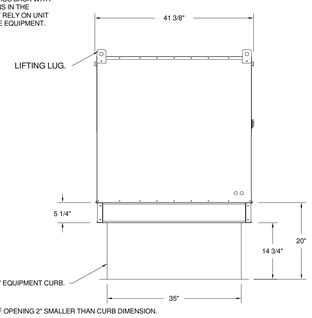
GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM 036 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

FAN #9 A3-D.500-24D - HEATER (KMUA-K)
1. DIRECT FIRED HEATED MAKE UP AIR UNIT WITH 24" MIXED FLOW DIRECT DRIVE FAN AND 12" BURNER.
2. [illegible] 12.5" DIAMETER, 1/4" THREAD SIZE.
3. [illegible] CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 5 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
4. [illegible] NFBUP-S ACTUATOR INCLUDED.
5. CONTROLS: MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
6. COMMERCIAL SMOKE DETECTOR INTERLOCK. (DETECTOR BY OTHERS).
7. [illegible] CURB ASSEMBLY IS ORDERED.
8. [illegible] FOR COMMERCIAL FANS.
9. [illegible] FREQUENCY DRIVE INCLUDED.
10. HARDWARE: [illegible] INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
14. 2 YEAR PARTS

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 24" x 24".

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 15°F.
TEMP. RISE = 60°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT
BTUs AT ALTITUDE OF 0.0 FT. = 423063.
INPUT BTUs AT ALTITUDE OF
0.0 FT. = 459851.
OUTPUT BTUs AT ALTITUDE OF 8 FT. = 422940.
INPUT BTUs AT ALTITUDE OF 8 FT. = 459718.



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS, AS AN INSTRUMENT OF SERVICE, **ARE** AND SHALL REMAIN THE PROPERTY OF THE ARCHITECT. THE ARCHITECT RESERVES THE RIGHT TO HAVE THIS WORK REPRODUCED, PUBLISHED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PROPERLY TITLED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT SPECIFIED IS COMPATIBLE WITH THE SPACE AVAILABLE SHOWN ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIZING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

-	8/24/2021
-	4967555
-	ZDK
-	3/4" = 1'-0"

MASTER DRAWING

Lorenzo Foods
TETERBORO, NJ, 07608

CAPTIVE AIRE
North New Jersey
Mechanical
, Summit, NJ, PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg136@captiveaire.com

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group
Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
- REVIEW
- PLANNING BOARD
- BUILDING DEPT.
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC CAPTIVE AIRE DETAILS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	M-506.00
DOB BARCODE:	Total

9/24/2021 2:59:56 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

IMPORTANT SPECIAL UDS PARTS/NOTES

☆1	BOTH STEAM LINE INSULATION THICKNESS TBD.
☆2	STEAM SUPPLY SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)
☆3	COND. RETURN SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)

UDS CONSTRUCTION TO BE
16 GA., TYPE 304 STAINLESS STEEL

UTILITY DISTRIBUTION SYSTEM MODEL UDI
IS LISTED UNDER ETL FILE NUMBER 3054803
CONFORMS TO UL STD 891
CERTIFIED TO CAN/CSA C22.2 No. 31-M89

PRIOR TO SCHEDULING UDS FOR PRODUCTION PLEASE PROVIDE APPROVED SUBMITTAL CUTSHEETS ON FINAL KITCHEN EQUIPMENT ASSOCIATED WITH THE UDS (NEW & USED) SO THAT CONNECTION SIZES, TYPES AND LOCATIONS CAN BE VERIFIED

ANY CHANGES TO SUBMITTAL DRAWING MAY AFFECT PRICE AND PRODUCTION TIME PLEASE FORWARD CHANGES ASAP

----NOTE----
NEC REQUIRES 36" OF FIELD CLEARANCE IN FRONT OF CIRCUIT BREAKERS FOR ACCESS

SYMBOL SCHEDULE

- COLD WATER
- HOT WATER
- FILTERED WATER
- NATURAL GAS
- PROPANE
- 120 VAC 1 PHASE
- 208 VAC 1 PHASE
- 208 VAC 3 PHASE
- 480 VAC 3 PHASE
- STEAM SUPPLY
- STEAM CONDENSATE RETURN

STANDARD FLAG NOTES

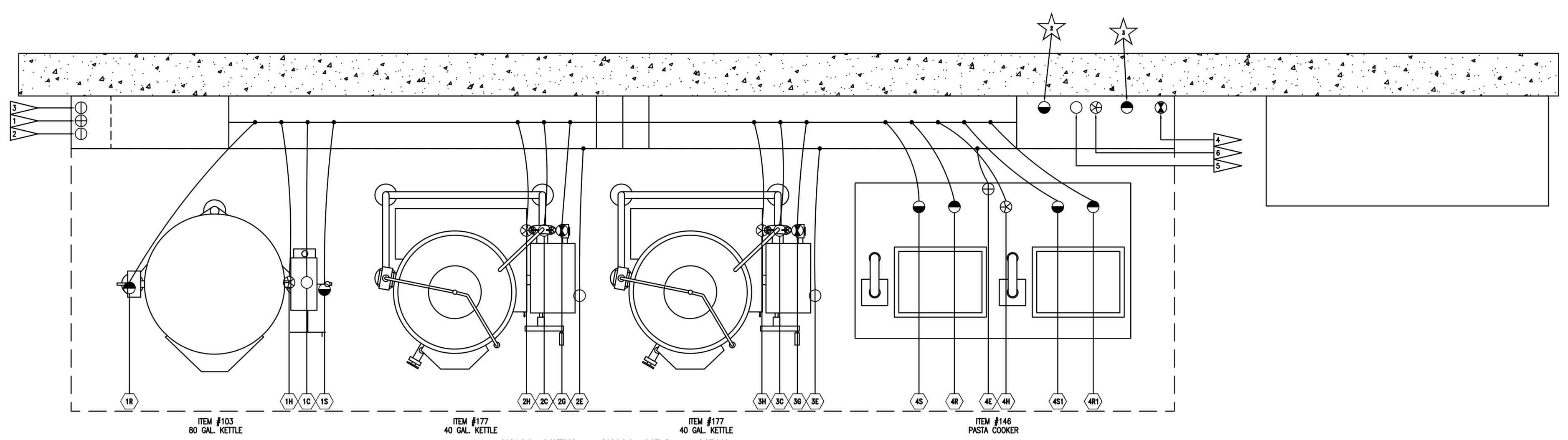
1. ELECTRICAL SERVICE FROM ABOVE, SEE SCHEDULE FOR DETAILS. PROVIDED BY ELECTICAL CONTRACTOR.
2. 120V/1PH/15A DEDICATED ELECTRICAL CIRCUIT INTO UDS TERMINALS "H1, N1" FOR FUEL/SHUNT CONTROL. (PROVIDED BY ELECTRICAL CONTRACTOR) SEE SCHEMATIC BELOW.
3. 3-WIRE ELECTRICAL CIRCUIT FROM HOOD CONTROL PACKAGE TERMINALS "GAS, ST & KTS" TO UDS LIKE TERMINALS "GAS, ST & KTS" FOR UDS SHUT DOWN IN A FIRE CONDITION. (PROVIDED BY ELECTRICAL CONTRACTOR). SEE SCHEMATIC BELOW.
4. GAS SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE AND STYLE (PROVIDED BY PLUMBING CONTRACTOR)
5. COLD WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)
6. HOT WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)
7. SERVICE MAIN BREAKER W/SHUNT TRIP AND RESET HANDLE, SEE SCHEDULE FOR DETAILS.
8. STATUS INDICATOR LIGHTS.
9. EMERGENCY KILL SWITCH.
10. DCO RECEPTACLE W/ BREAKER & WEATHERPROOF COVER.
11. ELECTRICAL LOAD CENTER WITH INDIVIDUAL CIRCUIT BREAKERS.
12. ELECTRICAL WIRING TO APPLIANCES.
13. ELECTRICAL CONNECTION W/WEATHERPROOF COVER AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
14. PLUMBING CONNECTION AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
15. MANUAL SHUT OFF VALVE.
16. 120V ELECTRICAL GAS VALVE.
17. REMOVABLE ACCESS DOORS.

UTILITY DISTRIBUTION SYSTEM EQUIPMENT SCHEDULE

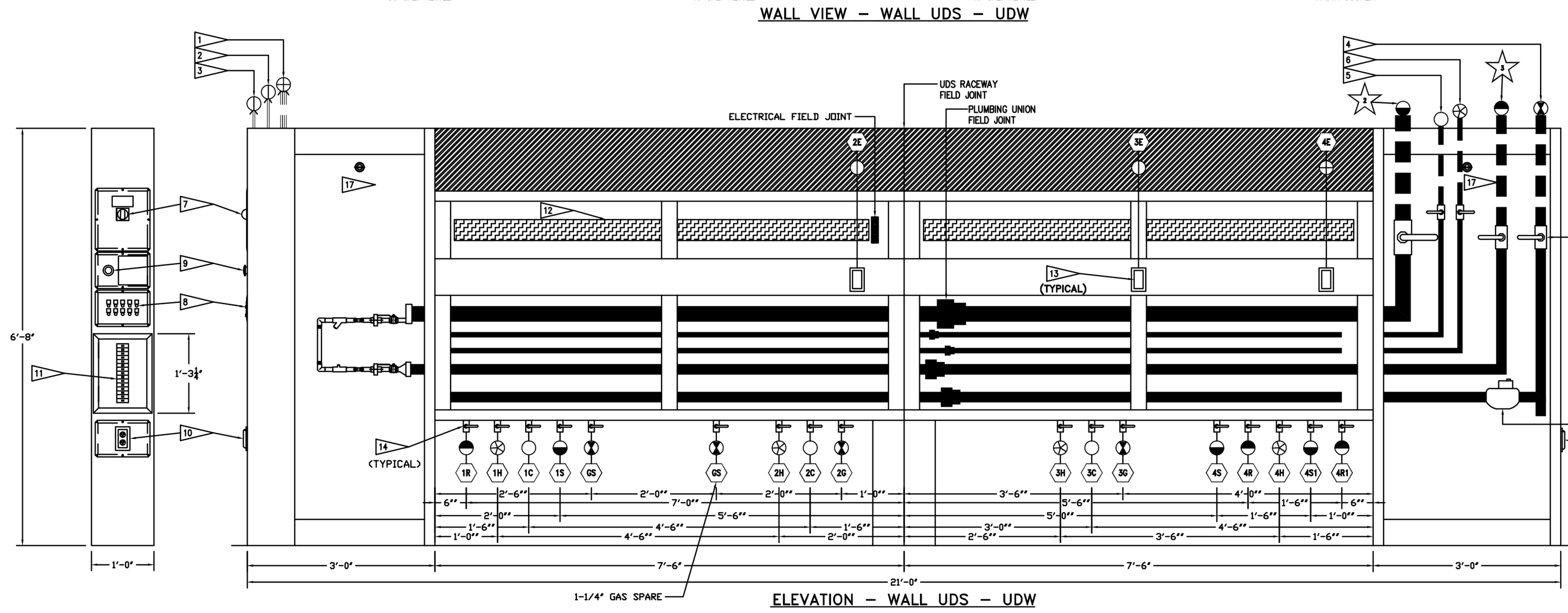
EQUIPMENT					ELECTRICAL					CIRCUIT BREAKER		RECEPTACLE	GAS		WATER		STEAM			CONNECTION		NOTES
CONN.#	ITEM	DESCRIPTION	MANUFACTURER	MODEL #	KW.	AMPS	HP	VOLT	PH	AMPS	POLES	PART #	SIZE	MBH	HOT	COLD	SUPPLY	COLD RETURN	LBS/HR	TYPE	LENGTH	
1S	103	80 GAL. KETTLE	GROEN	DL-80	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	QUICK DISCONNECT	5'	-
1R	103	80 GAL. KETTLE	GROEN	DL-80	-	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	QUICK DISCONNECT	5'	-
1C	103	80 GAL. KETTLE	GROEN	DL-80	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	QUICK DISCONNECT	5'	-
1H	103	80 GAL. KETTLE	GROEN	DL-80	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	-	QUICK DISCONNECT	5'	-
2E	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
2G	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	3/4"	140	-	-	-	-	-	QUICK DISCONNECT	5'	-
2C	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	QUICK DISCONNECT	5'	-
2H	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	-	QUICK DISCONNECT	5'	-
3E	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
3G	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	3/4"	140	-	-	-	-	-	QUICK DISCONNECT	5'	-
3C	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	QUICK DISCONNECT	5'	-
3H	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	-	QUICK DISCONNECT	5'	-
4E	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	1.5	4.2	-	208	3	15	3	L15-20R	-	-	-	-	-	-	-	CORD & PLUG	6'	GFI BREAKER
4S	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	QUICK DISCONNECT	5'	-
4S1	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	QUICK DISCONNECT	5'	-
4R	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	QUICK DISCONNECT	5'	-
4R1	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	QUICK DISCONNECT	5'	-
4H	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	-	-	QUICK DISCONNECT	5'	-
D1	-	DUPLEX OUTLET	-	-	-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER
D2	-	DUPLEX OUTLET	-	-	-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER

TOTAL CONNECTED LOAD:	3.9	KW.	10.9	AMP	0.0	KW.	0.0	AMP	280	MBH	H.W.	STEAM SUPPLY
FUTURE AVAILABLE LOAD CAPACITY:	10.5	KW.	29.1	AMP	0.0	KW.	0.0	AMP	270	MBH	1"	3"
SYSTEM CAPACITY:	14.4	KW.	40.0	AMP	0.0	KW.	0.0	AMP	550	MBH	C.W.	COND. RETURN
SERVICE SIZE:	120/208 V/ 3 PH/ 50 AMP				V/ PH/ AMP				1-1/2" IPS SINGLE		1"	-

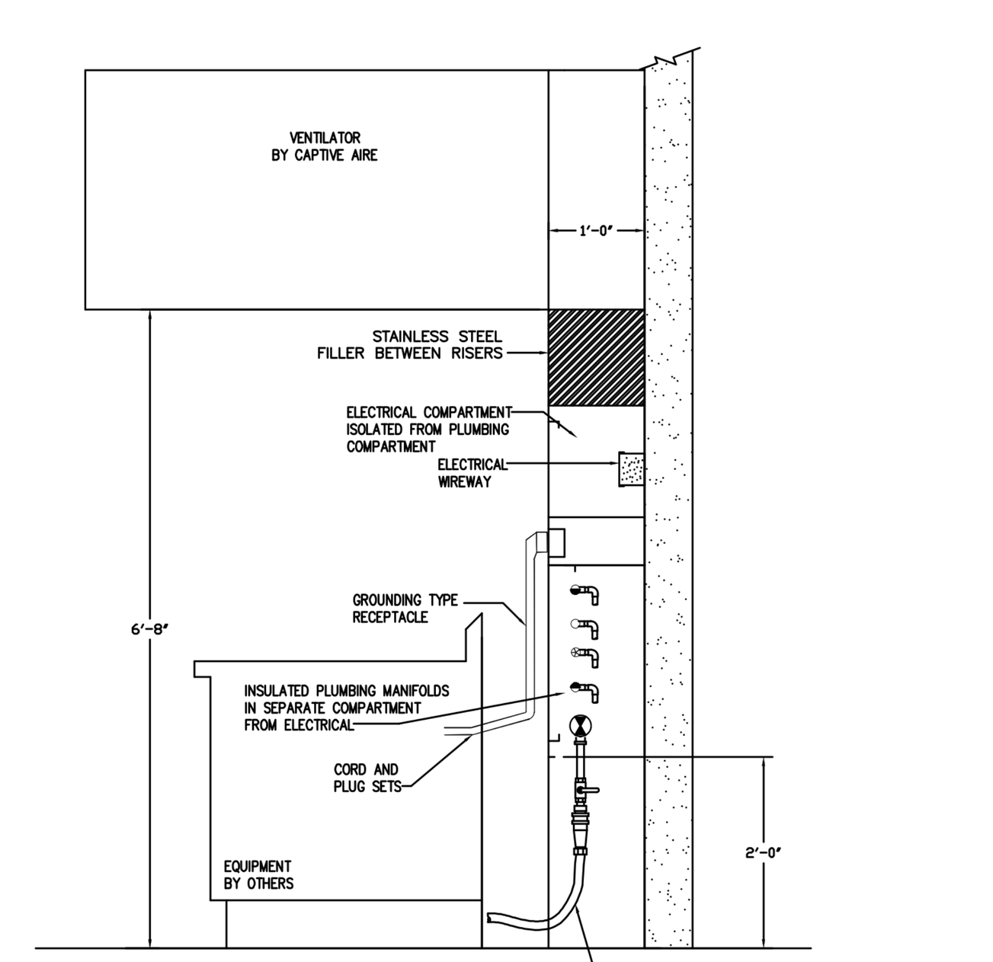
LEGEND
MBH = BTU PER HOUR (1000S)
SB = STRAIGHT BLADE PLUGS
TL = TWIST LOCK PLUGS
PS = PIN & SLEEVE PLUGS
DCO = DUAL CONVENIENCE OUTLET
DIRECT = CONDUIT & WIRE



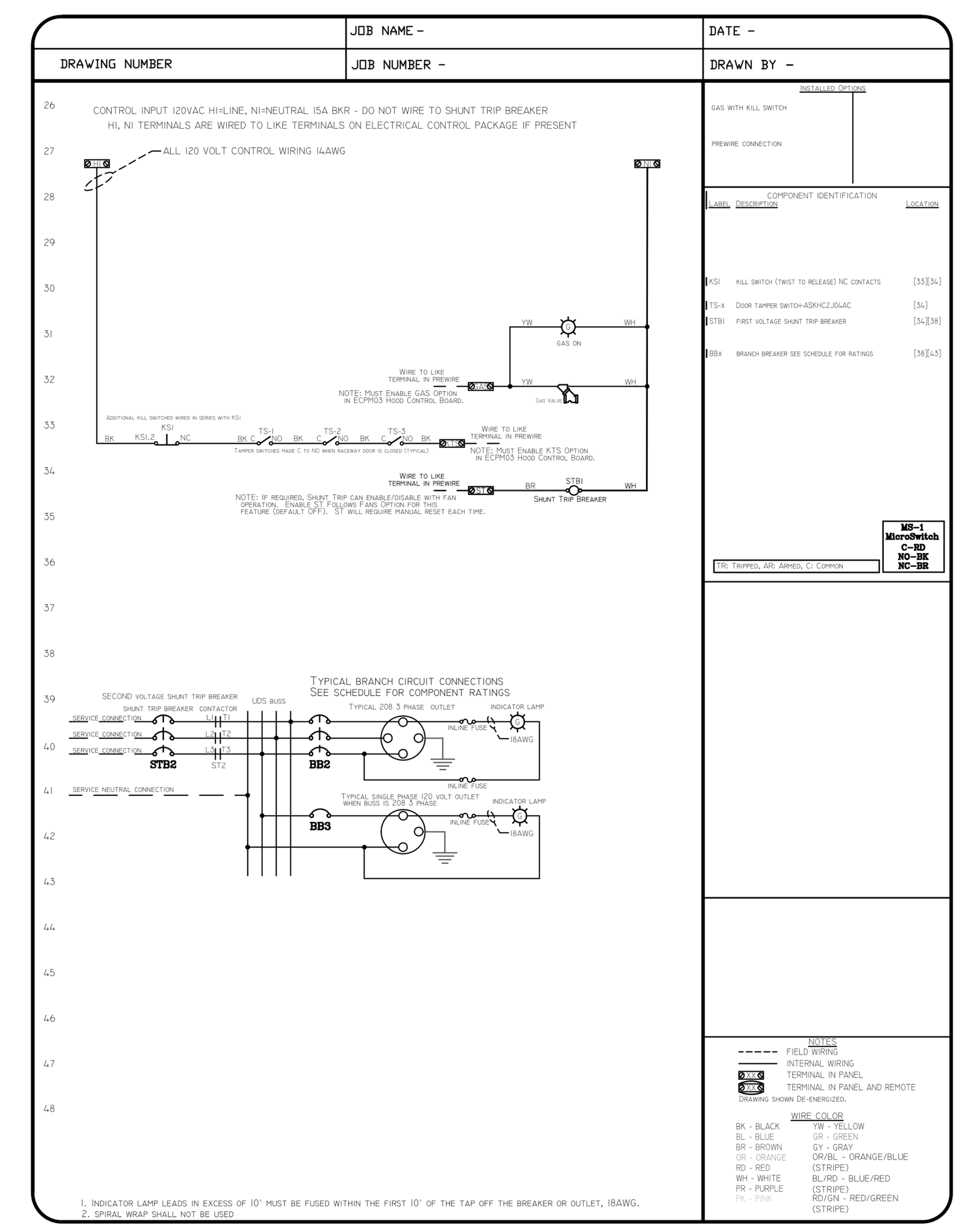
WALL VIEW - WALL UDS - UDW



ELEVATION - WALL UDS - UDW



TYPICAL SECTION VIEW
MODEL UDW DISTRIBUTION SYSTEM



SHEET 1 OF 2

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVEAIRE
www.captiveaire.com
North New Jersey Mechanical
, Summit, NJ, PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

DATE: 7/6/2021
DWG.#: 4967555
DRAWN BY: ZDK
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 1

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

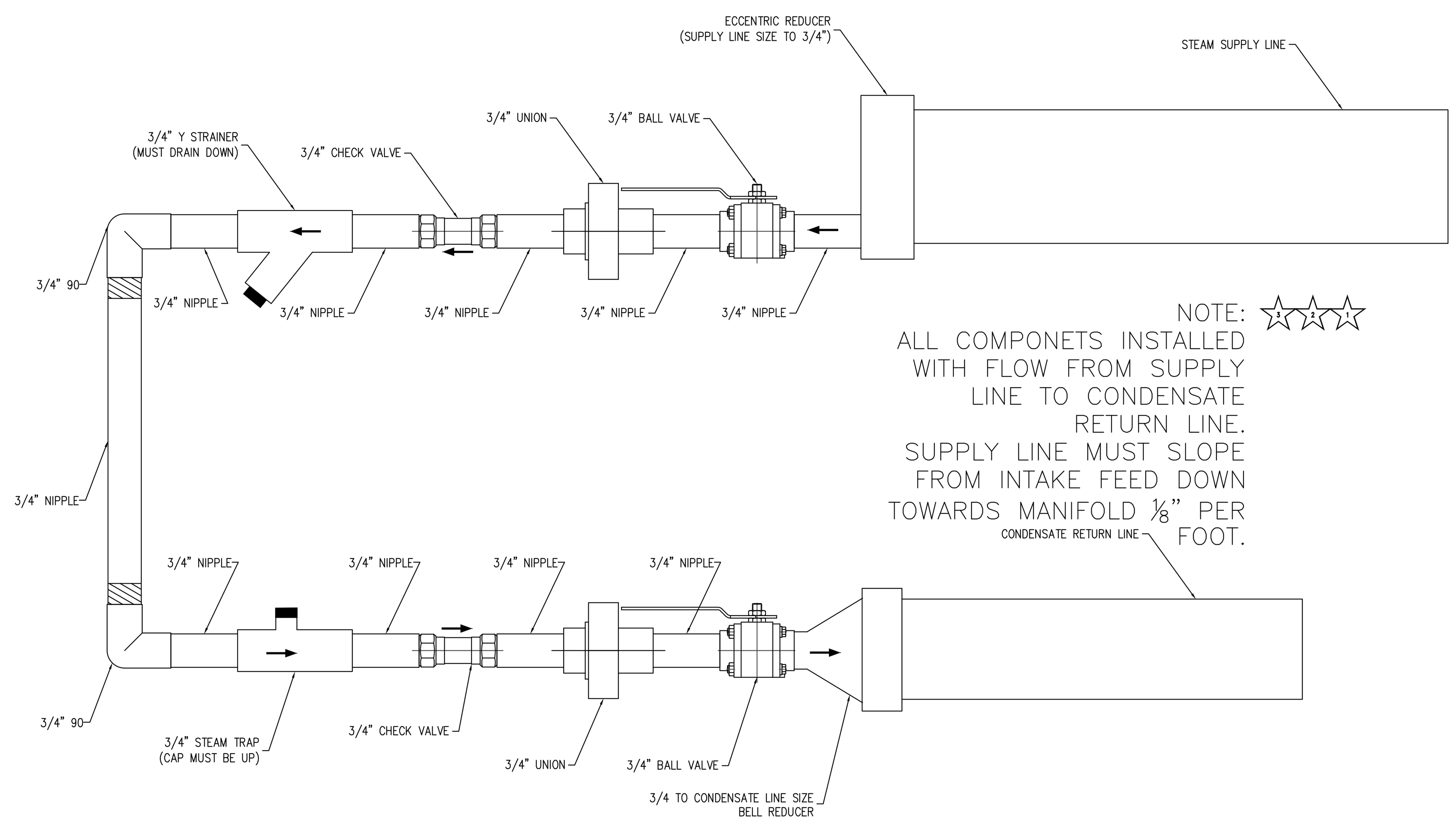
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL & SIG.
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
HVAC CAPTIVE AIRE DETAILS

scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-507.00
DOB BARCODE:
Total

9/24/2021 3:00:05 PM
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



NOTE: ☆☆☆
ALL COMPONETS INSTALLED WITH FLOW FROM SUPPLY LINE TO CONDENSATE RETURN LINE.
SUPPLY LINE MUST SLOPE FROM INTAKE FEED DOWN TOWARDS MANIFOLD 1/8" PER FOOT.

REVISIONS	
DESCRIPTION	DATE:
△	
△	
△	
△	

CAPTIVEAIRE
www.captiveaire.com

North New Jersey Mechanical
, Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

DATE: 7/6/2021

DWG.#: 4967555

DRAWN BY: ZDK

SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 2

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT ■
BID
CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
HVAC CAPTIVE AIRE DETAILS

scale: 12" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: ZW

approved by: KF

project no.: 2102

drawing no.: M-508.00

DOB BARCODE:

Total

9/24/2021 3:00:13 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

IMPORTANT SPECIAL UDS PARTS/NOTES

☆	TWO (2) OPTIPURE QTI1+CR WATER FILTERS WITH WINDOW.

UDS CONSTRUCTION TO BE 16 GA., TYPE 304 STAINLESS STEEL

UTILITY DISTRIBUTION SYSTEM MODEL UDI IS LISTED UNDER ETL FILE NUMBER 3054803 CONFORMS TO UL STD 891 CERTIFIED TO CAN/CSA C22.2 No. 31-M89

PRIOR TO SCHEDULING UDS FOR PRODUCTION PLEASE PROVIDE APPROVED SUBMITTAL CUTSHEETS ON FINAL KITCHEN EQUIPMENT ASSOCIATED WITH THE UDS (NEW & USED) SO THAT CONNECTION SIZES, TYPES AND LOCATIONS CAN BE VERIFIED

ANY CHANGES TO SUBMITTAL DRAWING MAY AFFECT PRICE AND PRODUCTION TIME - PLEASE FORWARD CHANGES ASAP

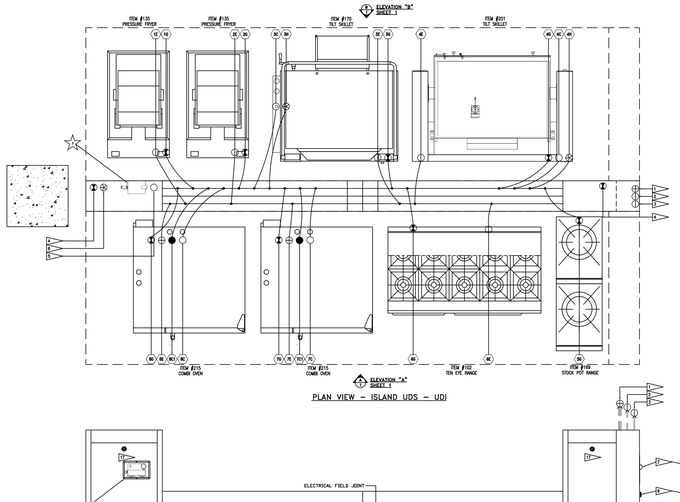
----NOTE----
NEC REQUIRES 36" OF FIELD CLEARANCE IN FRONT OF CIRCUIT BREAKERS FOR ACCESS

SYMBOL SCHEDULE

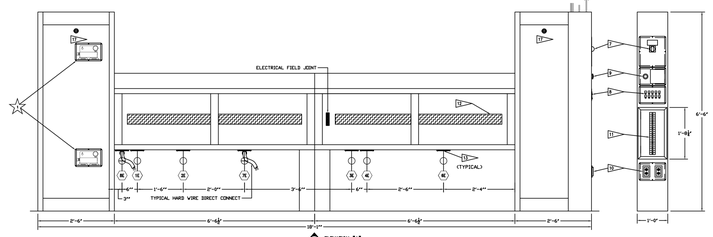
C	COLD WATER
HC	HOT WATER
F	FILTERED WATER
G	NATURAL GAS
P	PROPANE
1	120 VAC 1 PHASE
2	208 VAC 1 PHASE
3	208 VAC 3 PHASE
4	480 VAC 3 PHASE
S	STEAM SUPPLY
SC	STEAM CONDENSATE RETURN

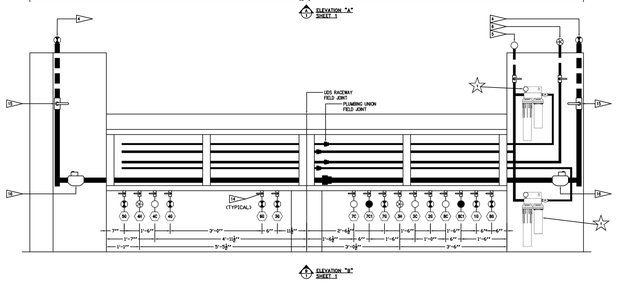
STANDARD FLAG NOTES

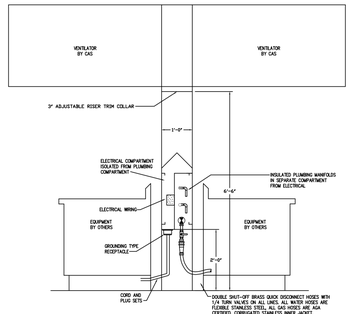
1. ELECTRICAL SERVICE FROM ABOVE, SEE SCHEDULE FOR DETAILS. PROVIDED BY ELECTRICAL CONTRACTOR.
2. 120V/1PH/15A DEDICATED ELECTRICAL CIRCUIT INTO UDS TERMINALS "NL, NX" FOR FUEL/SHUNT CONTROL. PROVIDED BY ELECTRICAL CONTRACTOR. SEE SCHEMATIC BELOW.
3. 3-WIRE ELECTRICAL CIRCUIT FROM HOOD CONTROL PACKAGE TERMINALS "SAS, ST & KTS" TO UDS LINE TERMINALS "SAS, ST & KTS" FOR UDS SHUT DOWN IN A FIRE CONDITION. PROVIDED BY ELECTRICAL CONTRACTOR. SEE SCHEMATIC BELOW.
4. GAS SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE AND STYLE (PROVIDED BY PLUMBING CONTRACTOR)
5. COLD WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)
6. HOT WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)
7. SERVICE MAIN BREAKER W/SHUNT TRIP AND RESET HANDLE, SEE SCHEDULE FOR DETAILS.
8. STATUS INDICATOR LIGHTS.
9. EMERGENCY KILL SWITCH.
10. DCI RECEPTACLE W/ BREAKER & WEATHERPROOF COVER.
11. ELECTRICAL LOAD CENTER WITH INDIVIDUAL CIRCUIT BREAKERS.
12. ELECTRICAL WIRING TO APPLIANCES.
13. ELECTRICAL CONNECTION W/WEATHERPROOF COVER AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
14. PLUMBING CONNECTION AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
15. MANUAL SHUT OFF VALVE.
16. 120V ELECTRICAL GAS VALVE.
17. REMOVABLE ACCESS DOORS.



PLAN VIEW - ISLAND UDS - UDI







TYPICAL SECTION VIEW
MODEL UDI DISTRIBUTION SYSTEM

UTILITY DISTRIBUTION SYSTEM EQUIPMENT SCHEDULE

EQUIPMENT					ELECTRICAL					CIRCUIT BREAKER		RECEPTACLE	GAS	WATER		STEAM		CONNECTION		NOTES
CONN.#	ITEM	DESCRIPTION	MANUFACTURER	MODEL #	KW.	AMPS	HP	VOLT	PH	AMPS	POLES	PART #	SIZE	MBH	HOT	COLD	SUPPLY	COND. RETURN	LBS/HR	TYPE	LENGTH	
1E	135	PRESSURE FRYER	HENNY PENNY	PFG-691	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
1G	135	PRESSURE FRYER	HENNY PENNY	PFG-691	-	-	-	-	-	-	-	-	3/4"	100	-	-	-	-	-	QUICK DISCONNECT	5'	
2E	135	PRESSURE FRYER	HENNY PENNY	PFG-691	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
2G	135	PRESSURE FRYER	HENNY PENNY	PFG-691	-	-	-	-	-	-	-	-	3/4"	100	-	-	-	-	-	QUICK DISCONNECT	5'	
3E	170	TILT SKILLET	VULCAN	VG40	1.1	9.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
3G	170	TILT SKILLET	VULCAN	VG40	-	-	-	-	-	-	-	-	3/4"	120	-	-	-	-	-	QUICK DISCONNECT	5'	
3C	170	TILT SKILLET	VULCAN	VG40	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	QUICK DISCONNECT	5'	
3H	170	TILT SKILLET	VULCAN	VG40	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	-	QUICK DISCONNECT	5'	
4E	201	TILT SKILLET	ELECTROLUX	SB702B	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
4G	201	TILT SKILLET	ELECTROLUX	SB702B	-	-	-	-	-	-	-	-	3/4"	100	-	-	-	-	-	QUICK DISCONNECT	5'	
4C	201	TILT SKILLET	ELECTROLUX	SB702B	-	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	QUICK DISCONNECT	5'	
4H	201	TILT SKILLET	ELECTROLUX	SB702B	-	-	-	-	-	-	-	-	-	-	1/2"	-	-	-	-	QUICK DISCONNECT	5'	
5G	169	STOCK POT RANGE	WOLF	WSP92F	-	-	-	-	-	-	-	-	3/4"	220	-	-	-	-	-	QUICK DISCONNECT	5'	
6E	102	TEN EYE RANGE	VULCAN	60SS-10B	0.5	4.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
6G	102	TEN EYE RANGE	VULCAN	60SS-10B	-	-	-	-	-	-	-	-	1"	358	-	-	-	-	-	QUICK DISCONNECT	5'	
7E	215	COMBI OVEN	ALTO-SHAAM	CTP20-20G	2.0	9.6	-	208	3	15	3	-	-	-	-	-	-	-	-	DIRECT	8'	CONDUIT & WIRE
7G	215	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	3/4"	266	-	-	-	-	-	QUICK DISCONNECT	5'	
7C	215	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	-	QUICK DISCONNECT	5'	
7C1	215	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	-	QUICK DISCONNECT	5'	FILTERED
8E	215	COMBI OVEN	ALTO-SHAAM	CTP20-20G	2.0	9.6	-	208	3	15	3	-	-	-	-	-	-	-	-	DIRECT	8'	CONDUIT & WIRE
8G	213	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	3/4"	266	-	-	-	-	-	QUICK DISCONNECT	5'	
8C	213	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	-	QUICK DISCONNECT	5'	
8C1	213	COMBI OVEN	ALTO-SHAAM	CTP20-20G	-	-	-	-	-	-	-	-	-	-	-	3/4"	-	-	-	QUICK DISCONNECT	5'	FILTERED
D1	-	DUPLEX OUTLET			-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER
D2	-	DUPLEX OUTLET			-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER
TOTAL CONNECTED LOAD:					9.2	KW.	25.4	AMP	0.0	KW.	0.0	AMP	1530	MBH	H.W.			STEAM SUPPLY		LEGEND: MBH = 1,000 BTU/HR (1000) SR = STRAIGHT BLADE PLUGS L = L-BLADE PLUGS P5 = P5-15 & 5-20 PLUGS TC = THERMOCOUPLE & CONTACT DIRECT = CONDUIT & WIRE		
FUTURE AVAILABLE LOAD CAPACITY:					19.7	KW.	54.6	AMP	0.0	KW.	0.0	AMP	1370	MBH	1"			-				
SYSTEM CAPACITY:					28.8	KW.	80.0	AMP	0.0	KW.	0.0	AMP	2900	MBH	C.W.			COND. RETURN				
SERVICE SIZE:					120/208 W/ 3 PH/ 100 AMP				V/ PH/ AMP				2" IPS LOOPED		1"			-				

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVE AIRE
www.captiveaire.com
North New Jersey Mechanical
, Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

DATE: 7/6/2021

DWG.#: 4967555

DRAWN BY: ZDK

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 3

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS

scale: 12" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: ZW

approved by: KF

project no.: 2102

drawing no.: M-509.00

DOB BARCODE:

Total

9/24/2021 3:00:21 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

IMPORTANT SPECIAL UDS PARTS/NOTES

UDS CONSTRUCTION TO BE 16 GA., TYPE 304 STAINLESS STEEL

UTILITY DISTRIBUTION SYSTEM MODEL UDI IS LISTED UNDER ETL FILE NUMBER 3054803 CONFORMS TO UL STD 891 CERTIFIED TO CAN/CSA C22.2 No. 31-M89

PRIOR TO SCHEDULING UDS FOR PRODUCTION PLEASE PROVIDE APPROVED SUBMITTAL CUTSHEETS ON FINAL KITCHEN EQUIPMENT ASSOCIATED WITH THE UDS (NEW & USED) SO THAT CONNECTION SIZES, TYPES AND LOCATIONS CAN BE VERIFIED

ANY CHANGES TO SUBMITTAL DRAWING MAY AFFECT PRICE AND PRODUCTION TIME PLEASE FORWARD CHANGES ASAP

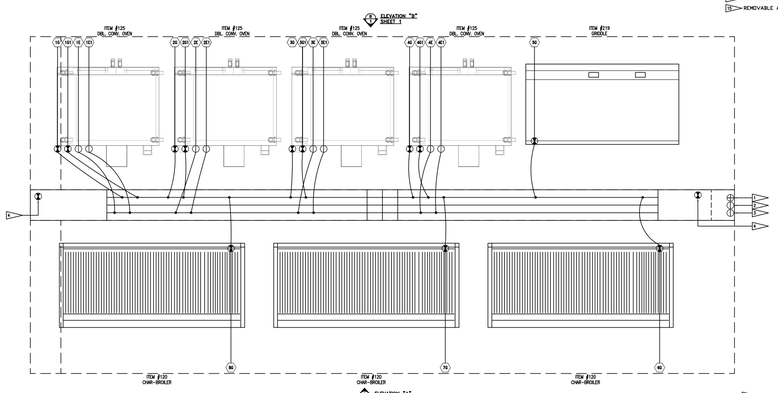
----NOTE----
NEC REQUIRES 36" OF FIELD CLEARANCE IN FRONT OF CIRCUIT BREAKERS FOR ACCESS

SYMBOL SCHEDULE

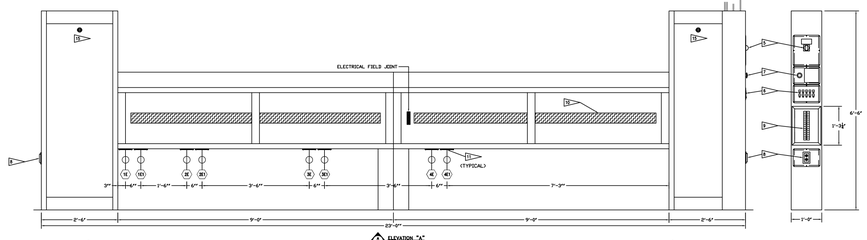
C	COLD WATER
HW	HOT WATER
	FILTERED WATER
T	NATURAL GAS
	PROPANE
1	120 VAC 1 PHASE
3	208 VAC 1 PHASE
3	208 VAC 3 PHASE
4	480 VAC 3 PHASE
	STEAM SUPPLY
	STEAM CONDENSATE RETURN

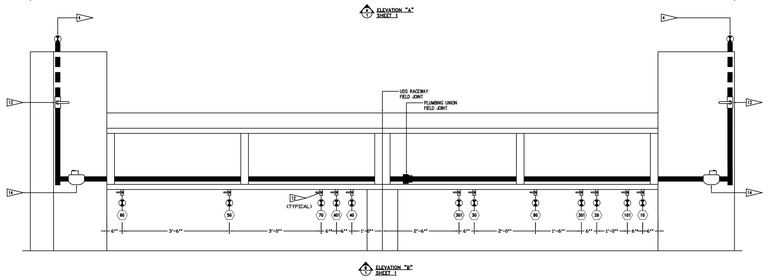
STANDARD FLAG NOTES

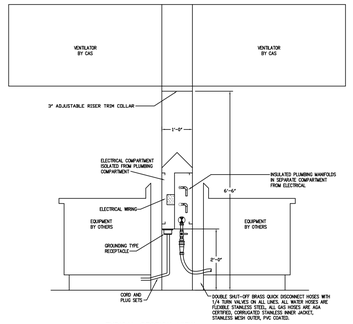
1. ELECTRICAL SERVICE FROM ABOVE, SEE SCHEDULE FOR DETAILS. PROVIDED BY ELECTRICAL CONTRACTOR.
2. 120V/1PH/15A DEDICATED ELECTRICAL CIRCUIT INTO UDS TERMINALS "HL, NL" FOR FUEL/SHUNT CONTROL. <PROVIDED BY ELECTRICAL CONTRACTOR> SEE SCHEMATIC BELOW.
3. 3-WIRE ELECTRICAL CIRCUIT FROM HOOD CONTROL PACKAGE TERMINALS "GAS, ST & KTS" TO UDS LIKE TERMINALS "GAS, ST & KTS" FOR UDS SHUT DOWN IN A FIRE CONDITION. <PROVIDED BY ELECTRICAL CONTRACTOR> SEE SCHEMATIC BELOW.
4. GAS SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE AND STYLE <PROVIDED BY PLUMBING CONTRACTOR>
5. SERVICE MAIN BREAKER W/SHUNT TRIP AND RESET HANDLE, SEE SCHEDULE FOR DETAILS.
6. STATUS INDICATOR LIGHTS.
7. EMERGENCY KILL SWITCH.
8. RCD RECEPTACLE W/ BREAKER & WEATHERPROOF COVER.
9. ELECTRICAL LOAD CENTER WITH INDIVIDUAL CIRCUIT BREAKERS.
10. ELECTRICAL WIRING TO APPLIANCES.
11. ELECTRICAL CONNECTION W/WEATHERPROOF COVER AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
12. PLUMBING CONNECTION AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.
13. MANUAL SHUT OFF VALVE.
14. 18RV ELECTRICAL GAS VALVE.
15. REMOVABLE ACCESS DOORS.



PLAN VIEW - ISLAND UDS - UDI





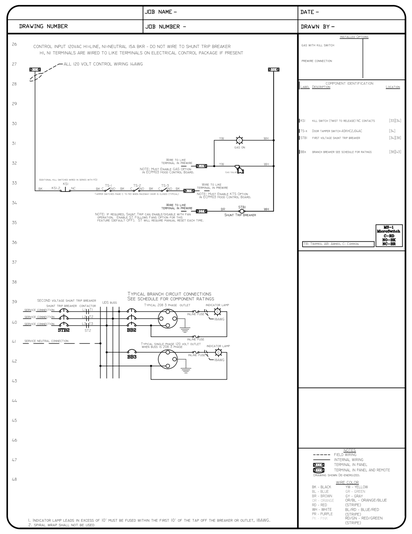


TYPICAL SECTION VIEW
MODEL UDI DISTRIBUTION SYSTEM

UTILITY DISTRIBUTION SYSTEM EQUIPMENT SCHEDULE

	EQUIPMENT			ELECTRICAL					CIRCUIT BREAKER		RECEPTACLE	GAS		WATER			STEAM			CONNECTION		NOTES
CONN.#	ITEM	DESCRIPTION	MANUFACTURER	MODEL #	KW	AMPS	HP	VOLT	PH	AMPS	POLES	PART #	SIZE	MBH	HOT	COLD	SUPPLY	COND. RETURN	LBS/HR	TYPE	LENGTH	
1E	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
1E1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
1G	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
1G1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
2E	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
2E1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
2G	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
2G1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
3E	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
3E1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
3G	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
3G1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
4E	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
4E1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	0.9	7.7	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-	GFI BREAKER
4G	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
4G1	125	DBL. CONV. OVEN	VULCAN	VC5SGD	-	-	-	-	-	-	-	-	3/4"	50	-	-	-	-	-	QUICK DISCONNECT	5'	-
5G	219	GRIDDLE	VULCAN	MSA60	-	-	-	-	-	-	-	-	3/4"	135	-	-	-	-	-	QUICK DISCONNECT	5'	-
6G	120	CHAR-BROILER	WOLF	AC872	-	-	-	-	-	-	-	-	3/4"	221	-	-	-	-	-	QUICK DISCONNECT	5'	-
7G	120	CHAR-BROILER	WOLF	AC872	-	-	-	-	-	-	-	-	3/4"	221	-	-	-	-	-	QUICK DISCONNECT	5'	-
8G	120	CHAR-BROILER	WOLF	AC872	-	-	-	-	-	-	-	-	3/4"	221	-	-	-	-	-	QUICK DISCONNECT	5'	-
D1	-	DUPLEX OUTLET		-	-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER
D2	-	DUPLEX OUTLET		-	-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	-	GFI BREAKER
TOTAL CONNECTED LOAD:				7.4	KW	20.5	AMP	0.0	KW	0.0	AMP	1198	MBH	H.W.		STEAM SUPPLY						
FUTURE AVAILABLE LOAD CAPACITY:				21.4	KW	59.5	AMP	0.0	KW	0.0	AMP	1152	MBH	-		-						
SYSTEM CAPACITY:				28.8	KW	80.0	AMP	0.0	KW	0.0	AMP	2350	MBH	C.W.		COND. RETURN						
SERVICE SIZE:				120/208 V/ 3 PH/ 100 AMP				V/ PH/ AMP				2" IPS LOOPED		-		-						

LEGEND
MBH = BTU PER HOUR (1000S)
SK = STRAIGHT BLADE PLUGS
TT = T-SLOT BLADE PLUGS
PS = PIN & SLEEVE PLUGS
DCD = DECK CONFORMING OUTLET
DIRECT = DIRECT WIRE



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		
5		

CAPTIVE AIRE
www.captiveaire.com
North New Jersey Mechanical
- Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: rsg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ. 07608

DATE: 7/6/2021

DWG.#: 4967555

DRAWN BY: ZDK

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 4

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SEAL & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-510.00
DOB BARCODE:
Total

9/24/2021 3:00:29 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE SPECIFICATIONS, ARE THE EXCLUSIVE PROPERTY OF **BD ENGINEERING** WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL GOVERNMENTAL PERMITS, LICENSES, AS WELL AS INSURANCE REQUIREMENTS, HAVE BEEN PROPERLY FILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE DIMENSIONS, AND/OR CONDITIONS AT THE JOB SITE ARE AS REPRESENTED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND COMPLY WITH ALL BUILDING AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

DUCTWORK #1 PARTS - JOB#4967555

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1617LT	1575				-0.003	9.24	1128.01	1	SINGLE WALL DUCT 16" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P2	DW1690ASY	1575				-0.057	13.00	1128.01	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 16" DUCT, ASSEMBLY.
P3	DW1623LT	1575				-0.004	12.32	1128.01	1	SINGLE WALL DUCT 16" DIAMETER, 23" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P4	DW1620ADPEC	1575				-0.013	12.00	1128.01	1	SINGLE WALL DUCT ADAPTER, 16" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P5	DW20TEASY	3150		1		-0.262	26.16	1443.85	1	SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P6	DW1620ADPEC	1575				-0.013	12.00	1128.01	1	SINGLE WALL DUCT ADAPTER, 16" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P7	DW1617LT	1575				-0.003	9.24	1128.01	1	SINGLE WALL DUCT 16" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P8	DW16SUBRASY						3.18		1	DUCT SUPPORT BRACKET KIT, 16" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P9	DW16SUBRASY						3.18		1	DUCT SUPPORT BRACKET KIT, 16" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P10	DW1690ASY	1575				-0.057	13.00	1128.01	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 16" DUCT, ASSEMBLY.
P11	DW1617LT	1575				-0.003	9.24	1128.01	1	SINGLE WALL DUCT 16" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P12	DW2047LT	3150				-0.0077	31.08	1443.85	1	SINGLE WALL DUCT 20" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P13	DW2029LT	3150				-0.0047	19.42	1443.85	1	SINGLE WALL DUCT 20" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P14 ASSEMBLED W/P15	DW2030AJDKIT	3150				-0.0026	25.05	1443.85	1	SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P15 ASSEMBLED W/P14	DW2620TPDBEX	3150					9.00	1443.85	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 26 1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. USED ON NCA16FA / NCA16HPFA & NCA18FA / NCA18HPFA. TRANSITION PLATE OD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P15						-0.487	0.00			
	3M-2000PLUS						0.80		4	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW16CLASY						1.18		8	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 16" DUCT, ASSEMBLY.
	DW20CLASY						1.41		5	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
TOTAL WEIGHT							226.80			

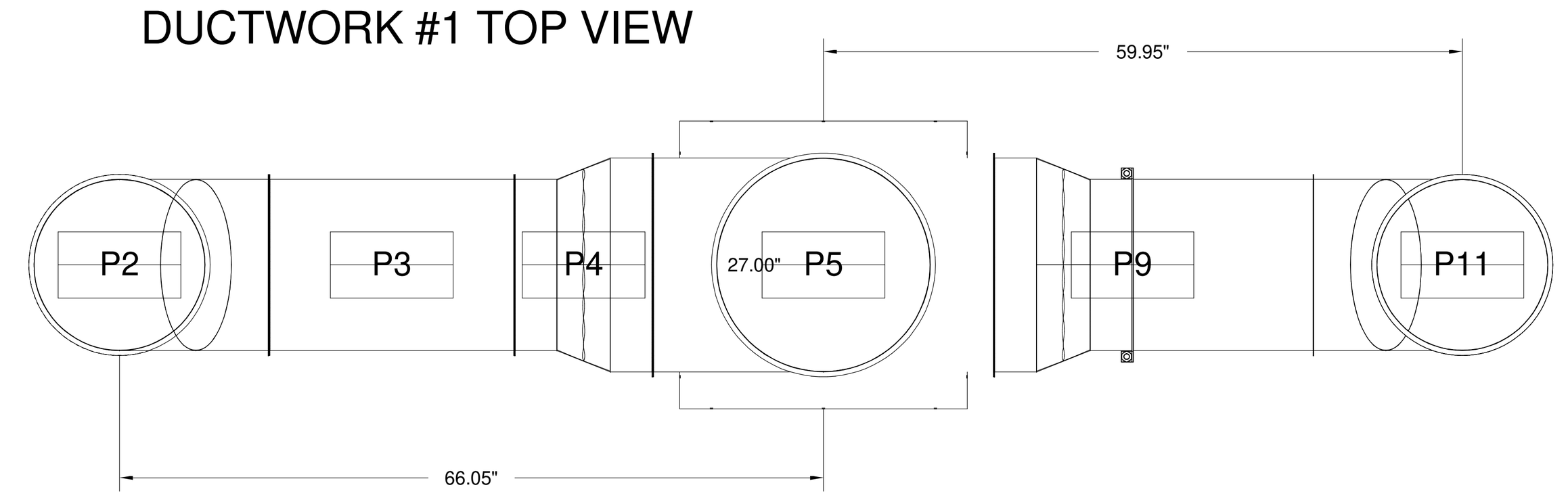
SINGLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

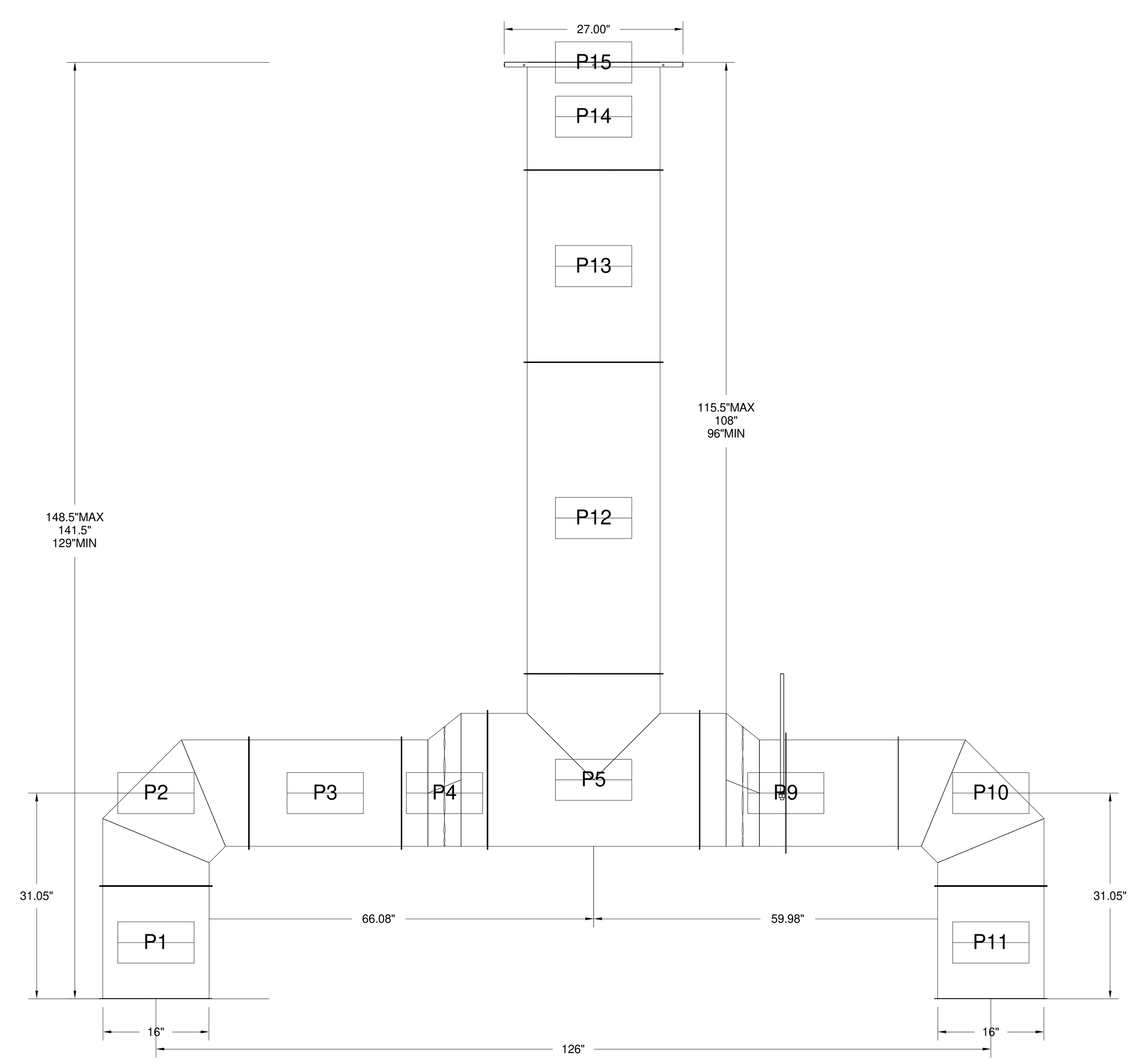
DUCT DIAMETER	HORIZONTAL SUPPORT (FT)	VERTICAL WALL SUPPORT (FT)	VERTICAL CURB SUPPORT (FT)
5"	10'	10'	24'
6"	10'	10'	24'
7"	10'	10'	24'
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'
26"	10'	10'	24'
28"	10'	10'	24'
30"	10'	10'	24'
32"	10'	10'	24'
34"	10'	10'	24'
36"	10'	10'	24'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

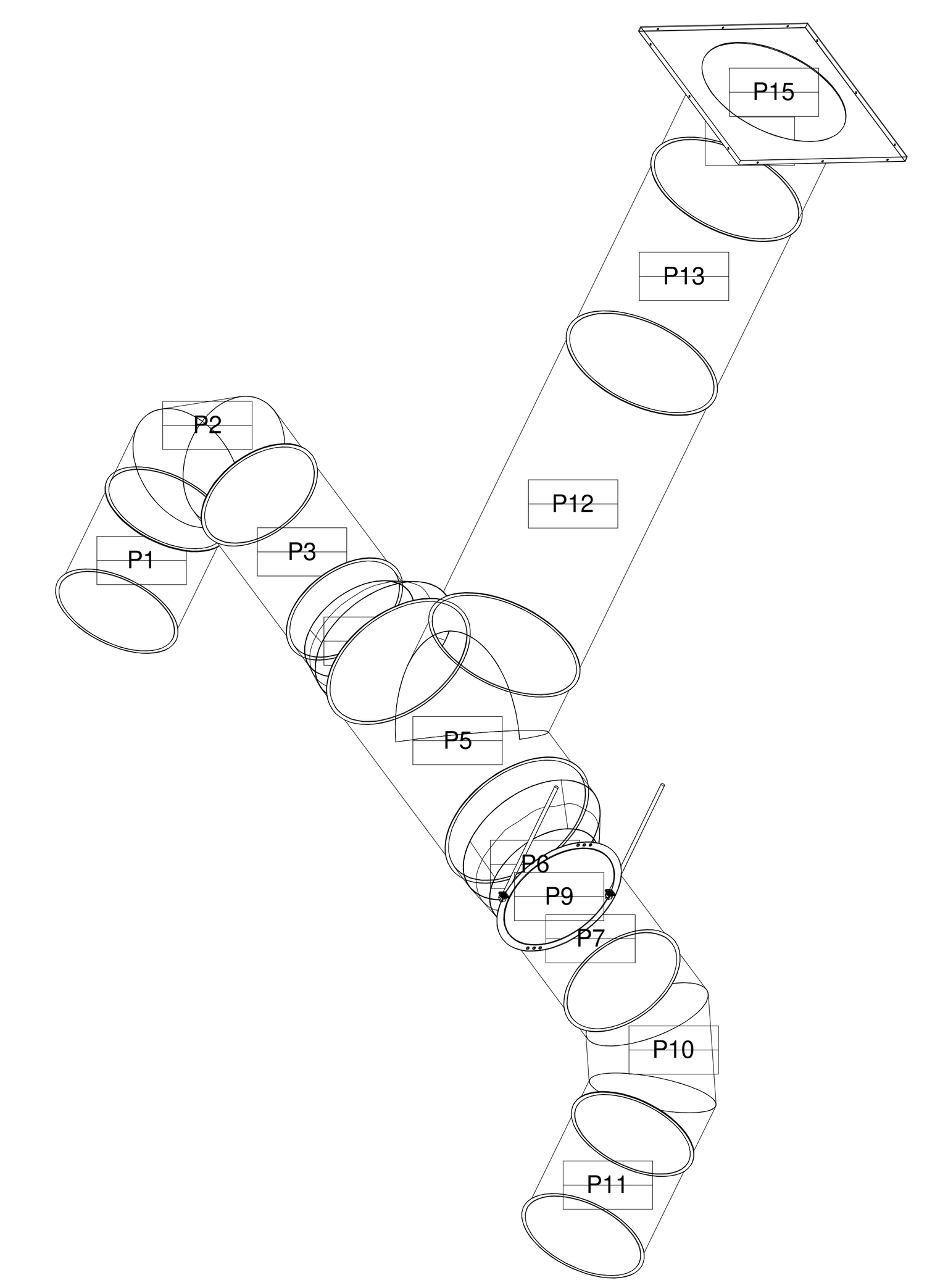
DUCTWORK #1 TOP VIEW



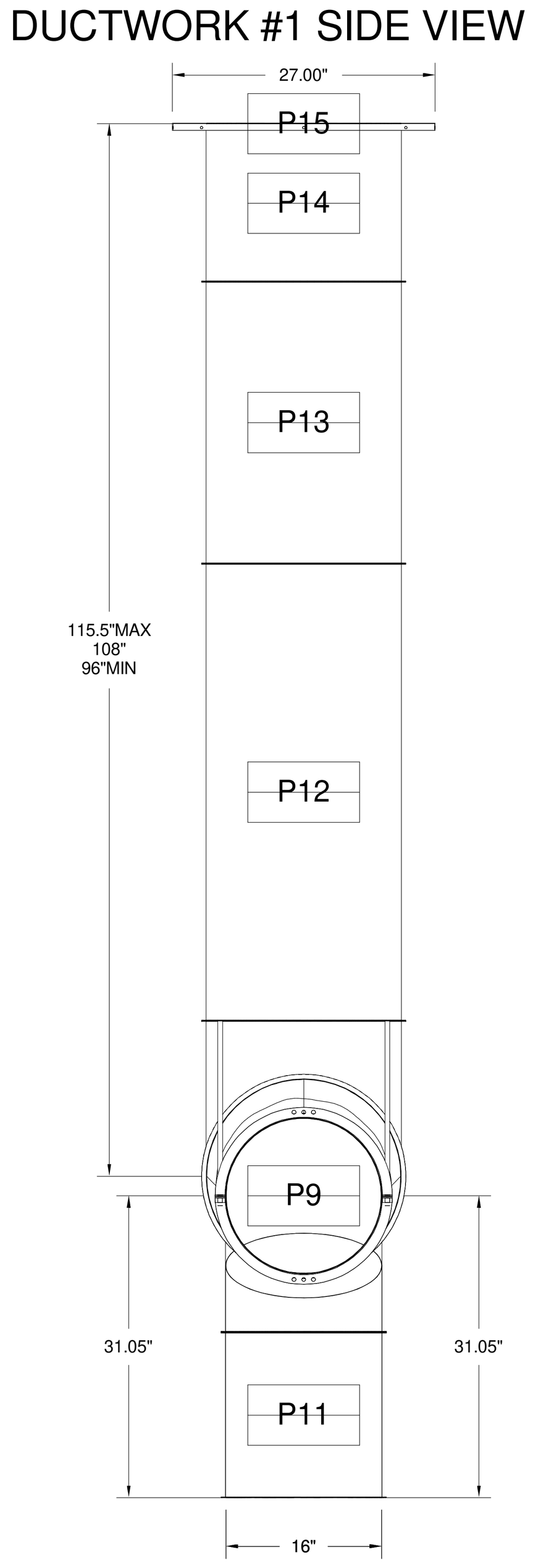
DUCTWORK #1 FRONT VIEW



DUCTWORK #1 SE VIEW



DUCTWORK #1 SIDE VIEW



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CAPTIVEAIRE
North New Jersey
Mechanical
, Summit, NJ, PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

9

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL & SIGNATURE
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
HVAC CAPTIVE AIRE DETAILS

scale:
As indicated

release date:

drawing date:
09/24/2021

drawn by:
ZW

approved by:
KF

project no.:
2102

drawing no.:
M-511.00

DOB BARCODE:

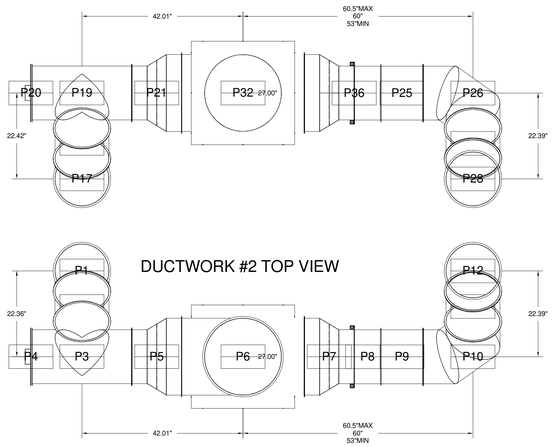
Total

9/24/2021 3:00:33 PM

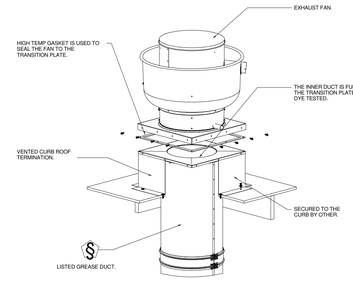
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

DUCTWORK #2 PARTS - JOB#4967555

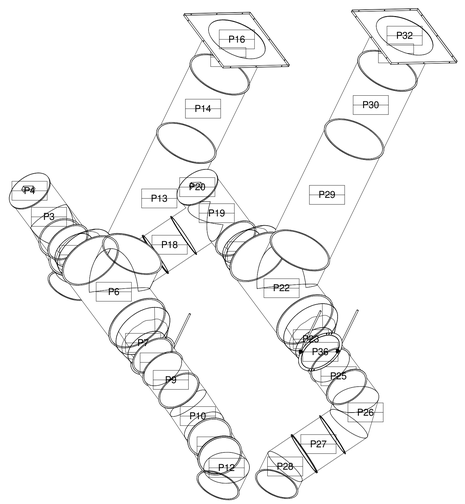
TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1445ASY	1575				-0.035	7.22	1473.32	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P2	DW1411LT	1575				-0.004	5.46	1473.32	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P3 ASSEMBLED W/P4	DW14TEASY	1575		1		-0.1235	15.95	1473.32	1	SINGLE WALL DUCT TEE, 14" DUCT, ASSEMBLY.
P4 ASSEMBLED W/P3 O=S	DW1415ADKIT						3.72		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 14" DUCT USE 15" DOOR. STAINLESS STEEL.
P5	DW1420ADPEC	1575				-0.075	8.99	1473.32	1	SINGLE WALL DUCT ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P6	DW20TEASY	3175		1		-0.2337	26.16	1455.31	1	SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P7	DW1420ADPEC	1600				-0.077	8.99	1496.71	1	SINGLE WALL DUCT ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P8	DW1407LT	1600				-0.0023	3.63	1496.71	1	SINGLE WALL DUCT 14" DIAMETER, 7" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P9	DW1418AJDKIT	1600				-0.0037	11.56	1496.71	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL
P10	DW1490ASY	1600				-0.1278	10.62	1496.71	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P11	DW1411LT	1600				-0.004	5.46	1496.71	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P12	DW1445ASY	1600				-0.0368	7.22	1496.71	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P13	DW2047LT	3175				-0.0078	31.08	1455.31	1	SINGLE WALL DUCT 20" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P14	DW2029LT	3175				-0.0048	19.42	1455.31	1	SINGLE WALL DUCT 20" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P15 ASSEMBLED W/P16	DW2024AJDKIT	3175				-0.0024	20.76	1455.31	1	SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P16 ASSEMBLED W/P15	DW2620TPDBEX	3175					9.00	1455.31	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 26 1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. USED ON NCA16FA / NCA16HPFA & NCA18FA / NCA18HPFA. TRANSITION PLATE OD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P16						-1.2343	0.00			
P17	DW1445ASY	1575				-0.035	7.22	1473.32	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P18	DW1411LT	1575				-0.004	5.46	1473.32	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P19 ASSEMBLED W/P20	DW14TEASY	1575		1		-0.1235	15.95	1473.32	1	SINGLE WALL DUCT TEE, 14" DUCT, ASSEMBLY.
P20 ASSEMBLED W/P19 O=S	DW1415ADKIT						3.72		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 14" DUCT USE 15" DOOR. STAINLESS STEEL.
P21	DW1420ADPEC	1575				-0.075	8.99	1473.32	1	SINGLE WALL DUCT ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P22	DW20TEASY	3175		1		-0.2337	26.16	1455.31	1	SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P23	DW1420ADPEC	1600				-0.077	8.99	1496.71	1	SINGLE WALL DUCT ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P24	DW1407LT	1600				-0.0023	3.63	1496.71	1	SINGLE WALL DUCT 14" DIAMETER, 7" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P25	DW1418AJDKIT	1600				-0.0037	11.56	1496.71	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P26	DW1490ASY	1600				-0.1278	10.62	1496.71	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P27	DW1411LT	1600				-0.004	5.46	1496.71	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P28	DW1445ASY	1600				-0.0368	7.22	1496.71	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P29	DW2047LT	3175				-0.0078	31.08	1455.31	1	SINGLE WALL DUCT 20" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P30	DW2029LT	3175				-0.0048	19.42	1455.31	1	SINGLE WALL DUCT 20" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P31 ASSEMBLED W/P32	DW2024AJDKIT	3175				-0.0024	20.76	1455.31	1	SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P32 ASSEMBLED W/P31	DW2620TPDBEX	3175					9.00	1455.31	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 26 1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. USED ON NCA16FA / NCA16HPFA & NCA18FA / NCA18HPFA. TRANSITION PLATE OD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P32						-1.2343	0.00			
P33	DW14SUBRASY						2.96		1	DUCT SUPPORT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P34	DW14SUBRASY						2.96		1	DUCT SUPPORT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P35	DW14SUBRASY						2.96		1	DUCT SUPPORT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P36	DW14SUBRASY						2.96		1	DUCT SUPPORT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
	3M-2000PLUS						0.80		9	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW14CLASY						1.06		22	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 14" DUCT, ASSEMBLY.
	DW20CLASY						1.41		10	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
TOTAL WEIGHT							446.94			



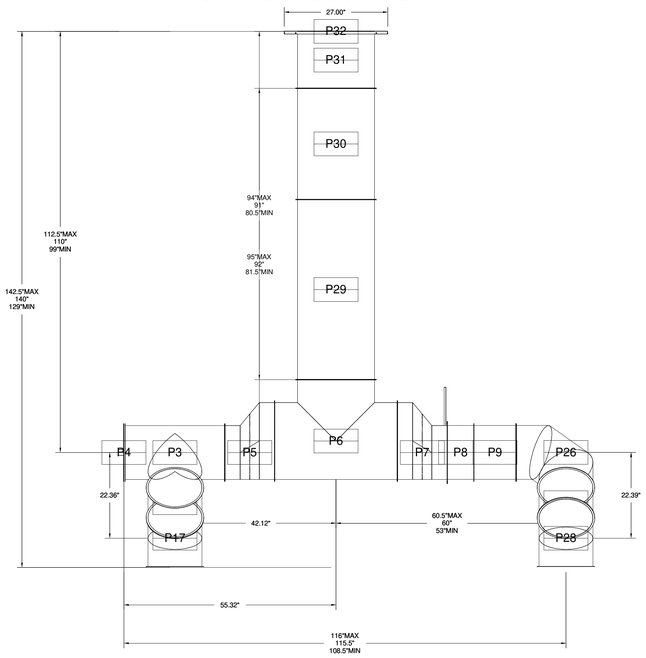
DUCTWORK #2 TOP VIEW



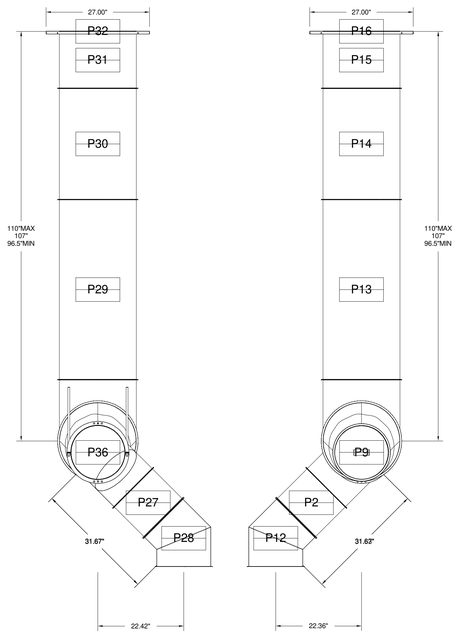
DUCTWORK #2 SE VIEW



DUCTWORK #2 FRONT VIEW



DUCTWORK #2 SIDE VIEW



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CAPTIVE AIRE

North New Jersey
Mechanical

Summit, NJ. PHONE: (201) 308-6547 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

10

CYBUL CYBUL WILHELM
ARCHITECTS

1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
SIGN & SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-512.00
DOB BARCODE:
Total

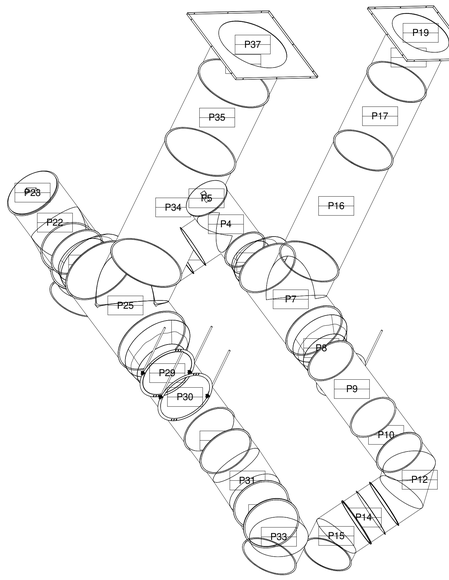
9/24/2021 3:00:35 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

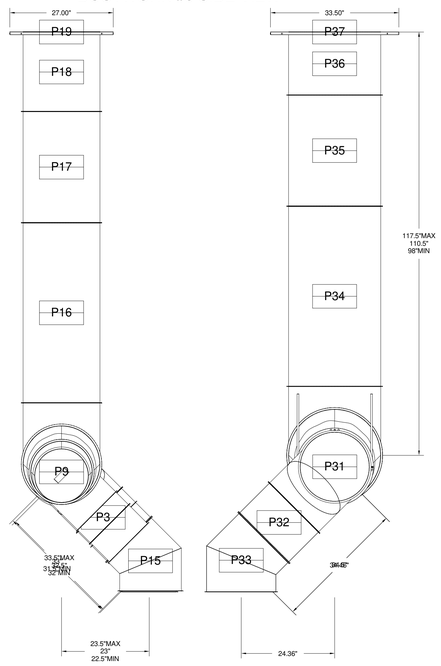
DUCTWORK #3 PARTS – JOB#4967555

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1448ASY	1925				-0.0525	7.22	1800.72	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P2	DW1407LT	1925				-0.0036	3.63	1800.72	1	SINGLE WALL DUCT 14" DIAMETER, 7" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P3	DW1412AJDKIT	1925				-0.0024	8.56	1800.72	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 11.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P4 ASSEMBLED W/P5	DW14TEASY	1925		1		-0.1852	15.95	1800.72	1	SINGLE WALL DUCT TEE, 14" DUCT, ASSEMBLY.
P5 ASSEMBLED W/P4 O=S	DW1415ADKIT						3.72		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM. FOR 14" DUCT USE 15" DOOR. STAINLESS STEEL.
P6	DW1420ADPEC	1925				-0.112	8.99	1800.72	1	SINGLE WALL DUCT ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P7	DW20TEASY	4125		1		-0.465	26.16	1890.76	1	SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P8	DW1620ADPEC	2200				-0.025	12.00	1575.63	1	SINGLE WALL DUCT ADAPTER, 16" DUCT DIA TO 20" DUCT DIA, ECCENTRIC ASSEMBLY.
P9	DW1629LT	2200				-0.0093	15.68	1575.63	1	SINGLE WALL DUCT 16" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P10	DW1630AJDKIT	2200				-0.0057	20.06	1575.63	1	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE COLLAR - STAINLESS STEEL.
P11	DW16SUBRASY						3.18		1	DUCT SUPPORT BRACKET KIT, 16" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P12	DW1690ASY	2200				-0.1468	13.00	1575.63	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 16" DUCT, ASSEMBLY.
P13	DW160525LT	2200				-0.0015	4.00	1575.63	1	SINGLE WALL DUCT 16" DIAMETER, 5.25" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P14	DW1612AJDKIT	2200				-0.0015	9.76	1575.63	1	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 11.5" LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE COLLAR - STAINLESS STEEL.
P15	DW1645ASY	2200				-0.0403	7.22	1575.63	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 16" DUCT, ASSEMBLY.
P16	DW2047LT	4125				-0.0131	31.08	1890.76	1	SINGLE WALL DUCT 20" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P17	DW2029LT	4125				-0.0081	19.42	1890.76	1	SINGLE WALL DUCT 20" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P18 ASSEMBLED W/P19	DW2030AJDKIT	4125				-0.0058	25.05	1890.76	1	SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P19 ASSEMBLED W/P18	DW2620TPDBEX	4125					9.00	1890.76	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 26 1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. USED ON NCA16FA / NCA18HPFA & NCA18FA : NCA18HPFA TRANSITION PLATE OD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P19						-1.8017	0.00			
P20	DW1845ASY	3025				-0.0473	10.24	1711.80	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 18" DUCT, ASSEMBLY.
P21	DW1811LT	3025				-0.003	6.99	1711.80	1	SINGLE WALL DUCT 18" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P22 ASSEMBLED W/P23	DW18TEASY	3025		1		-0.1795	22.75	1711.80	1	SINGLE WALL DUCT TEE, 18" DUCT, ASSEMBLY.
P23 ASSEMBLED W/P22 O=S	DW1818ADKIT						5.55		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM. FOR 18" DUCT USE 19" DOOR. STAINLESS STEEL.
P24	DW1824ADPEC	3025				-0.056	13.20	1711.80	1	SINGLE WALL DUCT ADAPTER, 18" DUCT DIA TO 24" DUCT DIA, ECCENTRIC ASSEMBLY.
P25	DW24TEASY	6050		1		-0.574	34.81	1925.77	1	SINGLE WALL DUCT TEE, 24" DUCT, ASSEMBLY.
P26	DW1824ADPEC	3025				-0.056	13.20	1711.80	1	SINGLE WALL DUCT ADAPTER, 18" DUCT DIA TO 24" DUCT DIA, ECCENTRIC ASSEMBLY.
P27	DW1829LT	3025				-0.0073	17.49	1711.80	1	SINGLE WALL DUCT 18" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P28	DW1818AJDKIT	3025				-0.0027	14.83	1711.80	1	SINGLE WALL DUCT ADJUSTABLE, 18" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 18" ADJUSTABLE COLLAR - STAINLESS STEEL.
P29	DW18SUBRASY						3.38		1	DUCT SUPPORT BRACKET KIT, 18" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P30	DW18SUBRASY						3.38		1	DUCT SUPPORT BRACKET KIT, 18" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P31	DW1890ASY	3025				-0.1795	15.59	1711.80	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 18" DUCT, ASSEMBLY.
P32	DW1811LT	3025				-0.003	6.99	1711.80	1	SINGLE WALL DUCT 18" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P33	DW1845ASY	3025				-0.0473	10.24	1711.80	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 18" DUCT, ASSEMBLY.
P34	DW2447LT	6050				-0.0112	37.26	1925.77	1	SINGLE WALL DUCT 24" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P35	DW2429LT	6050				-0.0069	23.29	1925.77	1	SINGLE WALL DUCT 24" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P36 ASSEMBLED W/P37	DW2430AJDKIT	6050				-0.0039	30.06	1925.77	1	SINGLE WALL DUCT ADJUSTABLE, 24" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 24" ADJUSTABLE COLLAR - STAINLESS STEEL.
P37 ASSEMBLED W/P36	DW33-4TPDBEX	6050					23.00	1925.77	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 33 1/2" CURB TO 24" DUCT, 16 GA ALUMINIZED. NON-STANDARD PART. FOR USE WITH EXHAUST FANS.
SYSTEM AT P37						-1.8588	0.00			
	SK-2000PLUS						0.80		11	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW14CLASY						1.06		6	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 14" DUCT, ASSEMBLY.
	DW16CLASY						1.18		7	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 16" DUCT, ASSEMBLY.
	DW18CLASY						1.30		11	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 18" DUCT, ASSEMBLY.
	DW20CLASY						1.41		5	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
	DW24CLASY						1.65		5	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 24" DUCT, ASSEMBLY.
TOTAL WEIGHT							588.95			

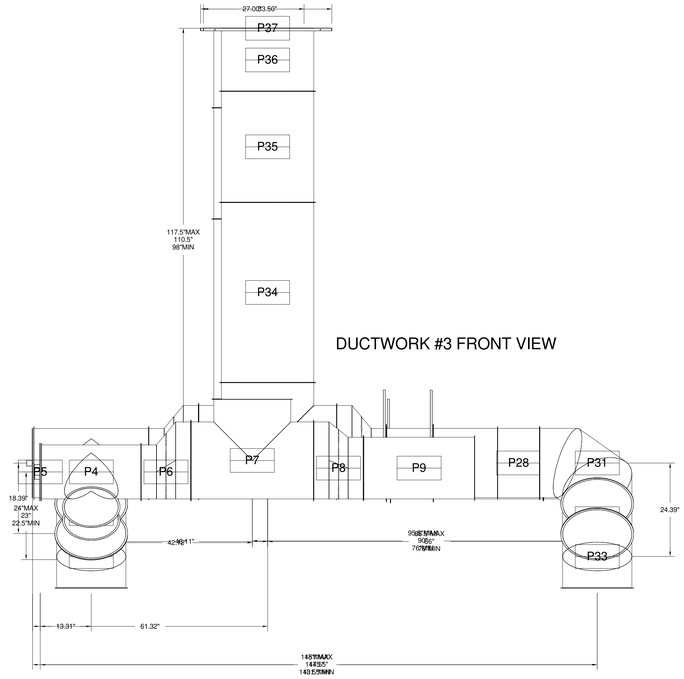
DUCTWORK #3 SE VIEW



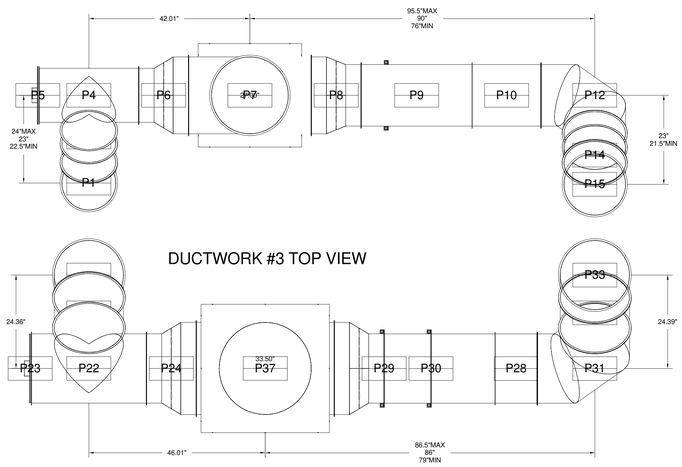
DUCTWORK #3 SIDE VIEW



DUCTWORK #3 FRONT VIEW



DUCTWORK #3 TOP VIEW



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY AGREEMENTS HAVE BEEN EXECUTED AND ALL PAYMENTS HAVE BEEN PROPERLY TILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND MATERIALS SPECIFIED ARE SUITABLE FOR THE APPLICATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CAPTIVE-AIRE
North New Jersey
Mechanical
, Summit, NJ. PHONE: (201) 208-6647 FAX: (919) 516-9752 EMAIL: regi136@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

11

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group
Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT.
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE NO. GE45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: M-513.00
DOB BARCODE:
Total

9/24/2021 3:00:37 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

DUCTWORK #4 PARTS – JOB#4967555 DOUBLE WALL

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1445DWASY-2R-S	1505				-0.0333	19.87	1407.84	1	DOUBLE WALL DUCT - 14" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P2	DW1427DWAJD-2R-S	1505				-0.005	52.12	1407.84	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P3	DW1822SADKIT						7.25		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 18" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1822SAD, & HARDWARE BAG 4.
P4	DW1445DWASY-2R-S	1505				-0.0475	19.87	1407.84	1	DOUBLE WALL DUCT - 14" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P5	DW1427DWAJD-2R-S	1505				-0.005	52.12	1407.84	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P6 ASSEMBLED W/P7	DW1435DWLTTP-2R-S	1505				-0.01	48.06	1407.84	1	DOUBLE WALL DUCT - 14" INNER DUCT, 35" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P7 ASSEMBLED W/P6	DW2314TPDBEX	1505					8.00	1407.84	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 23" CURB TO 14" DUCT, 16 GA ALUMINIZED. USED ON NCA14FA & NCA14HPFA. TRANSITION PLATE OD IS 23.5" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P7						-0.8228	0.00			
	3M-2000PLUS						0.80		2	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
TOTAL WEIGHT							208.89			

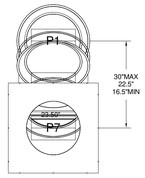
DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

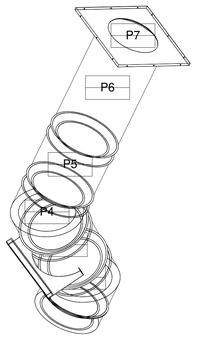
HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5"-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5"-24")	10'	24'	24'
3Z (26" -36")	10'	20'	20'

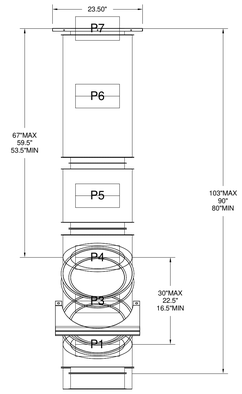
DUCTWORK #4 TOP VIEW



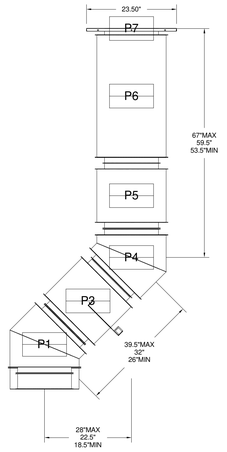
DUCTWORK #4 SE VIEW



DUCTWORK #4 FRONT VIEW



DUCTWORK #4 SIDE VIEW



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CAPTIVE AIRE
North New Jersey
Mechanical
. Summit, NJ. PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: regi138@captiveaire.com

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods
TETERBORO, NJ, 07608

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

8/24/2021

4967555

ZDK

3/4" = 1'-0"

MASTER DRAWING

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

STATE OF NEW JERSEY
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: HVAC CAPTIVE AIRE DETAILS
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: Author
approved by: Approver
project no.: 2102
drawing no.: M-514.00
DOB BARCODE:
Total

12

9/24/2021 3:00:38 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

DOAS/RTU FAN SCHEDULE - JOB#4967555

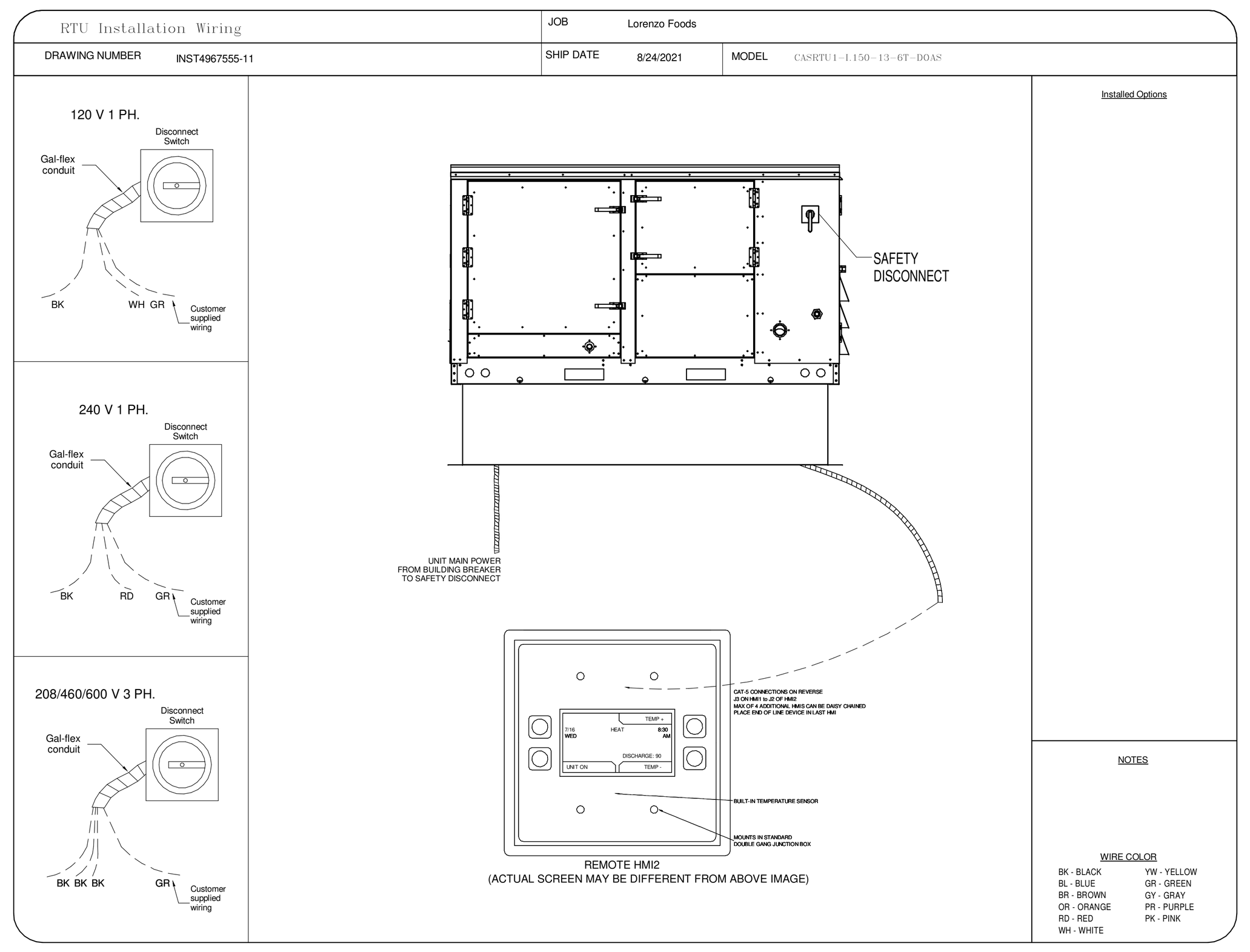
FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	ESP	HP	BHP	PHASE	VOLT	MCA	MOCP	WEIGHT (LBS)
11	DOAS-TESTKITCHEN	1	CASRTU1-I.150-13-6T-DOAS	CAPTIVEAIRE	13P-1	0	1500	1500	0.500	1.500	0.9280	3	208	33.9A	35A	1293

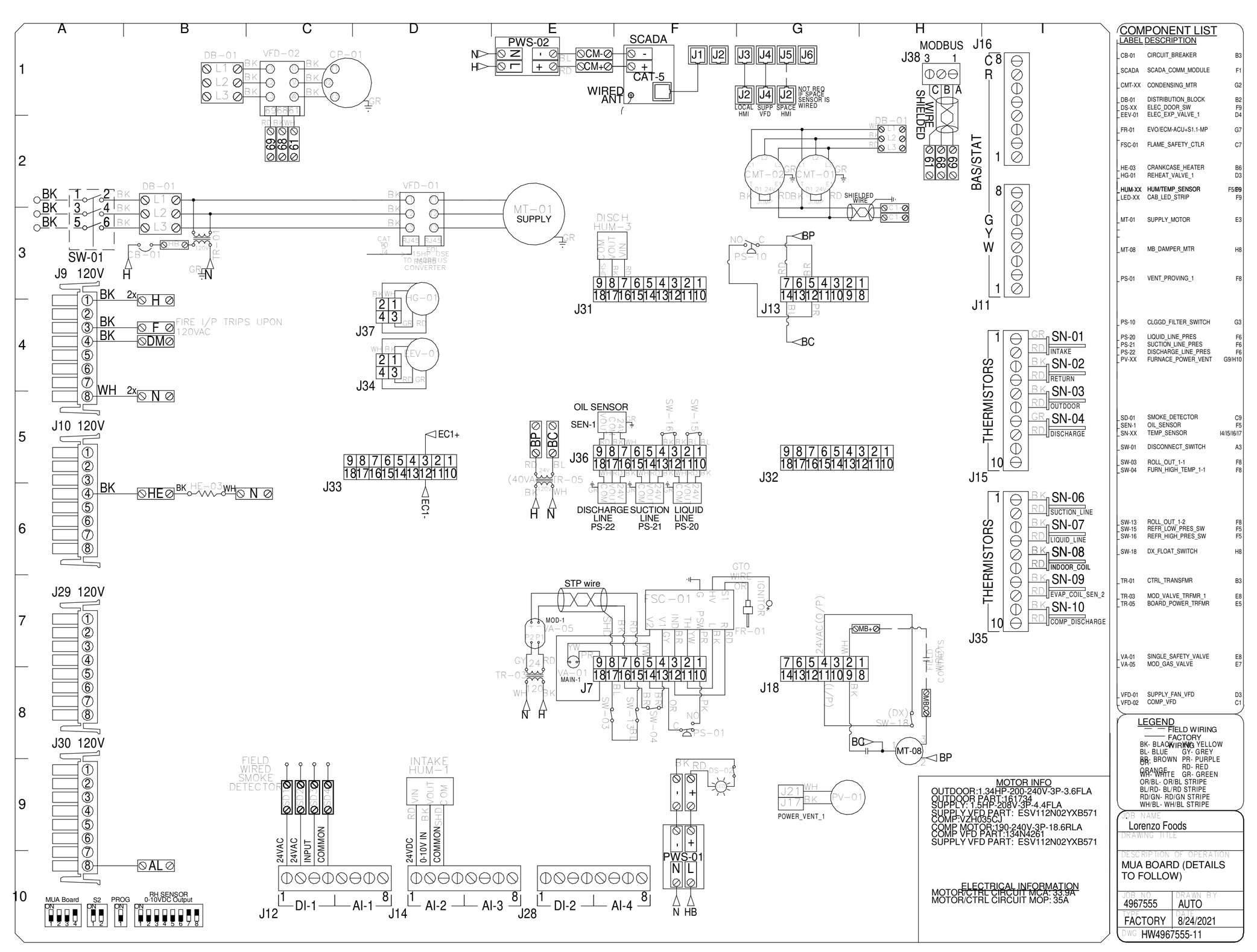
DOAS/RTU COOLING SCHEDULE

FAN UNIT NO	TAG	COMPRESSOR			OUTDOOR FAN				INDOOR COIL		OUTSIDE AIR DB TEMP	OUTSIDE AIR WB TEMP	MIXED AIR DB TEMP	MIXED AIR WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	LEAVING DP TEMP	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	REHEAT LEAVING DB TEMP	REHEAT LEAVING WB TEMP	DESIRED REHEAT CAPACITY	MAX REHEAT CAPACITY	REHEAT LEAVING RELATIVE HUMIDITY	MOISTURE REMOVAL RATE	IEER
		TONNAGE	VOLTAGE	PHASE	MOTOR VOLTAGE	MOTOR □	MOTOR FREQUENCY	MOTOR QTY	ROWS	FACE AREA																	
11	DOAS-TESTKITCHEN	6	190-240	3	200-240	3	60	2	4	6.2 SQFT	90.0°F	74.0°F	90.0°F	74.0°F	59.7°F	56.9°F	55.1°F	84.0 MBH	48.0 MBH	36.0 MBH	70.0°F	64.2°F	17.2 MBH	56 MBH	73	32.7 LBS/HR	19.5

DOAS/RTU HEATING SCHEDULE

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
11	DOAS-TESTKITCHEN	150000	120000	66°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	80

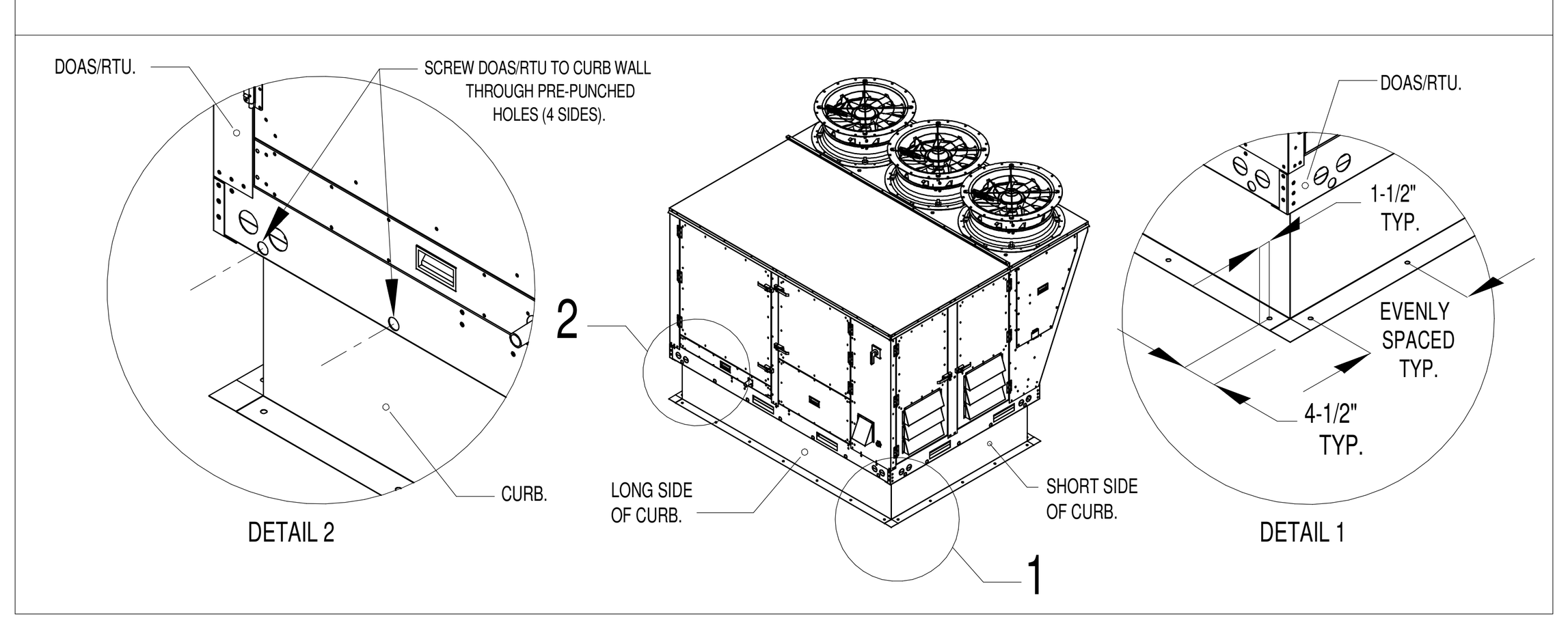




TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW. USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.

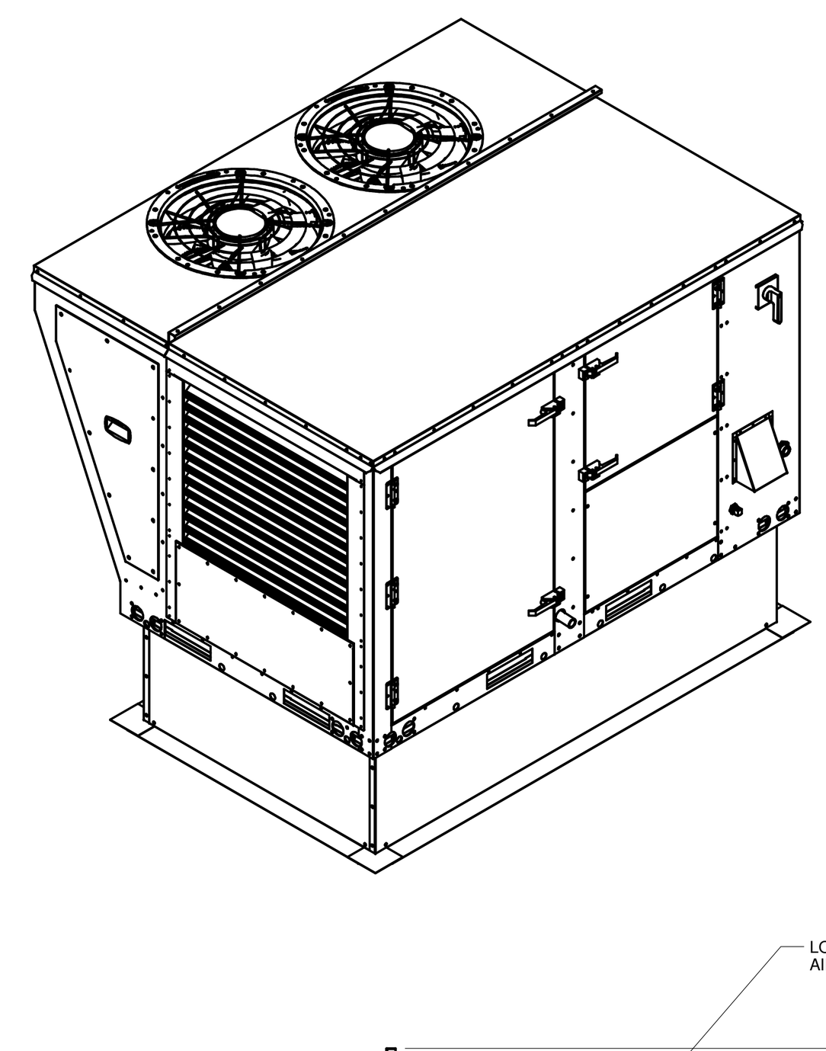
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.

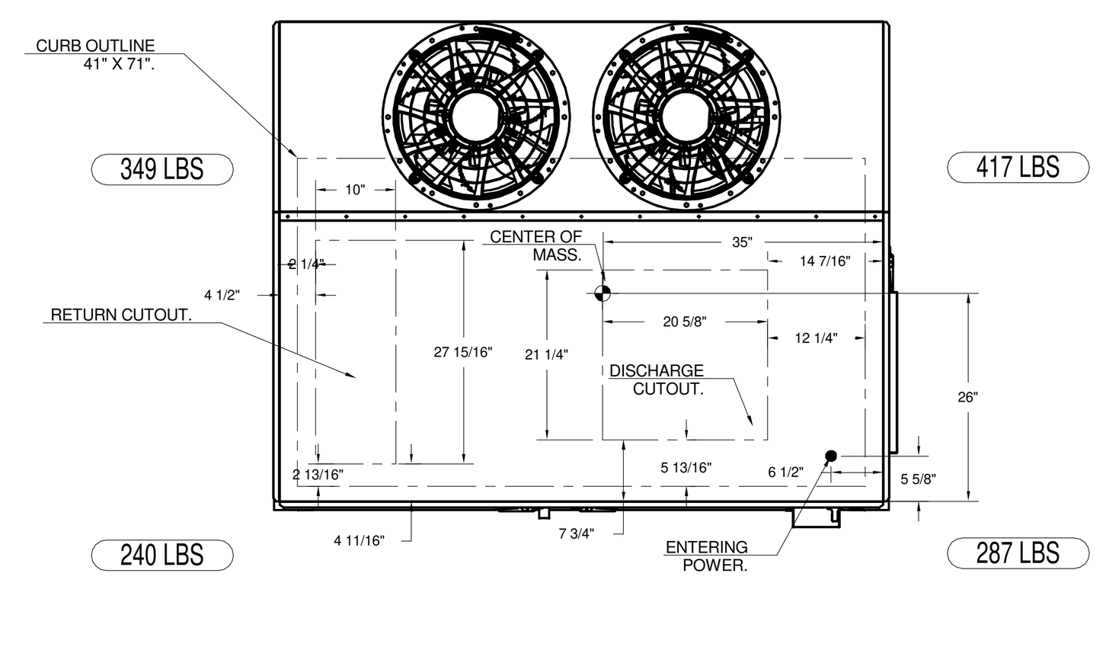


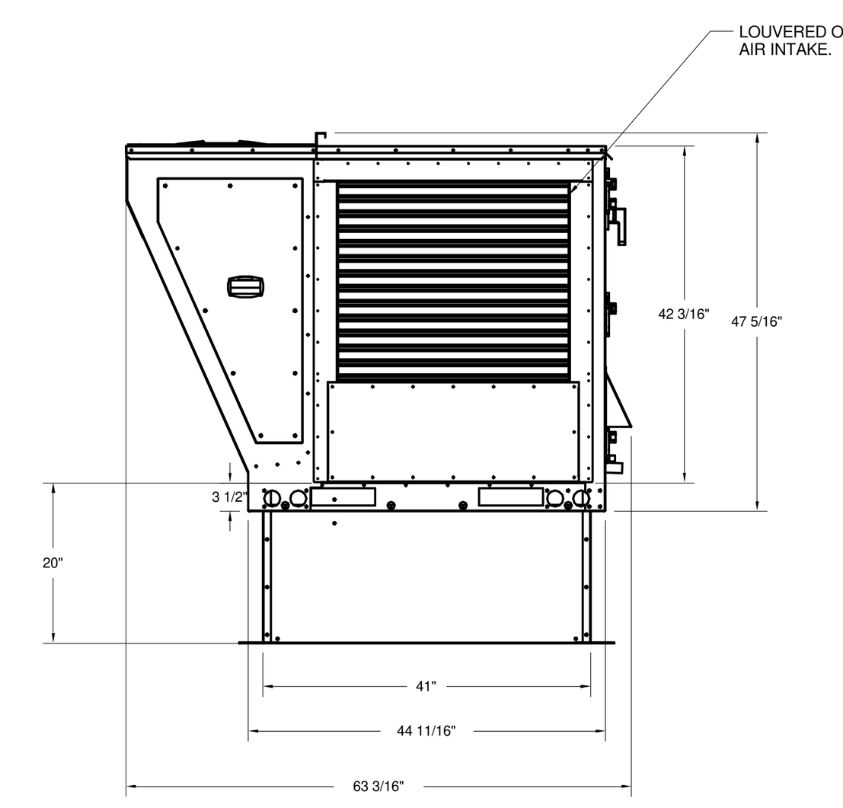
FAN #11 CASRTU1-I.150-13-6T-DOAS - (DOAS-TESTKITCHEN)

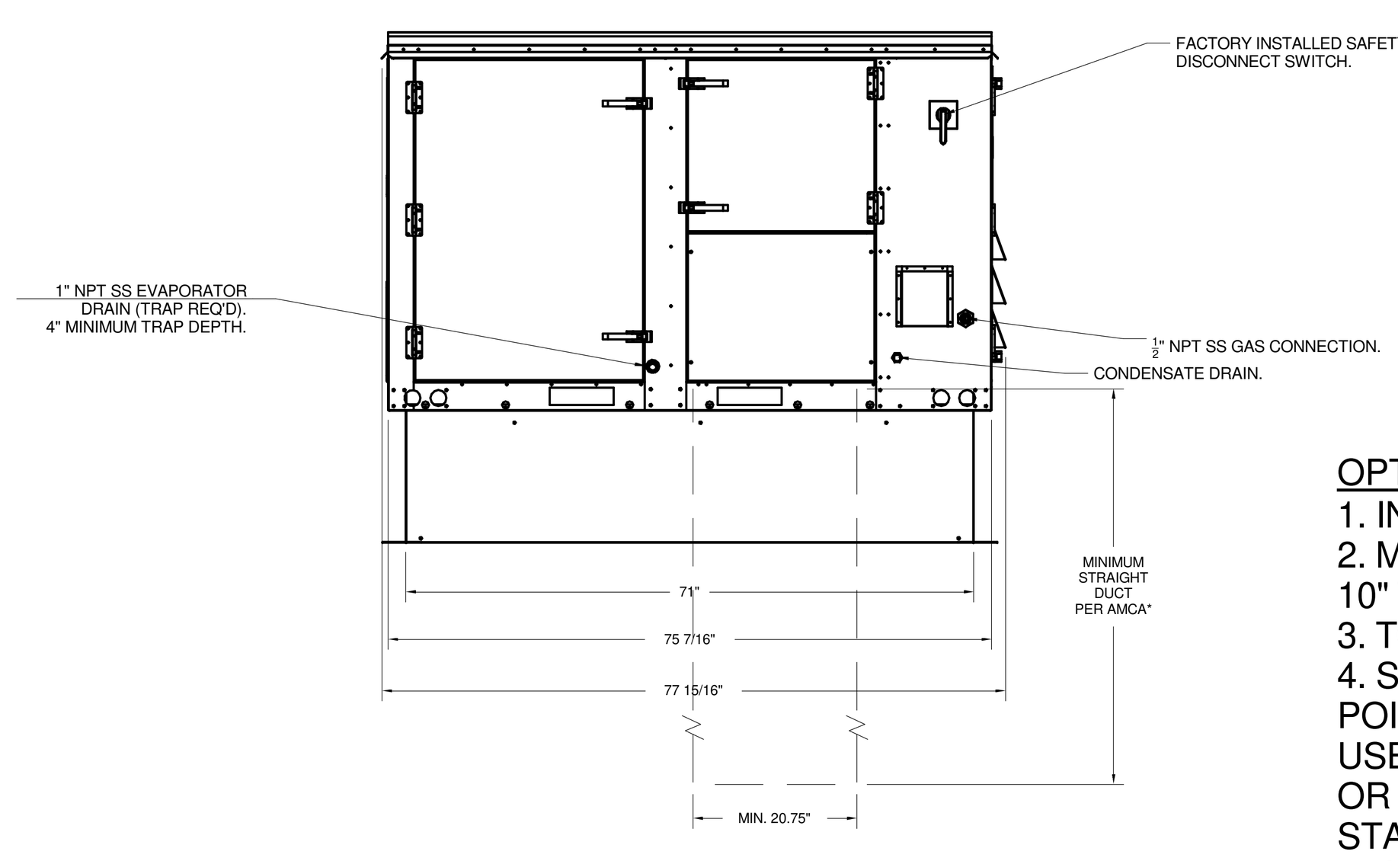
NOTES:

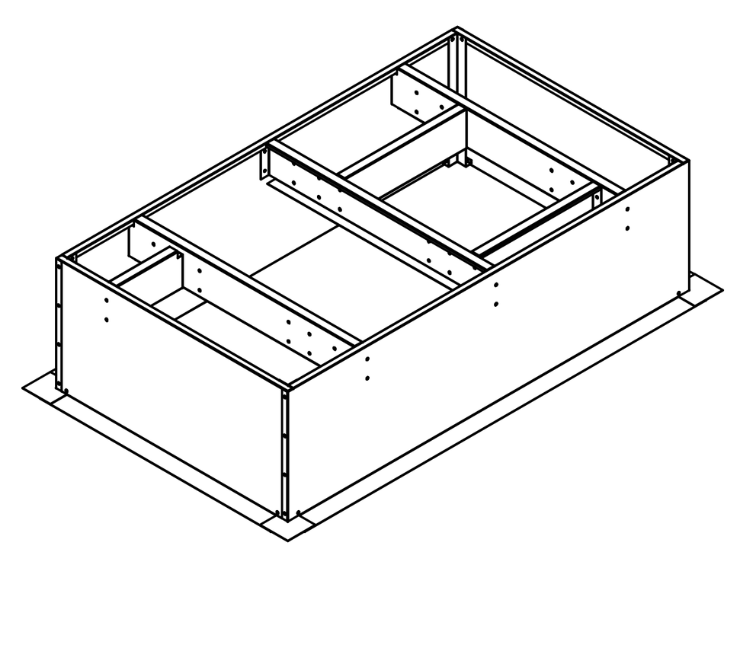
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.

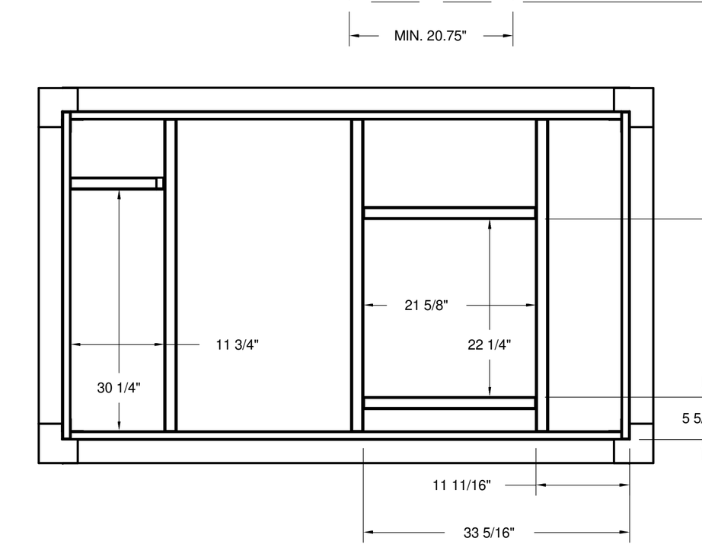












*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 20.75" x 21.5".

OPTIONS
1. INLET PRESSURE GAUGE, 0-35".
2. MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
3. TOTAL CFM MONITORING FOR DOAS.
4. SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
5. CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
6. 2" MERV 13 FILTERS FOR SIZE 1 RTU. QTY. 4.
7. 2" MERV 8 FILTERS SIZE 1 RTU. QTY 4.
8. OVERHEAT STAT.
9. VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR RTU.
10. RTU SIZE 1 DOWN DISCHARGE.
11. COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
12. SIZE 1 RTU CURB DUCT HANGER.
13. CLOGGED FILTER SWITCH WITH NOTIFICATION ON HMI.
14. 6 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS.
15. 6 TON MODULATING REHEAT OPTION. SPACE DEWPOINT CONTROL.
16. RTU SIZE 1 DOWN RETURN.
17. FREEZESTAT.
18. VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED).
19. RTU FIELD WIRED INTAKE/RETURN DAMPER SWITCH CONTROL.
20. 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS).

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CAPTIVEAIRE
North New Jersey
Mechanical
, Summit, NJ, PHONE: (201) 308-6647 FAX: (919) 516-8752 EMAIL: reg138@captiveaire.com

Lorenzo Foods
TETERBORO, NJ, 07608
8/24/2021
4967555
ZDK
1/2" = 1'-0"
MASTER DRAWING
8

CYBUL CYBUL WILHELM ARCHITECTS A.I.A.
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

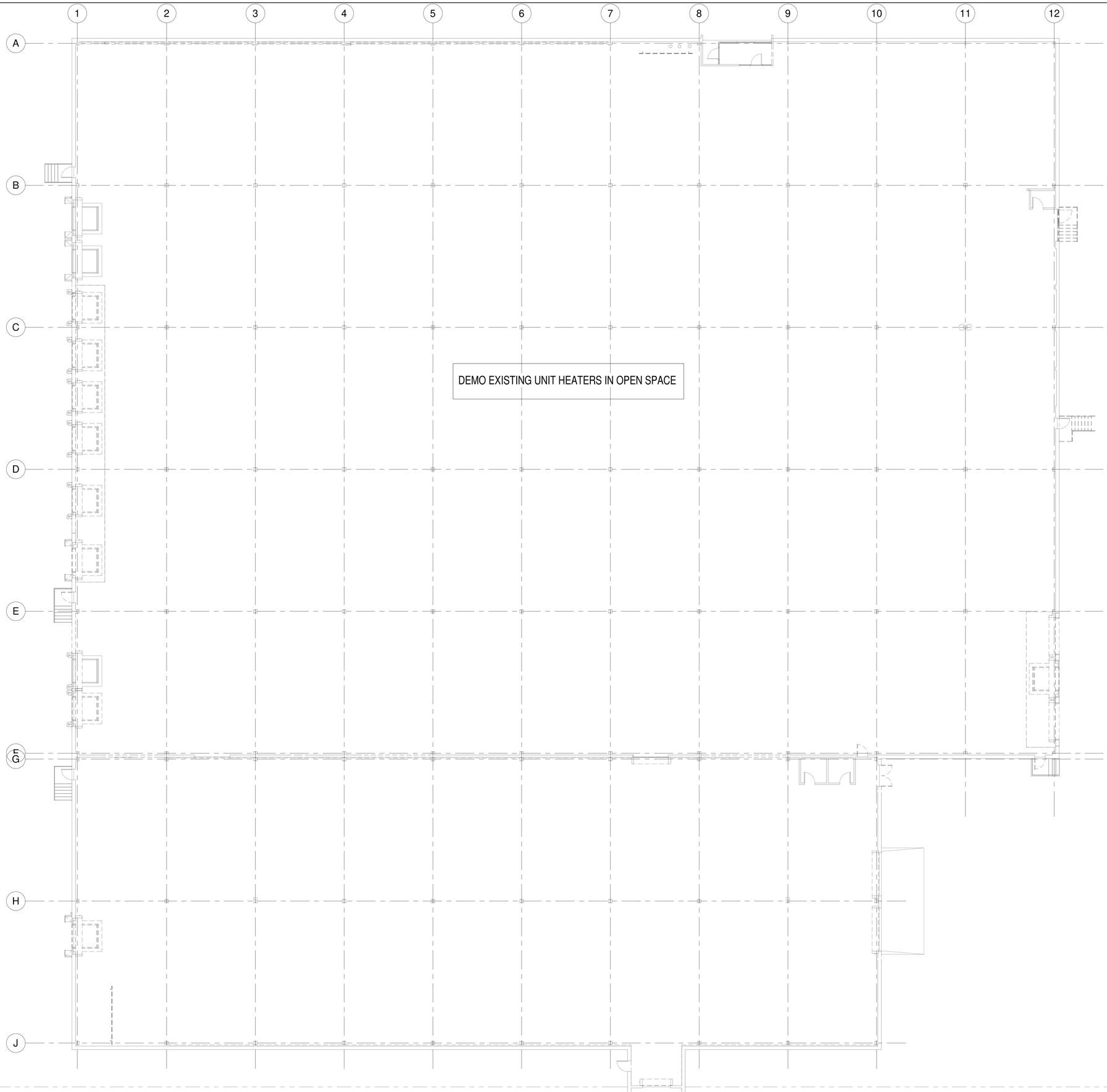
SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC CAPTIVE AIRE DETAILS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	Author
approved by:	Approver
project no.:	2102
drawing no.:	M-515.00
DOB BARCODE:	

Total

9/24/2021 3:00:39 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 HVAC DEMO PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. ALL EXISTING HVAC SYSTEMS INCLUDING BUT NOT LIMITED TO HVAC ROOFTOP EQUIPMENT, DUCTWORK, AIR DISTRIBUTION DEVICES, UNIT HEATER, CONTROL, WIRING ETC. TO REMAIN UNLESS SHOWN OR NOTED OTHERWISE.
2. ALL DEMOLITION WORK SHALL BE COORDINATED WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE AND ALSO MUST BE COORDINATED WITH ALL ARCHITECTURAL, MECHANICAL, ELECTRICAL AND STRUCTURAL SYSTEMS.
3. EXISTING CONDITIONS, EQUIPMENT, MATERIALS & SIZES ARE SHOWN FOR REFERENCE ONLY. VERIFY EXISTING CONDITIONS & BRING ANY DISCREPANCIES TO THE ENGINEER'S ATTENTION IN WRITING PRIOR TO BID SUBMISSION.
4. HVAC CONTRACTOR MUST VISIT THE SITE TO CAREFULLY EXAMINE AND FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS PRIOR TO BIDDING. SUBMISSION OF A PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN PERFORMED. LATER CLAIMS FOR EXTRA LABOR OR MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED.
5. G.C. TO PATCH ALL UNUSED ROOF, WALL OR FLOOR OPENINGS TO MATCH EXISTING.
6. DISPOSE OF ALL MATERIALS AS DIRECTED BY OWNER'S REPRESENTATIVE.

CYBUL CYBUL WILHELM
ARCHITECTS

1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

STATE SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	HVAC DEMO PLAN
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	MD-100.00
DOB BARCODE:	

Total

9/24/2021 3:00:42 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL DRAWINGS MARKED P.
2. DRAWINGS ARE DIAGRAMMATIC: DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. NEITHER ACCURACY NOR COMPLETION OF UTILITY LOCATIONS SHOWN ON DRAWINGS IS GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING UTILITY IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
4. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE CURRENT PLUMBING CODE AND ALL APPLICABLE LOCAL CODES AND DRAWINGS.
5. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES, INCLUDING (BUT NOT LIMITED TO), ELECTRICAL, HVAC PROCESS PIPING, KITCHEN EQUIPMENT VENDOR, STRUCTURAL AND GENERAL ARCHITECTURE.
6. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.
7. NO WORK SHALL BE INSTALLED IN VIOLATION OF ANY GOVERNING CODES. ANY WORK SHOWN ON THE DRAWINGS WHICH IS IN VIOLATION OF SUCH CODES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.
8. ALL PIPING PENETRATING CEILING AND WALLS SHALL BE INSTALLED WITH CHROME (STAINLESS WHERE NOTED) PLATED ESCUTCHEONS AT THE PENETRATION. ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED IN AN APPROVED MANNER AND SHALL BE SEALED WEATHER TIGHT. PIPING PENETRATING RATED PARTITIONS SHALL BE PROTECTED AS REQUIRD BY LOCAL CODE AUTHORITY.
9. MANUFACTURER'S MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
10. PRODUCTION INSTALLATION SHALL ADHERE TO MANUFACTURERS' RECOMMENDATIONS.
11. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
12. TOPS OF ALL FLOOR DRAINS SHALL BE SET FLUSH WITH FINISHED FLOOR. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE.
13. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN HEREIN.
14. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ITS ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
15. CONNECT NEW WORK TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS ARE PERMISSIBLE ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
16. FIRESTOPPING SHALL BE INSTALLED WHENEVER PIPING CROSSES FIRE RATED PARTITIONS. REFER TO THE ARCHITECTURAL PLANS FOR FIRE RATED PARTITION LOCATIONS. THE FIRESTOPPING SHALL MATCH OR EXCEED THE FIRE RATING OF THE PARTITION PENETRATED. ALL FIRESTOPPING SHALL BE A UL LISTED ASSEMBLY.
17. PROVIDE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLIES TO INDIVIDUAL FIXTURES AND EQUIPMENT. PROVIDE BALL VALVES ON ALL WATER MAIN BRANCHES WHERE INDICATED ON DRAWINGS. ALL VALVES SHALL BE ACCESSIBLE.
18. ALL SLEEVES THROUGH CONCRETE FLOORS AND ALL CORE DRILLING OF CONCRETE FLOORS AND WALLS SHALL BE BY THIS CONTRACTOR.
19. COORDINATE ROOF PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS.
20. RUN PIPING CONCEALED IN WALLS AND CEILING CAVITIES, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS.
21. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
22. PROVIDE BALANCING VALVES AT SYSTEM LOOP RETURNS AND AT RETURN RISERS. PROVIDE SHUT-OFF VALVES AT SYSTEM LOOP SUPPLIES AND SUPPLY RISERS.
23. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
24. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT PUMP INLETS AND OUTLETS.
25. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT.
26. PLUMBING SUBCONTRACTOR IS RESPONSIBLE FOR EXTENDING ALL REGULATOR VENTS TO ATMOSPHERE. REGULATORS ARE PART OF THIS CONTRACTORS SCOPE OF WORK.
27. WATER HEATERS SHALL BE INSTALLED WITH DRAIN PANS UNDER HEATERS. ROUTE PAN DRAINS TO NEAREST FLOOR DRAIN OR SAFE WASTE PIPE LOCATION.
28. PIPING SHALL NOT RUN OVER ELECTRICAL PANELS AND SHALL BE COORDINATED WITH WORK OF OTHER TRADES.
29. ALL NEW PIPING SHALL BE CONCEALED IN CEILING, WALL CAVITIES AND/OR UNDER SLAB, UNLESS OTHERWISE NOTED. EXISTING PIPING TO REMAIN BUT EXPOSED AS A RESULT OF DEMOLITION OPERATIONS SHALL BE RE-ROUTED/MODIFIED FOR CONCEALMENT IN CEILING OR WALL CAVITIES, OR UNDER SLAB, AT NO ADDITIONAL COST TO THE OWNER.
30. CONTRACTOR SHALL INCLUDE PATCHING OF CONCRETE FLOOR DUE TO SAWCUTTING REQUIREMENTS FOR NEW UNDERGROUND PIPING.
31. CONTRACTOR SHALL PROVIDE BACKFLOW PREVENTION DEVICES ON ALL WATER CONNECTED EQUIPMENT AS REQUIRED BY APPLICABLE CODE.
32. PC IS RESPONSIBLE TO PROVIDE ACCESS PANELS FOR ANY CONCEALED PLMBING WORK THAT MUST BE ACCESSIBLE EITHER BY CODE OR AS INDICATED IN THE DOCUMENTS. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF DEVICE REQUIRING THE ACCESS PANEL. ALL ACCESS DOORS MUST MATCH THE FIRE RATING AND CONSTRUCTION TYPE OF THE CEILING OR WALL PENETRATION AS DESIGNATED ON THE ARCHITECTURAL DRAWINGS.
33. THE CONTRACTOR SHALL BRING ANY CONFLICTS IN THE DRAWINGS TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. IF NOT BROUGHT UP TO THE ENGINEER DURING THE BIDDING PROCESS THE MORE EXPENSIVE OPTION SHALL BE CHOSEN FOR BIDDING PURPOSES.
34. THE CONTRACTOR SHALL PROVIDE ADJUSTABLE THERMOSTATIC MIXING VALVES FOR ALL HAND SINKS TO LIMIT THE HOT WATER TEMPERATURE COMING OUT OF THE FAUCET TO 105 DEGREES FAHRENHEIT BUT BE ADJUSTABLE UP TO 110 DEGREES FAHRENHEIT AS DIRECTED BY THE CLIENT.
35. THE CONTRACTOR SHALL USE THERMOSTATIC MIXING VALVES THAT COMPLY WITH ASSE STANDARDS. POINT OF USE MIXING VALVES SHALL COMPLY WITH ASSE 1070-2020 OR 1069-2020. MANIFOLD MIXING VALVES SHALL COMPLY WITH ASSE 1069-2020. FACILITY WATER DISTRIBUTION MIXING VALVES SHALL COMPLY WITH ASSE 1017-2009. EMERGENCY EYEWASH / SHOWER MIXING VALVES SHALL COMPLY WITH ASSE 1071-2012.
36. THE CONTRACTOR SHALL PROVIDE COVERS FOR ALL PIPING ABOVE AND BELOW GROUND AT THE END OF THE DAY AND DURING THE DAY TO ENSURE DEBRIS DOES NOT ENTER THE PIPE. FAILURE TO DO THIS WILL REQUIRE THE CONTRACTOR TO SCOPE THE PIPING AFTER FINAL INSTALLATION AND VIDEO TAPE THE SCOPING FOR RECORD TO ENSURE NO DEBRIS IS PRESENT IN THE PIPE. ANY DEBRIS WILL BE REMOVED OR THE PIPE WILL BE REPLACED AT THE CONTRACTORS EXPENSE INCLUDING THE TRENCHING AND REPAIR OF ANY FLOOR OR GRADE FINISHES. A COPY OF THE VIDEO SHALL BE GIVEN TO THE OWNER FOR THEIR RECORD.
37. FOR ALL FAST ACTING VALVES SUCH AS BUT NOT LIMITED TO ELECTRICALLY OPERATED VALVES, HOSE STATIONS, HOSE SPRAYERS, FLUSHOMETERS, ETC., WATER HAMMER ARRESTERS ARE TO BE PROVIDED. ARRESTER SHALL BE SIZED AS PER THE ARRESTER MANUFACTURER REQUIREMENTS AND COORDINATED WITH THE SIZE OF THE FAST ACTING VALVE.
38. PLUMBING CONNECTIONS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND THE CONTRACTOR SHALL NOT BASE THEIR BID ON THE LOCATION OF THOSE CONNECTIONS. SUBMISSION OF A BID INDICATES AN UNDERSTANDING THE CONTRACTOR WILL CONNECT THE PLUMBING CONNECTIONS TO THE EQUIPMENT IN THE LOCATION SPECIFIED BY THE MANUFACTURE OR PER CONSTRUCTION RESTRICTIONS AT NO ADDITIONAL COST TO THE CLIENT.
39. PLUMBING CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL FINAL UTILITY CONNECTIONS WITH THE UTILITY COMPANIES. FOR EXAMPLE: IF THE PROJECT HAS NATURAL GAS SERVICE AND THE SYSTEM IS EXISTING THE CONTRACTOR SHALL CALL THE UTILITY COMPANY AND TAKE OVER AS THE LEAD CONTACT PERSON FOR THE ADDITIONAL LOAD APPLICATION AND BE THE NEW POINT OF CONTACT FOR ANY CHANGES REQUIRED FOR THE EXISTING GAS SERVICE. THIS INTRODUCTION AND CHANGE OF POINT CONTACT SHALL HAPPEN WITHIN THE FIRST TWO WEEKS OF STARTING THE PROJECT. IT IS THE PC'S RESPONSIBILITY TO COMMUNICATE WITH THE UTILITY COMPANY SERVICE START DATES AS TO NOT DELAY THE PROJECT WITH INADEQUATE UTILITY SERVICES.
40. CONTRACTOR SHALL PROVIDE MANUFACTURED PROTECTIVE SHIELDING PIPE COVERS FOR HOT AND COLD WATER SUPPLY, TRAP, AND DRAIN PIPING IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.

GENERAL NOTES

THE CONTRACTOR SHALL CONFORM TO THE LATEST BUILDING CODES:

IBC 2018 WITH NEW JERSEY AMENDMENTS

NSPC 2018 WITH NEW JERSEY AMENDMENTS

IFGC 2018 WITH NEW JERSEY AMENDMENTS

APPLICABLE CODES

SYMBOL	DESCRIPTION
	NEW - UNLESS OTHERWISE NOTED, DARK LINE WEIGHT.
	EXISTING - UNLESS OTHERWISE NOTED, LIGHT LINE WEIGHT
S	SANITARY PIPING
W	WASTE PIPING
CWV	COMINATION WASTE VENT PIPING
	VENT PIPING (ABOVE)
	VENT PIPING (BELOW)
ST	STORM PIPING
G	NATURAL GAS
	COLD WATER
	HOT WATER
	HOT WATER RECIRC.
GW	GREASE WASTE
IW	INDIRECT WASTE
	CONDENSATE
FW	FILTER WATER
TW	TEMPERED WATER
CA	COMPRESSED AIR
STM	STEAM

NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS PLAN ARE USED IN THE FOLLOWING DRAWINGS.

SYMBOL	DESCRIPTION
	SHUT OFF VALVE
	CHECK VALVE
	BACKFLOW PREVENTION
	TEMPERING VALVE
	BALANCING VALVE
	PRESS. RED. VALVE
	SOLENOID VALVE
	GAS COCK
	GREASE INTERCEPTOR
	HUB DRAIN
	EXISTING HUB DRAIN
	FLOOR SINK
	EXISTING FLOOR SINK
	FLOOR DRAIN
	EXISTING FLOOR DRAIN
	FLOOR CLEAN OUT
	EXISTING FLOOR CLEAN OUT
	WALL CLEAN OUT
	HORIZONTAL CLEAN OUT
	CASE DRAIN
	STAND PIPE
	TRENCH DRAIN
	P TRAP
	PIPE DOWN & DROP
	PIPE UP & RISE
	BACKWATER VALVE
	HOSE BIBB
	WASH DOWN FAUCET / HOSE BIBB
	WATER FILTER
	FLOW ARROW
	TRAP PRIMER
	CONNECT TO EXISTING
X	DRAWING NOTE - 'X' DENOTES NOTE NUMBER SHOWN ON PLAN.
X	KEY NOTE - 'X' DENOTES NOTE NUMBER SHOWN FOR ALL PLUMBING PLANS.
X	DEMOLITION NOTE - 'X' DENOTES NOTE NUMBER SHOWN ON PLAN

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	HS	HAND SINK
AFG	ABOVE FINISHED GRADE	HW	HOT WATER
ASSY	ASSEMBLY	HCO	HORIZONTAL CLEANOUT
BFC	BELOW FINISHED CEILING	HWR	HOT WATER RECIRCULATION
BFF	BELOW FINISHED FLOOR	IW	INDIRECT WASTE
BFG	BELOW FINISHED GRADE	MS	MOP SINK
BW	BOOT WASH	NTS, N.T.S.	NOT TO SCALE
CL	CENTER LINE	OC	ON CENTER
CLG	CEILING	PC	PLUMBING CONTRACTOR
CO	CLEAN OUT	RD	ROOF DRAIN
COMP	COMPARTMENT	RE	EXISTING TO BE REMOVED
CW	COLD WATER	REX	EXISTING TO BE RELOCATED
DN	DOWN	SAN	SANITARY
DOM	DOMESTIC WATER	SPR	SPRINKLER
DW	DISH WASHER	SC	SCUPPER
DWH	DOMESTIC WATER HEATER	SD	STORM DRAIN
EWH	ELECTRIC WATER HEATER	SF	SQUARE FEET
EWC	ELECTRIC WATER COOLER	SP	STAND PIPE
EX	EXISTING TO REMAIN	SS	STAINLESS STEEL
FAI	FRESH AIR INTAKE	ST	STORM
FCO	FLOOR CLEAN OUT	TD	TRENCH DRAIN
FD	FLOOR DRAIN	TP	TRAP PRIMER
FFD	FUNNEL FLOOR DRAIN	TW	TEPID WATER
FP	FROST PROOF	TYP	TYPICAL
NFWH	NON FREEZE WALL HYDRANT	U/C	UNDER COUNTER
FS	FLOOR SINK	V	VENT
G	GAS	VIF	VERIFY IN FIELD
GI	GREASE INTERCEPTOR	VTR	VENT THRU ROOF
HB	HOSE BIBB	W	WASTE
HR	HOSE REEL	WF	WATER FILTER
		WP	WEATHERPROOF
		WCO	WALL CLEAN OUT

SYMBOL LEGENDS AND ABBREVIATIONS

PROJECT NOTES:

THE CONTRACTOR SHALL RECEIVE AND REVIEW ALL OF THE PROJECTS DRAWINGS AND SPECIFICATIONS SUCH AS ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, FIRE ALARM, SPRINKLER, SITE, ETC. TO UNDERSTAND THE FULL SCOPE OF WORK. FAILURE TO RECEIVE AND REVIEW THOSE PLANS DURING BIDDING WILL RESULT IN THE DENIAL OF EXTRA'S.

Sheet Number	Sheet Name
P-100	PLUMBING COVER SHEET
P-101	PLUMBING SPECIFICATIONS
P-200	PLUMBING SANITARY PLAN
P-300	PLUMBING CONDENSATE PLAN
P-400	PLUMBING WATER PLAN
P-500	PLUMBING COMPRESSED AIR PLAN
P-600	PLUMBING GAS PLAN
P-700	PLUMBING STEAM PLAN
P-800	PLUMBING ROOF PLAN
P-900	PLUMBING SANITARY RISER
P-901	PLUMBING WATER RISER
P-902	PLUMBING GAS RISER
P-903	PLUMBING COMPRESSED AIR RISER
P-904	PLUMBING STEAM RISER
P-1000	PLUMBING DETAILS
P-1001	PLUMBING DETAILS
P-1002	PLUMBING DETAILS
P-1003	PLUMBING DETAILS
P-1004	PLUMBING DETAILS
P-1005	PLUMBING DETAILS
P-2000	PLUMBING SCHEDULES
PD-100	PLUMBING DEMOLITION PLAN

DRAWING LIST

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

DOB & SEAL:

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING COVER SHEET
scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-100.00
DOB BARCODE:
Total

9/24/2021 3:00:45 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

PLUMBING WORK SPECIFICATIONS

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE PART OF THESE SPECIFICATIONS, AND THERE PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN COST.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM THE MANUFACTURE IN SECTIONS OF A SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM THE BUILDING OWNER AND TENANT AT WHAT TIMES OF THE DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS/HER PRICE FOR ROUTING OF PIPING TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. SUPPORT ALL PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES CONTENT AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER. PROVIDE SEISMIC RESTRAINTS AS REQUIRED BY CODE.

F. INSTALL WORK AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES, WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT OUR OR OWNER APPROVAL.

G. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSED.

H. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH A MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF THE EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

I. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

J. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

K. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

L. SEAL OPENING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL. ALL PENETRATIONS THROUGH NEW AND EXISTING RATED FIRE AND SMOKE PARTITIONS AND/OR FLOORS SHALL BE COMPLETELY SEALED USING MATERIALS AND METHODS DESCRIBED IN SUBSEQUENT "FIRE STOPPING" SPECIFICATIONS SECTIONS.

M. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED AND POSITIVELY ATTACH THE EQUIPMENT TO THE STRUCTURE BELOW.

N. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

O. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

P. UNLESS OTHERWISE SPECIFICALLY NOTED OF SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

.

Q. PC IS RESPONSIBLE TO PROVIDE ACCESS PANELS FOR ANY CONCEALED PLUMBING WORK THAT MUST BE ACCESSIBLE EITHER BY CODE OR AS INDICATED IN THE DOCUMENTS. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF DEVICE REQUIRING THE ACCESS PANEL. ALL ACCESS DOORS MUST MATCH THE FIRE RATING AND CONSTRUCTION TYPE OF THE CEILING OR WALL PENETRATION AS DESIGNATED ON THE ARCHITECTURAL DRAWINGS.

R. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

S. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF ALL OF THE PLANS APPLICABLE FOR THE PROJECT AND NOT JUST THE PLUMBING PLANS AND IS FAMILIAR WITH ANY PROPOSED CONDITIONS THAT WILL NEED TO BE COORDINATED IN THE FIELD. FOR EXISTING BUILDINGS: THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS TOROUGHLY REVIEWED ALL OF THE DOCUMENTATION ASSOCIATED WITH THE PROJECT AND IF AN EXISTING BUILDING REVIEWED ALL OF THE EXISTING CONDITIONS. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION AND REVIEW. THE ON-SITE INSPECTION SHALL VERIFY EXISTING EQUIPMENT AND PIPING (SIZES, CLEARANCES, ETC.) AND CONDITIONS.

T. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

U. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED AND BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

V. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

W. DEFINITIONS:

1. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3. "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

6. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

7. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

2. SCOPE OF WORK:

A. THE SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL STANDARD PLUMBING CODE OR AND ALL OTHER APPLICABLE INDUSTRY, STATE, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OF REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATED OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY THE OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BE DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES FOR, AND FURNISH TO THE OWNER BEFORE BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS:

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, THE CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, OTHER TRADES SUCH AS BUT NOT LIMITED TO HVAC AND STRUCTURAL BEAMS, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF THE PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN X 17 IN OR SMALLER. IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN X 17 IN. SUBMIT TWO PRINTS TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING

1) PIPING

2) VALVES

3) INSULATION

4) FITTINGS

5) FIXTURES AND EQUIPMENT

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS:

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THE CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS PREPARED IN COMPUTER AIDED DRAFTED (AUTO CAD) FORMAT SHALL BE PROVIDED TO THE OWNER INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. A COMPLETE "AS-BUILT" DRAWING FILE SHALL BE PROVIDED TO THE OWNER AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR PLUMBING WORK:

A. QUALITY ASSURANCE

1. QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK.

B. PRODUCT DELIVERY, STORAGE AND HANDLING

1. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2. ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS SHALL BE PERMITTED. CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

C. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED. RED LEAD OR ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT. A FIELD-APPLIED ZINC CHROMATE PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRON WORK.

D. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED. CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

E. G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL PLUMBING FIXTURES SHALL BE VERIFIED BY ARCHITECT.

F. H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

6. PLUMBING PIPING MATERIALS:

A. SANITARY DRAINAGE AND VENT

1. HUBLESS CAST IRON SOIL PIPE AND FITTINGS WITH EXTRA HEAVY DUTY GASKETED HUBLESS COUPLINGS FOR FOOD SERVICE APPLICATIONS.

2. SCHEDULE 40 PVC PIPE WITH CEMENT TYPE SLIP FIT PIPE AND FITTINGS.

3. GALVANIZED SCHEDULE 40 STEEL PIPE WITH GALVANIZED THREADED MALLEABLE IRON FITTINGS.

B. DOMESTIC WATER

1. TYPE L HARD COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS AND 95/5 TIN ANTIMONY SOLDER JOINTS.

2. STANDARD WEIGHT RED BRASS PIPE WITH STANDARD WEIGHT CAST BRONZE THREADED FITTINGS.

C. STORM PIPING

1. HUBLESS CAST IRON SOIL PIPE AND FITTINGS WITH EXTRA HEAVY DUTY GASKETED HUBLESS COUPLINGS.

2. SCHEDULE 40 PVC PIPE WITH CEMENT TYPE SLIP FIT PIPE AND FITTINGS.

3. GALVANIZED SCHEDULE 40 STEEL PIPE WITH GALVANIZED THREADED MALLEABLE IRON FITTINGS.

D. STEAM PIPING

1. SCHEDULE 80 BLACK STEEL WITH WELDED JOINTS

E. ALL EXPOSED PIPE AND FITTINGS SHALL BE CHROME PLATED BRASS.

F. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

2. VALVES:

A. GATE VALVES: 1. BRONZE RISING STEM, 200 PSI WOG; SIMILAR TO STOCKHAM #B-105, B-109.

B. BALL VALVES: 1. TWO PIECE, BRONZE, END ENTRY, 600 PSI WWP; SIMILAR TO STOCKHAM #S-216 BR-R-T, #S-216 BR-R-S.

C. CHECK VALVES: 1. BRONZE, THREADED CAP, TEFLON DISC; SIMILAR TO STOCKHAM #B310T, B-320T.

8. INSULATION:

A. ALL INSULATION (INCLUDING JACKET, FACING AND ADHESIVE) SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255 AND UL 273; NOT EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50.

B. ON VALVES AND FITTINGS PROVIDE PRE-MOLDED FIBERGLASS FITTINGS. VAPOR SEAL INSULATION ON "CW".

C. "CW" PIPING: PROVIDE 1/2 IN. THICK FIBERGLASS SECTION PIPE COVERING WITH VAPOR BARRIER JACKET.

D. "HW" PIPING: PROVIDE 1 IN. THICK FIBERGLASS SECTIONAL PIPE COVERING WITH VAPOR BARRIER JACKET.

E. STEAM PIPING: PROVIDE 3 " IN. THICK FIBERGLASS SECTION PIPE COVERING
WITH VAPOR BARRIER JACKET.

E. INTERIOR STORM PIPING: PROVIDE 1 IN. THICK FIBERGLASS SECTIONAL PIPE COVERING WITH VAPOR BARRIER JACKET.

9. PLUMBING FIXTURES:

A. PROVIDE ALL FIXTURES WITH STOP VALVES AND SUPPLIES AND FIXTURE TRAPS AS REQUIRED.

B. ALL FIXTURES SHALL BE AS INDICATED ON THE ARCHITECTURAL DOCUMENTS.

10.PIPING SUPPORTS:

A. SUPPORT ALL PIPING FROM BUILDING CONSTRUCTION BY PROVIDING INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), AND ACCEPTABLE BRACKETS. SUBMIT ALL METHODS FOR REVIEW.

B. PROVIDE TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS FOR GROUPED LINES AND SERVICES.

C. PROVIDE ADDITIONAL FRAMING WHERE BUILDING CONSTRUCTION IS INADEQUATE. SUBMIT FOR REVIEW.

D. SUSPENDED HORIZONTAL PIPING:

1. SUPPORT ALL PIPING INDEPENDENTLY FROM STRUCTURE USING HEAVY IRON-HINGED TYPE HANGERS, SIMILAR TO GRINNELL CLEVIS NO. 260.

2. PROVIDE ELECTROPLATED SOLID-BAND HANGERS SIMILAR TO AUTO-GRIP, FOR TWO-INCH AND SMALLER PIPE.

3. PROVIDE WALL BRACKETS FOR WALL-SUPPORTED PIPING, AND PROVIDE PIPE SADDLES FOR FLOOR-MOUNTED PIPING.

4. PROVIDE SUPPORTS WITH COPPER LINING FOR UNINSULATED COPPER PIPING.

5. SUSPEND PIPING FROM INSERTS, USING BEAM CLAMPS WITH RETAINING CLAMP OR LOCKNUT, STEEL FISH PLATES, CANTILEVER BRACKETS OR OTHER ACCEPTED MEANS. BEAM CLAMPS SHALL BE SIMILAR TO GRINNELL FIGURES 61, 87, 131, OR 225.

6. SUSPEND PIPING BY RODS WITH DOUBLE NUTS.

7. PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND ACCEPTED WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS.

8. SUPPORT BRANCH FIXTURE WATER PIPING IN CHASES WITH COPPER-PLATED METAL BRACKETS, SECURED TO STUDS, SIMILAR TO HOLDRITE NOS. 102-18, 107-18, 102-26, OR 101-26.

E. PROVIDE 180 DEGREE ARC GALVANIZED METAL COVERING SHIELDS ON HANGERS FOR INSULATED PIPING WITHOUT INCOMPRESSIBLE INSULATING BLOCK IN INSULATION AT HANGERS.

F. MAXIMUM HANGER SPACING AS INDICATED.

1. PIPE 1 INCH AND SMALLER SHALL BE EVERY 8 FEET.

2. PIPE 1-1/4 INCH AND LARGER SHALL BE EVERY 10 FEET.

3. COPPER TUBING 1-1/4 INCH AND SMALLER SHALL BE EVERY 6 FEET.

4. COPPER TUBING 1-1/2 INCH AND LARGER SHALL BE EVERY 10 FEET.

5. CAST IRON: EVERY 5 FEET AND AT EVERY FITTING OR JOINT.

G. EXPANSION ANCHORS:

1. PROVIDE SMOOTH WALL, NON-SELF-DRILLING INTERNAL PLUG EXPANSION TYPE ANCHORS CONSTRUCTED OF AISC 12L14 STEEL AND ZINC PLATED IN ACCORDANCE WITH FED. SPEC. QQ-A-325 TYPE 1, CLASS 3.

2. DO NOT EXCEED 1/4 OF AVERAGE VALVES FOR A SPECIFIC ANCHOR SIZE USING 2000 PSIG (13,800 KPA) CONCRETE ONLY, FOR MAXIMUM WORKING LOADS.

3. PROVIDE SPACING AND INSTALL ANCHORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4. EXPANSION ANCHORS SHALL BE U.L. LISTED AND SIMILAR TO HILTI HDI.

11.TESTS:

A. DOMESTIC WATER PIPING:

1. TEST PIPING HYDROSTATICALLY AT A PRESSURE OF 125 PSI.

2. DURATION OF TEST SHALL BE 2 HOURS WITHOUT A LOSS IN PRESSURE.

B. DRAINAGE AND VENT PIPING:

1. CAP ALL OUTLETS AND FILL PIPING SYSTEM TO OVERFLOWING FROM A POINT AT LEAST 10 FEET ABOVE THE FLOOR.

2. THE WATER LEVEL SHALL REMAIN CONSTANT THROUGHOUT THE TEST DURATION OF 2 HOURS.

C. ARRANGE AND COORDINATE TESTS WITH OWNER 48 HOURS IN ADVANCE. NOTIFY ENGINEER AND ARCHITECT OF TEST DATE AND TIME.

D. DEFECTS DISCLOSED BY THE TESTS SHALL BE REPAIRED OR REPLACED. TESTS SHALL BE REPEATED AS DIRECTED UNTIL ALL WORK IS PROVEN SATISFACTORY.

E. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO THE BUILDING AND ITS CONTENTS AS A RESULT OF SUCH TESTS. REPAIR ANY DAMAGE CAUSED.

12.FLUSHING AND DISINFECTING POTABLE WATER SYSTEMS:

a)FLUSHING

1. THE WATER DISTRIBUTION PIPING TO ALL FIXTURES AND OUTLETS SHALL BE FLUSHED UNTIL THE WATER RUNS CLEAR AND FREE OF DEBRIS AND PARTICLES. FAUCET AERATORS OR SCREENS SHALL BE REMOVED DURING FLUSHING OPERATIONS.

b)DISINFECTING

1. THE HOT AND COLD WATER DISTRIBUTION PIPING IN NEW OR RENOVATED POTABLE WATER SYSTEMS SHALL BE DISINFECTED AFTER FLUSHING AND PRIOR TO USE. THE PROCEDURE USED SHALL BE AS FOLLOWS OR AN APPROVED EQUIVALENT:

a. ALL WATER OUTLETS SHALL BE POSTED TO WARN AGAINST USE DURING DISINFECTING OPERATIONS.

b. DISINFECTING SHALL BE PERFORMED BY PERSONS EXPERIENCED IN SUCH WORK.

c. THE WATER SUPPLY TO THE PIPING SYSTEM OR PARTS THEREOF BEING DISINFECTED SHALL BE VALVED-OFF FROM THE NORMAL WATER SOURCE TO PREVENT THE INTRODUCTION OF DISINFECTING AGENTS INTO A PUBLIC WATER SUPPLY OR PORTIONS OF A SYSTEM THAT ARE NOT BEING DISINFECTED.

d. THE PIPING SHALL BE DISINFECTED WITH A WATER-CHLORINE SOLUTION. DURING THE INJECTION OF THE DISINFECTING AGENT INTO THE PIPING, EACH OUTLET SHALL BE FULLY OPENED SEVERAL TIMES UNTIL A CONCENTRATION OF NOT LESS THAN 50 PARTS PER MILLION CHLORINE IS PRESENT AT EVERY OUTLET. THE SOLUTION SHALL BE ALLOWED TO STAND IN THE PIPING FOR AT LEAST 24 HOURS.

e. AN ACCEPTABLE ALTERNATE TO THE 50 PPM/24-HOUR PROCEDURE SHALL BE TO MAINTAIN A LEVEL OF NOT LESS THAN 200 PARTS PER MILLION FOR NOT LESS THAN THREE HOURS. IF THIS ALTERNATE PROCEDURE IS USED, THE HEAVILY CONCENTRATED CHLORINE SHALL NOT BE ALLOWED TO STAND IN THE PIPING SYSTEM FOR MORE THAN 6 HOURS. ALSO, SPECIAL PROCEDURES SHALL BE USED TO DISPOSE OF THE HEAVILY CONCENTRATED CHLORINE IN AN ENVIRONMENTALLY ACCEPTABLE AND APPROVED MANNER.

f. AT THE END OF THE REQUIRED RETENTION TIME, THE RESIDUAL LEVEL OF CHLORINE AT EVERY OUTLET SHALL BE NOT LESS THAN FIVE PARTS PER MILLION. IF THE RESIDUAL IS LESS THAN FIVE PARTS PER MILLION, THE DISINFECTING PROCEDURE SHALL BE REPEATED UNTIL THE REQUIRED MINIMUM CHLORINE RESIDUAL IS OBTAINED AT EVERY OUTLET.

g. AFTER THE REQUIRED RESIDUAL CHLORINE LEVEL IS OBTAINED AT EVERY OUTLET, THE SYSTEM SHALL BE FLUSHED TO REMOVE THE DISINFECTING AGENT. FLUSHING SHALL CONTINUE UNTIL THE CHLORINE LEVEL AT EVERY OUTLET IS REDUCED TO THAT OF THE INCOMING WATER SUPPLY.

h. FURNISH A WRITTEN RECORD OF THE DISINFECTING TEST RESULTS.

13.NATURAL GAS PIPING

A. GENERAL REQUIREMENTS

1. QUALITY ASSURANCE: COMPLY WITH NFPA 54 AND ALL LOCAL BUILDING CODES.

B. PRODUCTS

1. PIPE, TUBE, AND SPECIALTIES

a)STEEL PIPE: ASTM A 53, TYPE S (SEAMLESS), GRADE B, SCHEDULE 40, PLAIN ENDS.

b)MALLEABLE IRON THREADED FITTINGS: ASME B16.3, CLASS 150.

c)MANUAL VALVES: COMPLY WITH STANDARDS LISTED OR, IF APPROPRIATE, TO ANSI Z21.15.

d)GAS STOPS: AGA CERTIFIED, BRONZE-BODY, PLUG TYPE WITH BRONZE PLUG, FOR 2-PSIG OR LESS NATURAL GAS. INCLUDE AGA STAMP, FLAT OR SQUARE HEAD OR LEVER HANDLE, AND THREADED ENDS COMPLYING WITH ASME B1.20.1.

e)GAS VALVES: 150-PSIG WOG, CAST-IRON OR BRONZE BODY, BRONZE PLUG, STRAIGHTAWAY PATTERN, SQUARE HEAD, TAPERED-PLUG TYPE.

f) FLEXIBLE CONNECTORS: ANSI Z21.24, COPPER ALLOY.

C. EXECUTION

1. INSTALLATION

a. CLOSE EQUIPMENT SHUTOFF VALVES BEFORE TURNING OFF GAS TO SECTION OF PIPING. PERFORM LEAKAGE TEST AS SPECIFIED TO DETERMINE THAT ALL EQUIPMENT IS TURNED OFF IN AFFECTED PIPING SECTION.

b. LOW-PRESSURE, 0.5 PSIG OR LESS, NATURAL GAS SYSTEMS: USE THE FOLLOWING: NPS 2" AND SMALLER: STEEL PIPE, MALLEABLE IRON THREADED FITTINGS, AND THREADED JOINTS.

c. INSTALL GAS STOPS FOR SHUTOFF TO APPLIANCES WITH NPS 2" OR SMALLER.

d. DRIPS AND SEDIMENT TRAPS: INSTALL DRIPS AT POINTS WHERE CONDENSATE MAY COLLECT. INCLUDE OUTLETS OF GAS METERS. LOCATE WHERE READILY ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE CONDENSATE WOULD BE SUBJECT TO FREEZING.

e. INSTALL GAS PIPING AT UNIFORM SLOPE OF 0.1 PERCENT UPWARD TOWARD RISERS.

f. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.

g. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.

h. INSTALL STRAINERS ON SUPPLY SIDE OF EACH CONTROL VALVE, GAS PRESSURE REGULATOR, SOLENOID VALVE, AND ELSEWHERE AS INDICATED.

i. INSTALL VALVES IN ACCESSIBLE LOCATIONS, PROTECTED FROM DAMAGE. TAG VALVES WITH METAL TAG INDICATING PIPING SUPPLIED. ATTACH TAG TO VALVE WITH METAL CHAIN.

j. CONNECT GAS PIPING TO EQUIPMENT AND APPLIANCES WITH SHUTOFF VALVES AND UNIONS.

k. INSTALL GAS VALVE UPSTREAM FROM AND WITHIN 72 INCHES OF EACH APPLIANCE USING GAS. INSTALL UNION OR FLANGED CONNECTION DOWNSTREAM FROM VALVE.

D. GAS PIPING INSPECTION, TESTING, AND PURGING

1. INSPECT, TEST, AND PURGE PIPING ACCORDING TO NFPA 54 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

14.SEISMIC RESTRAINTS

A. A. ALL FUEL OIL, GASOLINE, NATURAL GAS, STEAM OR ANY PIPING CONTAINING HAZARDOUS, FLAMMABLE, COMBUSTIBLE, TOXIC OR CORROSIVE MATERIALS

1. SEISMIC RESTRAINED PIPES SHALL NOT BE ISOLATED FROM THE BUILDING STRUCTURE

2. ALL GAS PIPING SHALL BE SEISMIC ALLY RESTRAINED OR BRACED. TYPE V SEISMIC CABLES RESTRAINTS OR RESILIENT SINGLE ARM BRACES SHALL BE USED

B. TYPE V: SEISMIC CABLE RESTRAINTS VMC: SCR AB: ERS

1. SEISMIC CABLE RESTRAINTS SHALL CONSIST OF GALVANIZED STEEL AIRCRAFT CABLES SIZED TO RESIST SEISMIC LOADS WITH A MINIMUM SAFETY FACTOR OF TWO AND ARRANGED TO PROVIDE ALL-DIRECTIONAL RESTRAINT. CABLE END CONNECTIONS SHALL BE STEEL ASSEMBLIES THAT SWIVEL TO FINAL INSTALLATION ANGLE AND UTILIZE TWO CLAMPING BOLTS TO PROVIDE PROPER CABLE ENGAGEMENT. CABLES MUST NOT BE ALLOWED TO BEND ACROSS SHARP EDGES. SINGLE ARM BRACES WITH RESILIENT BUSHINGS CAN BE SUBSTITUTED FOR SEISMIC CABLE RESTRAINTS.

C. TYPE VI: RIGID ARM BRACE VMC: SAB AB: SAB

1. SEISMIC SOLID BRACES SHALL CONSIST OF STEEL ANGLES OR CHANNELS TO RESIST SEISMIC LOADS WITH A MINIMUM SAFETY FACTOR OF TWO AND ARRANGED TO PROVIDE ALL DIRECTIONAL RESTRAINT. SEISMIC SOLID BRACE END CONNECTORS SHALL BE STEEL ASSEMBLIES THAT SWIVEL TO THE FINAL INSTALLATION ANGLE AND UTILIZE TWO THROUGH BOLTS TO PROVIDE PROPER ATTACHMENT SPACED TO ICBO STANDARDS FOR ATTACHMENT TO CONCRETE.

D. TYPE VIII: SEISMIC WATERPROOF FOUNDATION WALL SLEEVE VMC: SWFWS AB: SWFWS

1. SEISMIC WATERPROOF FOUNDATION WALL SLEEVES SHALL CONSIST OF TWO ELASTOMERIC SLEEVES THAT SHALL BE MOUNTED BOTH INSIDE AND OUT OF THE VERTICAL FOUNDATION WALL. THE CONICAL DESIGN SHALL HAVE A SUITABLY WATERPROOF MEANS OF FASTENING TO BOTH CONCRETE AND TO ITS CONCENTRIC UTILITY PIPE. ALLOWABLE VERTICAL DRIFT SHALL BE PLUS OR AXIS. ALL FITTINGS " Y " FROM THE INSTALLED NEUTRAL POINT ALONG THE VERTICAL " MINUS 2 SHALL BE STAINLESS STEEL OR GALVANIZED.

PART 3- EXECUTION

3.1 EXAMINATION

A. ALL AREAS THAT WILL RECEIVE COMPONENTS REQUIRING VIBRATION CONTROL, SEISMIC OR WIND LOAD BRACING SHALL BE THOROUGHLY EXAMINED FOR DEFICIENCIES THAT WILL AFFECT THEIR INSTALLATION OR PERFORMANCE. SUCH DEFICIENCIES SHALL BE CORRECTED PRIOR TO THE INSTALLATION OF ANY SUCH SYSTEM. "

B. EXAMINE ALL ROUGH INS "INCLUDING ANCHORS AND REINFORCING PRIOR TO PLACEMENT.

3.2 COMPONENT INSTALLATION, (GENERAL)

A. ALL SEISMIC SYSTEMS MUST BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND ALL CERTIFIED SUBMITTAL DATA.

B. INSTALLATION OF SEISMIC RESTRAINTS MUST NOT CAUSE ANY CHANGE OF POSITION OF EQUIPMENT, PIPING OR DUCTWORK RESULTING IN STRESSES OR MISALIGNMENT.

C. NO RIGID CONNECTIONS BETWEEN EQUIPMENT AND THE BUILDING STRUCTURE SHALL BE MADE THAT DEGRADES THE NOISE AND VIBRATION CONTROL SYSTEM SPECIFIED HEREIN.

D. COORDINATE WORK WITH OTHER TRADES TO AVOID RIGID CONTACT WITH THE BUILDING.

E. OVER STRESSING OF THE BUILDING STRUCTURE MUST NOT OCCUR BECAUSE OF OVERHEAD SUPPORT OF EQUIPMENT. CONTRACTOR MUST SUBMIT LOADS TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL. GENERAL BRACING MAY OCCUR FROM FLANGES OF STRUCTURAL BEAMS, UPPER TRUSS CORDS IN BAR JOIST CONSTRUCTION AND CAST IN PLACE INSERTS OR WEDGE TYPE DRILL-IN CONCRETE ANCHORS.

F. SEISMIC CABLE RESTRAINTS SHALL BE INSTALLED SLIGHTLY SLACK TO AVOID SHORT CIRCUITING THE ISOLATED SUSPENDED EQUIPMENT OR PIPING.

G. SEISMIC CABLE ASSEMBLIES ARE INSTALLED TAUT ON NON-ISOLATED SYSTEMS. SEISMIC SINGLE ARM BRACES MAY BE USED IN PLACE OF CABLES ON RIGIDLY ATTACHED SYSTEMS BUT CAN ALSO BE USED ON ISOLATED SYSTEMS WHEN INCORPORATING RESILIENT BUSHINGS.

H. AT LOCATIONS WHERE SEISMIC CABLE RESTRAINTS OR SEISMIC SINGLE ARM BRACES ARE LOCATED, THE SUPPORT RODS MUST BE BRACED WHEN NECESSARY TO ACCEPT " E. " COMPRESSIVE LOADS. SEE TABLE

I. AT ALL LOCATIONS WHERE SEISMIC CABLE BRACES AND SEISMIC CABLE RESTRAINTS ARE ATTACHED TO THE PIPE CLEVIS, THE CLEVIS BOLT MUST BE REINFORCED WITH PIPE CLEVIS CROSS BOLT BRACES OR DOUBLE INSIDE NUTS IF REQUIRED BY SEISMIC ACCELERATION LEVELS.

3.4 PIPING AND ISOLATION

A. VIBRATION ISOLATION OF PIPING

1. GAS LINES SHALL NOT BE ISOLATED.

B. SEISMIC RESTRAINT OF PIPING

1. ALL HIGH HAZARD AND LIFE SAFETY PIPE REGARDLESS OF SIZE SUCH AS FUEL OIL PIPING, GAS PIPING SHALL BE SEISMIC ALLY RESTRAINED OR BRACED. TYPE V SEISMIC CABLES RESTRAINTS OR RESILIENT SINGLE ARM BRACES SHALL BE USED IF PIPING IS ISOLATED. TYPE V SEISMIC CABLE RESTRAINTS OF TYPE VI SINGLE ARM BRACES MAY BE USED ON NON-ISOLATED PIPING. THERE ARE NO EXCLUSIONS FOR SIZE OR DISTANCE IN THIS CATEGORY.

2. SEISMIC ALLY RESTRAIN PIPING LOCATED IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS I.D. AND LARGER. TYPE V SEISMIC CABLES " AND REFRIGERATION EQUIPMENT ROOMS THAT IS 1 ¼ RESTRAINTS OR RESILIENT SINGLE ARM BRACES SHALL BE USED IF PIPING IS ISOLATED. TYPE V SEISMIC CABLE RESTRAINTS OR TYPE VI SINGLE ARM BRACES MAY BE USED ON UNISOLATED PIPING.

3. SEE TABLE D FOR MAXIMUM SEISMIC BRACING DISTANCES.

4. MULTIPLE RUNS OF PIPE ON THE SAME SUPPORT SHALL HAVE DISTANCE DETERMINED BY CALCULATION. " E. "

5. ROD BRACES SHALL BE USED FOR ALL ROD LENGTHS AS LISTED IN TABLE

6. CLEVIS HANGERS SHALL HAVE BRACES PLACED INSIDE OF HANGER AT SEISMIC BRACE LOCATIONS.

7. WHERE THERMAL EXPANSION IS A CONSIDERATION, GUIDES AND ANCHORS MAY BE USED AS TRANSVERSE AND LONGITUDINAL RESTRAINTS PROVIDED THEY HAVE A CAPACITY EQUAL TO OR GREATER THAN THE RESTRAINT LOADS IN ADDITION TO THE LOADS INDUCED BY EXPANSION OF CONTRACTION.

8. FOR FUEL OIL AND ALL GAS PIPING, TRANSVERSE RESTRAINTS MUST BE AT 20' MAXIMUM AND LONGITUDINAL RESTRAINTS AT 40' MAXIMUM SPACING.

9. TRANSVERSE RESTRAINT FOR ONE PIPE SECTION MAY ALSO ACT AS LONGITUDINAL RESTRAINT FOR A PIPE SECTION OF THE SAME SIZE CONNECTED PERPENDICULAR TO IT IF THE OF THE ELBOW OR TEE OR COMBINED STRESSES ARE WITHIN " RESTRAINT IS INSTALLED WITHIN 24 ALLOWABLE LIMITS AT LONGER DISTANCES.

10.HOLD DOWN CLAMPS MUST BE USED TO ATTACH PIPE TO ALL TRAPEZE MEMBERS BEFORE LONG. " APPLYING RESTRAINTS. USE TYPE V OR VI RESTRAINT, IF TRAPEZE IS SMALLER THAN 48

11.BRANCH LINES MAY NOT BE USED TO RESTRAIN MAIN LINES.

12.WHERE PIPE PASSES THROUGH A TWO-SIDED SHEETROCK WALL, THE WALL, IF TIGHT TO THE , " PIPE, SHALL ACT AS A LATERAL/TRANSVERSE BRACE FOR PIPE SIZES UP TO AND INCLUDING 4 PROVIDED HOLE IS REINFORCED WITH METAL CORNER BEAD.

13.WHERE HORIZONTAL PIPE CROSSES A BUILDING'S DRIFT EXPANSION JOINT, ALLOWANCE SHALL BE PART OF THE DESIGN TO ACCOMMODATE DIFFERENTIAL MOTION.

CYBUL CYBUL WILHELM
ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING SPECIFICATIONS

scale:

release date:

drawing date: 09/24/2021

drawn by: RL

approved by: KF

project no.: 2102

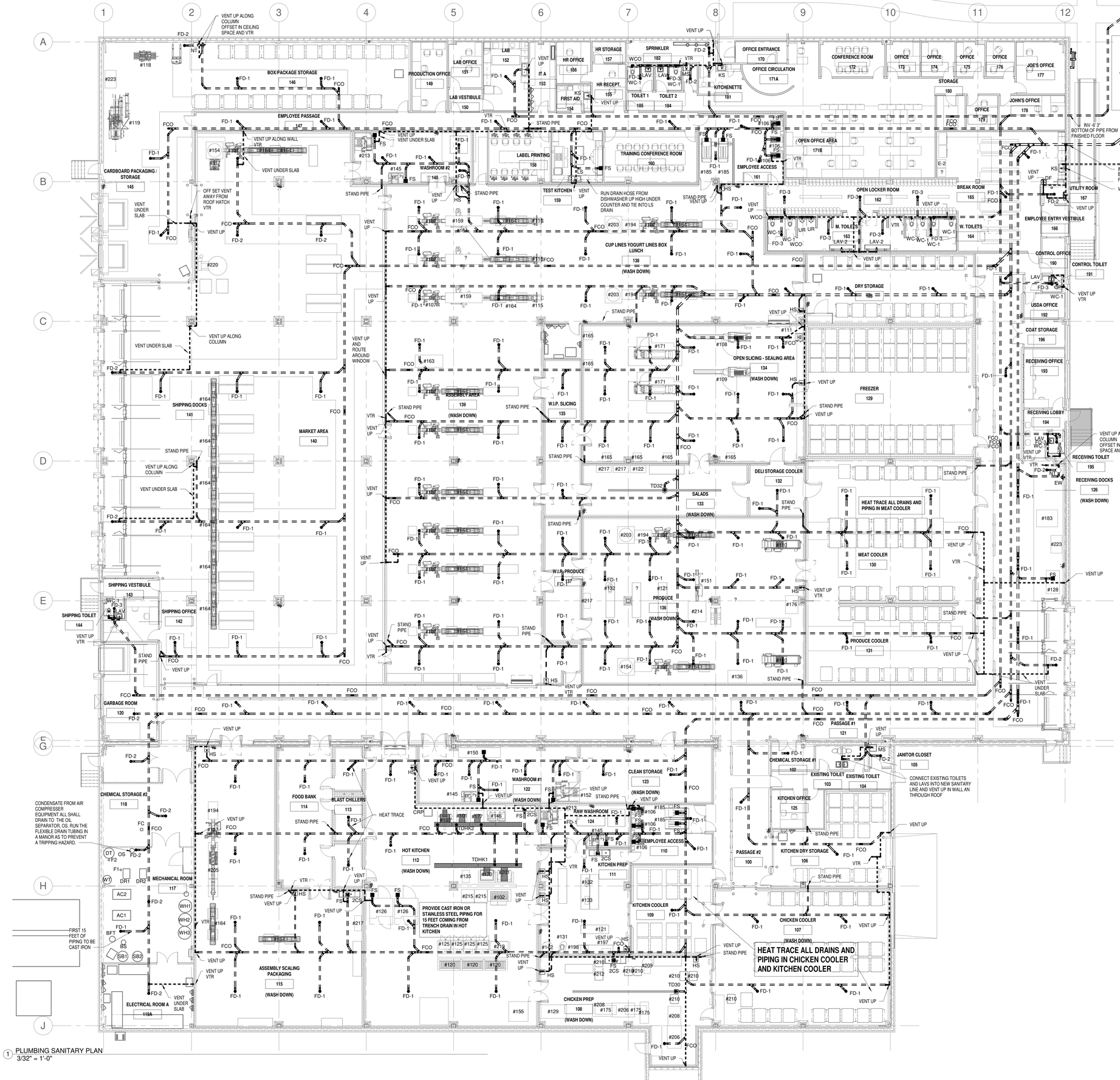
drawing no.: P-101.00

DOB BARCODE:

Total

9/24/2021 3:00:46 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING SANITARY PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN THEREON, ARE **RESERVED**. THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PROPERLY PAID BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL CONSTRUCTION IN ACCORDANCE WITH MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

SANITARY GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SINKS, FLOOR DRAINS, FLOOR SINKS AND/OR STANDPIPES SHALL BE TRAPPED JUST BELOW THE FLOOR.
2. EXISTING SANITARY LOCATION IS APPROXIMATE. FIELD VERIFY ALL FINAL LOCATIONS PRIOR TO BIDDING.
3. UNLESS OTHERWISE NOTED, PROVIDE NEW CONDENSATE DRAIN LINES TO EXISTING HUB DRAINS FOR ALL NEW AND RELOCATED CASES.
4. REFER TO RISER DIAGRAM FOR ADDITIONAL INFORMATION.
5. SEE PLUMBING SCHEDULES FOR FIXTURE PIPE CONNECTION SIZES.
9. CONDENSATE PIPING PROVIDED BY PLUMBING CONTRACTOR. REFER TO REFRIGERATION PLANS FOR INFORMATION.

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

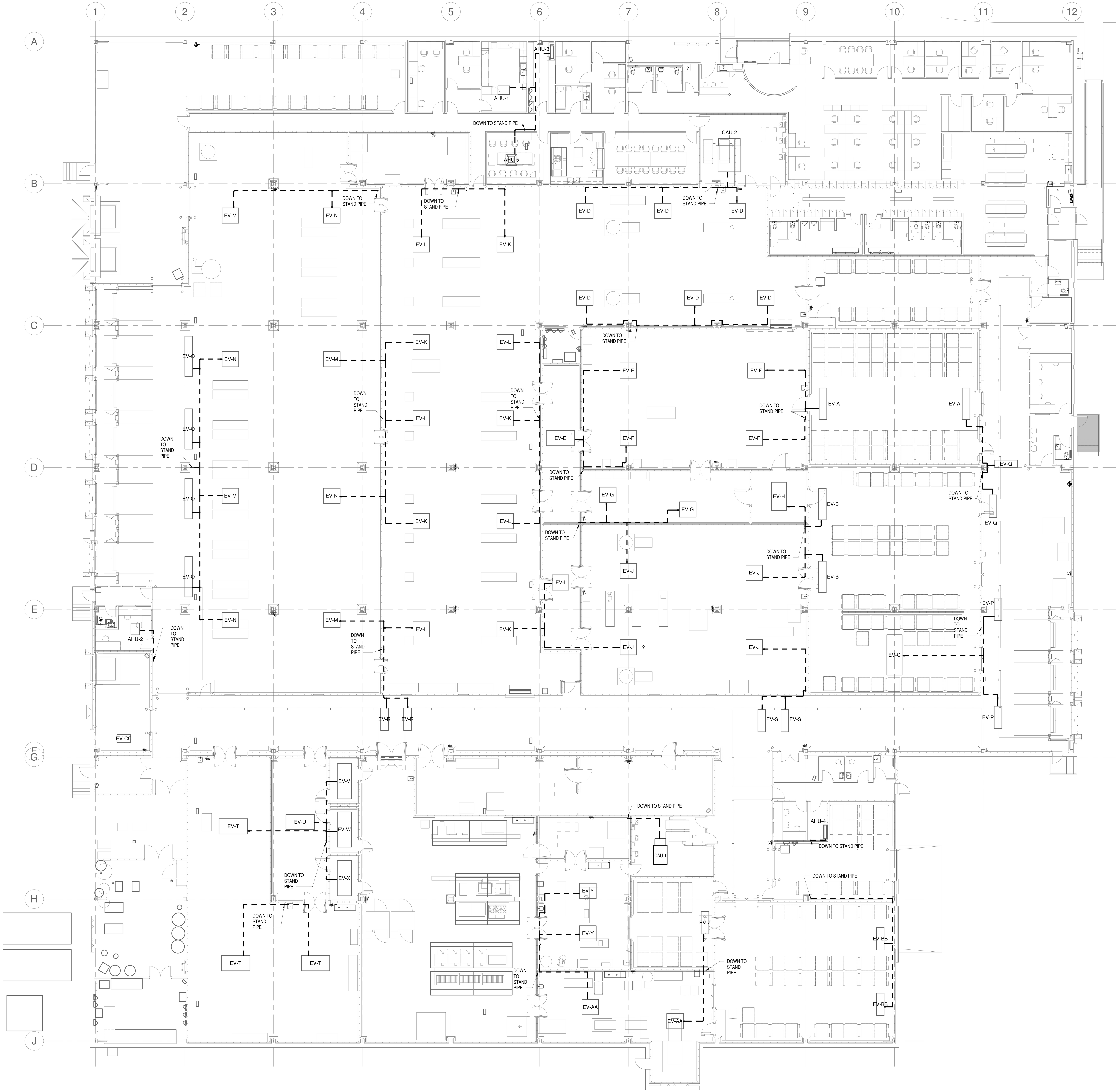
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE NO. GE 45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING SANITARY PLAN
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-200.00
DOB BARCODE:
Total

9/24/2021 3:01:31 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING CONDENSATE PLAN
3/32" = 1'-0"

CYBUL CYBUL WILHELM
ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT ■
BID
CONSTRUCTION

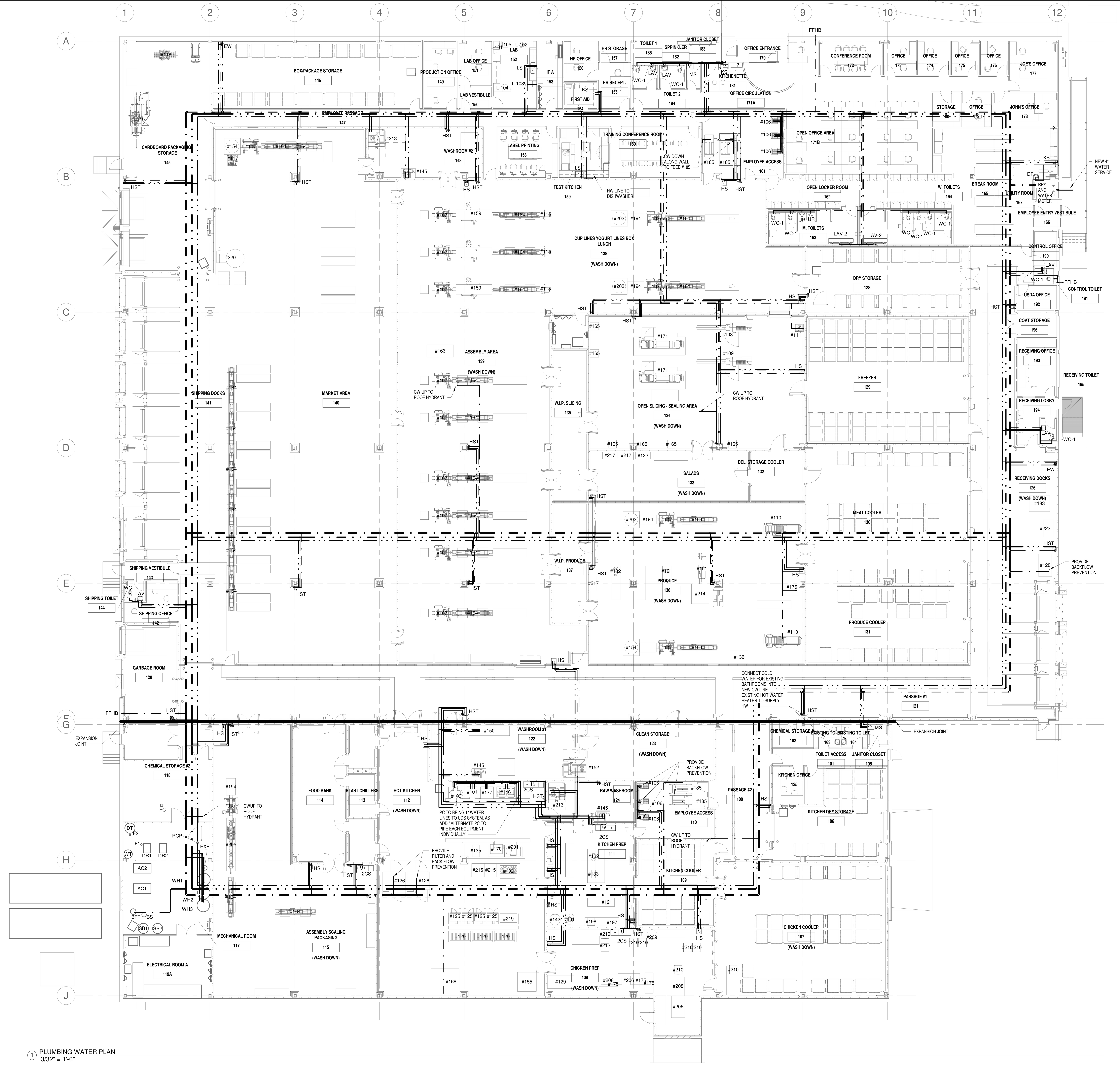
SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	PLUMBING CONDENSATE PLAN
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-300.00
DOB BARCODE:	

Total

9/24/2021 3:01:44 PM

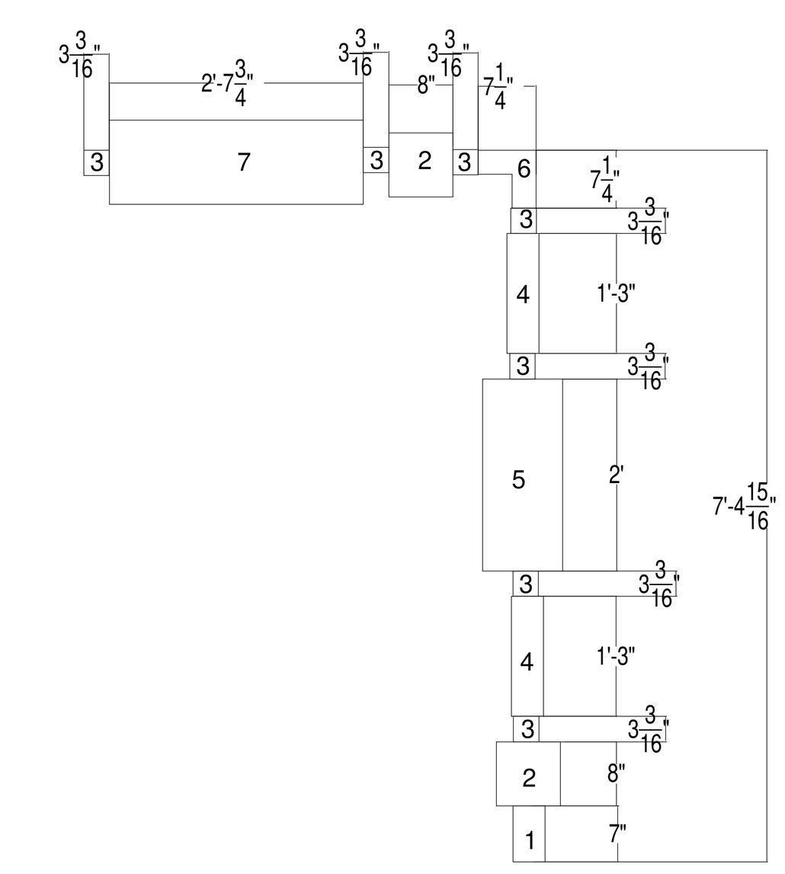
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING WATER PLAN
3/32" = 1'-0"

WATER GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL BRANCH PIPING SHALL HAVE A SHUTOFF VALVE INSTALLED WHERE THE BRANCH TAKE OFF BEGINS FROM THE MAIN.
2. UNLESS OTHERWISE NOTED, ALL PLUMBING FIXTURES SHALL HAVE SHUT OFF VALVES AT THE FIXTURE.
3. REFER TO RISER DIAGRAM FOR ADDITIONAL INFORMATION.
4. REFER TO PLUMBING SCHEDULES FOR FIXTURE PIPE CONNECTION SIZES.
7. REFER TO DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS
8. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS



1 AUTOMATIC CONTROL VALVE - WATTS LFM115-74 ANGLE FLANGED 3"
2 OS&Y VALVE - KENNEDY VALVE OS&Y FLANGED 3"
3 VIEGA PROPRESS FLANGE - 0959.5 SIZE 3
4 15" FLANGED SPOOL THREADED DUCTILE IRON
5 WATER METER 3" FROM SUEZ WATER NEW JERSEY
6 VIEGA PROPRESS 90° STREET ELBOW 3X3
7 BACKFLOW PREVENTOR - WATTS 957 OS&Y 3"

**TRUE OVERALL LENGTH OF ENTIRE ASSEMBLY WILL BE LARGER AS GASKETS HAVE NOT BEEN ACCOUNTED FOR.

WATER METER - RPZ - ACCESSORY SCHEDULE
SCALE: NONE

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

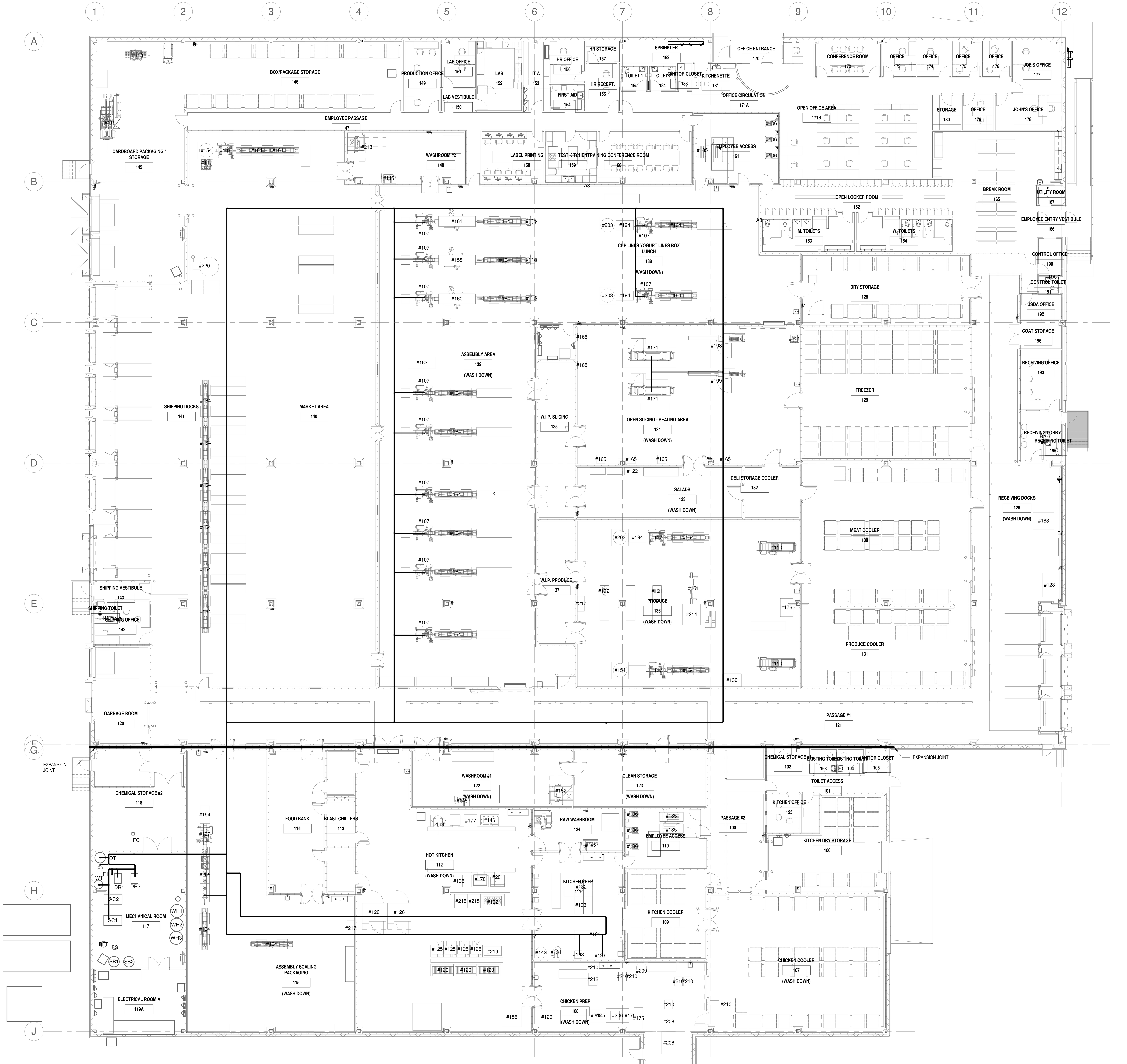
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	PLUMBING WATER PLAN
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-400.00
DOB BARCODE:	Total

9/24/2021 3:02:31 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING COMPRESSED AIR PLAN
3/32" = 1'-0"

COMPRESSED AIR NOTES:

1. FINAL LOCATIONS OF AIR DROPS TO BE FIELD VERIFIED WITH OWNER ONCE EQUIPMENT IS PUT IN PLACE. CONTRACTOR SHALL ASSUME IN THIER BIDDING THE FARTHEST LENGTH OF COMPRESSED AIR DROP. ALL COMPRESSED AIR DROPS TO BE A MINIMUM OF 3/4." CONFIRM WITH OWNER.
2. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS.

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

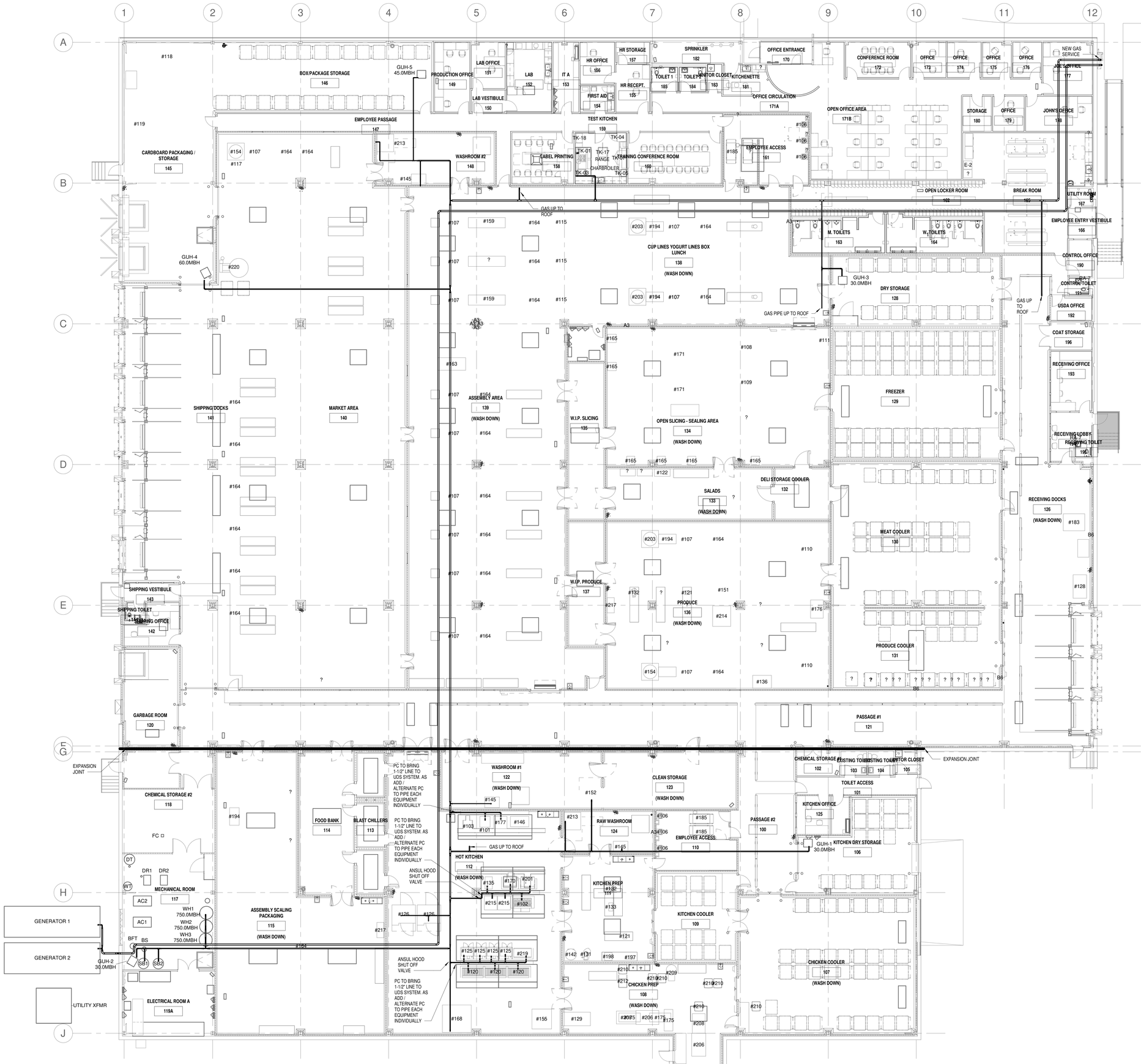
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL & SIGN
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	PLUMBING COMPRESSED AIR PLAN
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-500.00
DOB BARCODE:	
	Total

9/24/2021 3:02:54 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING GAS PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, PUBLISHED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PAID TO BD ENGINEERING BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

GAS GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL GAS FIRED EQUIPMENT SHALL HAVE SHUT OFF VALVES AT THE EQUIPMENT.
2. UNLESS OTHERWISE NOTED, GAS CONNECTION TO EQUIPMENT IS SHOWN DIAGRAMMATIC. CONTRACTOR SHALL ASSUME IN BIDDING THAT THE GAS CONNECTION IS LOCATED ON THE SIDE OF THE UNIT THAT IS MOST EXPENSIVE.
3. REFER TO RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
4. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS.

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

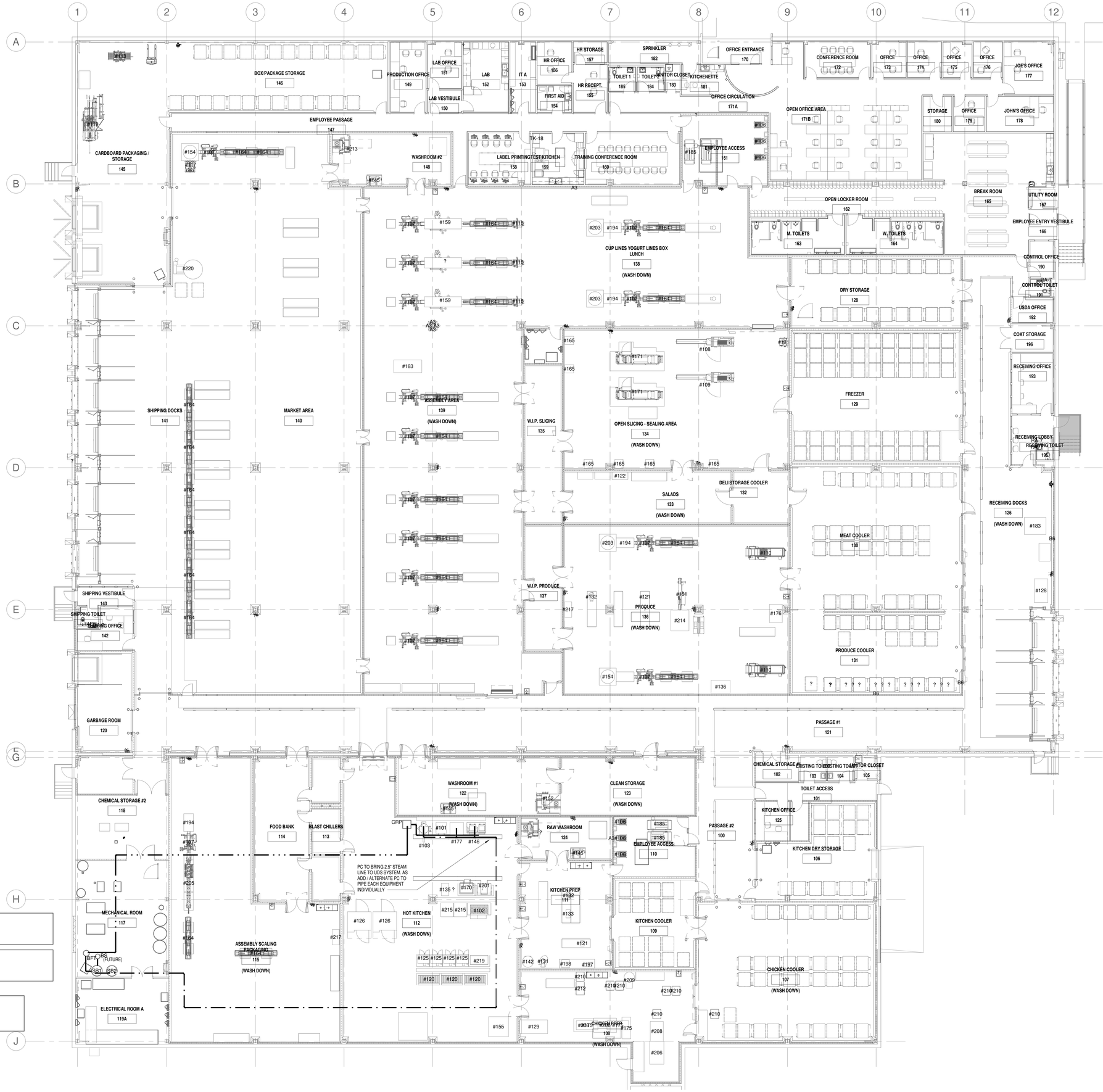
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
SIGN & SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING GAS PLAN
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-600.00
DOB BARCODE:
Total

9/24/2021 3:03:17 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING STEAM PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN ON THIS DRAWING, **ARE** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN OBTAINED AND FEES HAVE BEEN PROPERLY PAID BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONDITIONS AT THE JOB SITE ARE IN ACCORDANCE WITH THE INFORMATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

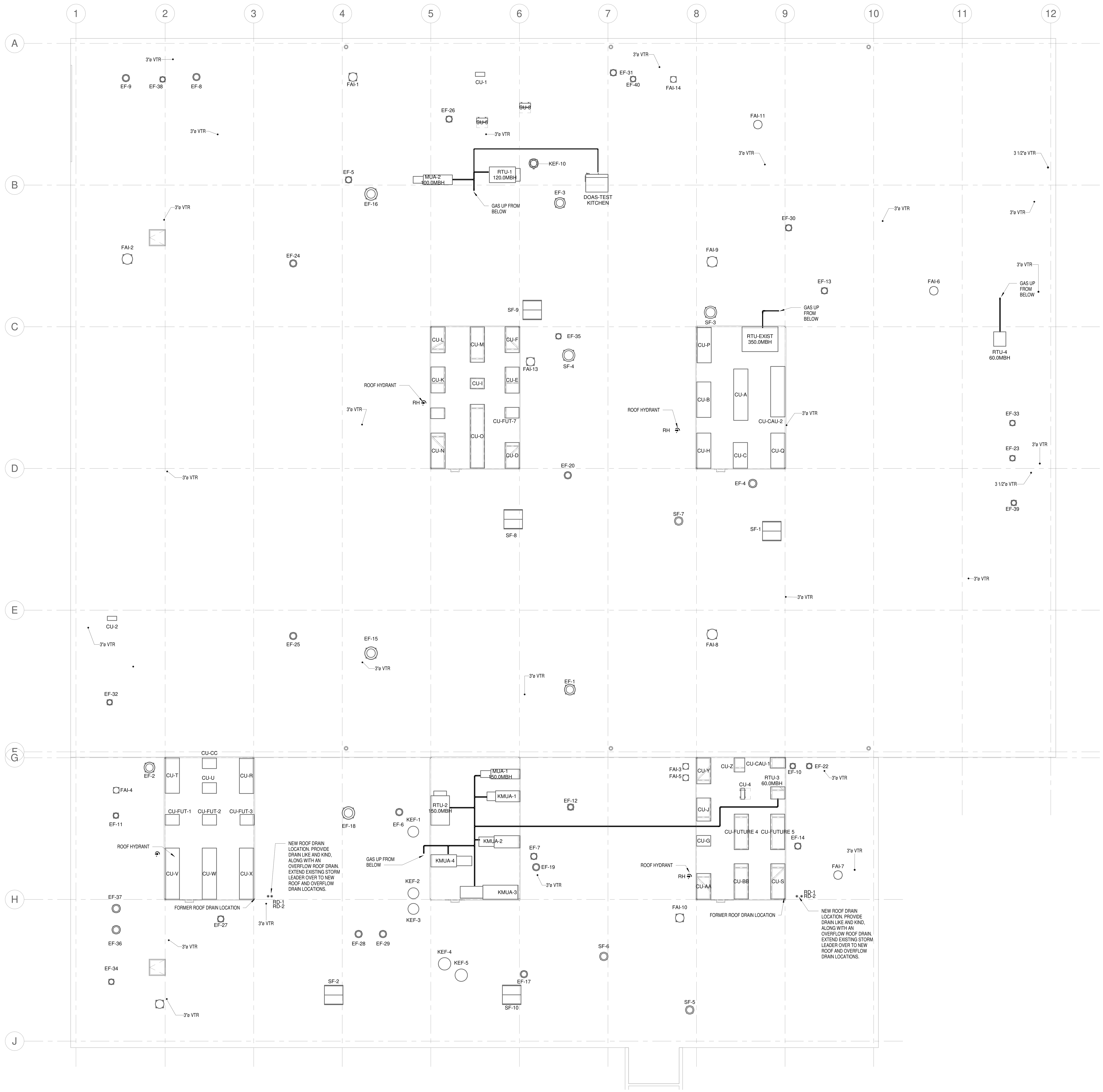
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING STEAM PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-700.00
DOB BARCODE:
Total

9/24/2021 3:03:39 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING ROOF PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

GAS GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL GAS FIRED EQUIPMENT SHALL HAVE SHUT OFF VALVES AT THE EQUIPMENT.
2. UNLESS OTHERWISE NOTED, GAS CONNECTION TO EQUIPMENT IS SHOWN DIAGRAMMATIC. CONTRACTOR SHALL ASSUME IN BIDDING THAT THE GAS CONNECTION IS LOCATED ON THE SIDE OF THE UNIT THAT IS MOST EXPENSIVE.
3. REFER TO RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
4. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS.

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEALS & SIG.
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
PLUMBING ROOF PLAN

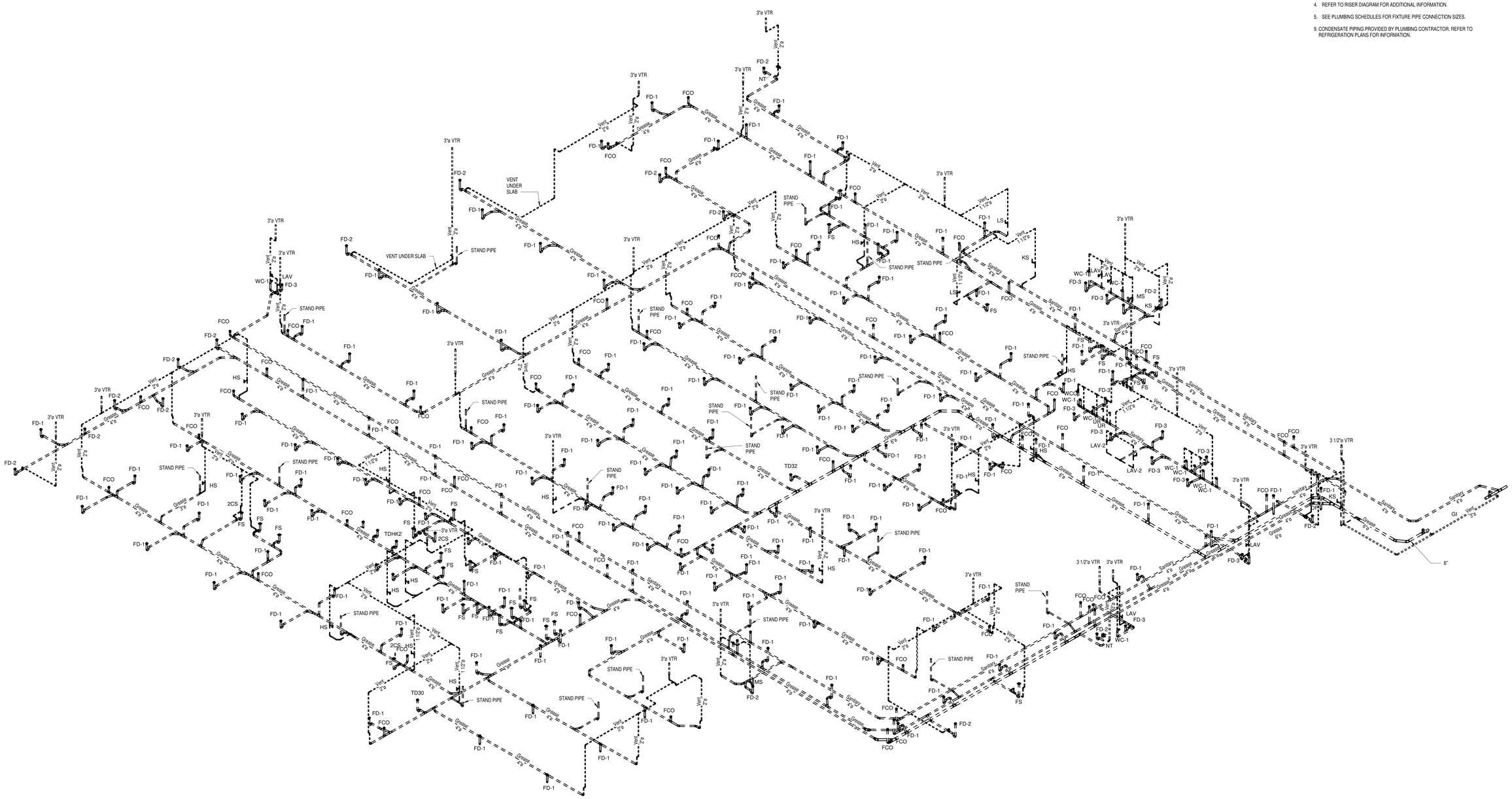
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-800.00

DOB BARCODE:

Total

9/24/2021 3:03:47 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 SANITARY RISER OVERALL

SANITARY GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL SINKS, FLOOR DRAINS, FLOOR SINKS AND/OR STANDPIPES SHALL BE TRAPPED JUST BELOW THE FLOOR.
2. EXISTING SANITARY LOCATION IS APPROXIMATE. FIELD VERIFY ALL FINAL LOCATIONS PRIOR TO BIDDING.
3. UNLESS OTHERWISE NOTED, PROVIDE NEW CONDENSATE DRAIN LINES TO EXISTING HUB DRAINS FOR ALL NEW AND RELOCATED CASES.
4. REFER TO RISER DIAGRAM FOR ADDITIONAL INFORMATION.
5. SEE PLUMBING SCHEDULES FOR FIXTURE PIPE CONNECTION SIZES.
9. CONDENSATE PIPING PROVIDED BY PLUMBING CONTRACTOR. REFER TO REFRIGERATION PLANS FOR INFORMATION.

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

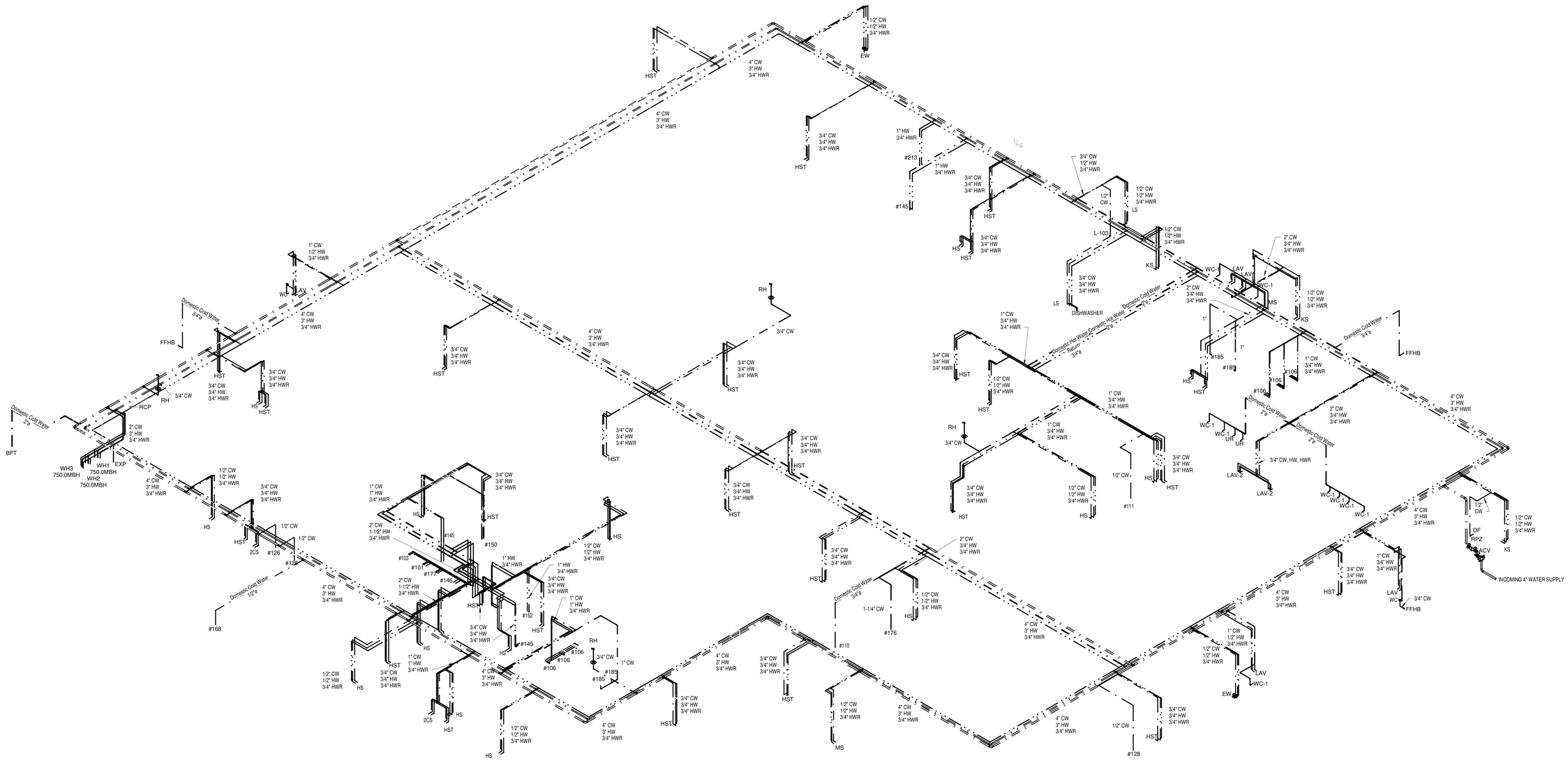
drawing name:	PLUMBING SANITARY RISER
scale:	12" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-900.00
DOB BARCODE:	Total

9/24/2021 3:04:06 PM

C:\Users\RL\Documents_2200066-MEP-2021_Rhiannon7.rvt

WATER GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL BRANCH PIPING SHALL HAVE A SHUTOFF VALVE INSTALLED WHERE THE BRANCH TAKE OFF BEGINS FROM THE MAIN.
2. UNLESS OTHERWISE NOTED, ALL PLUMBING FIXTURES SHALL HAVE SHUT OFF VALVES AT THE FIXTURE.
3. REFER TO RISER DIAGRAM FOR ADDITIONAL INFORMATION.
4. REFER TO PLUMBING SCHEDULES FOR FIXTURE PIPE CONNECTION SIZES.
7. REFER TO DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS
8. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS



1 SUPPLY RISER OVERALL

CYBUL CYBUL WILHELM ARCHITECTS

1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING WATER RISER

scale: 12" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: RL

approved by: KF

project no.: 2102

drawing no.: P-901.00

DOB BARCODE:

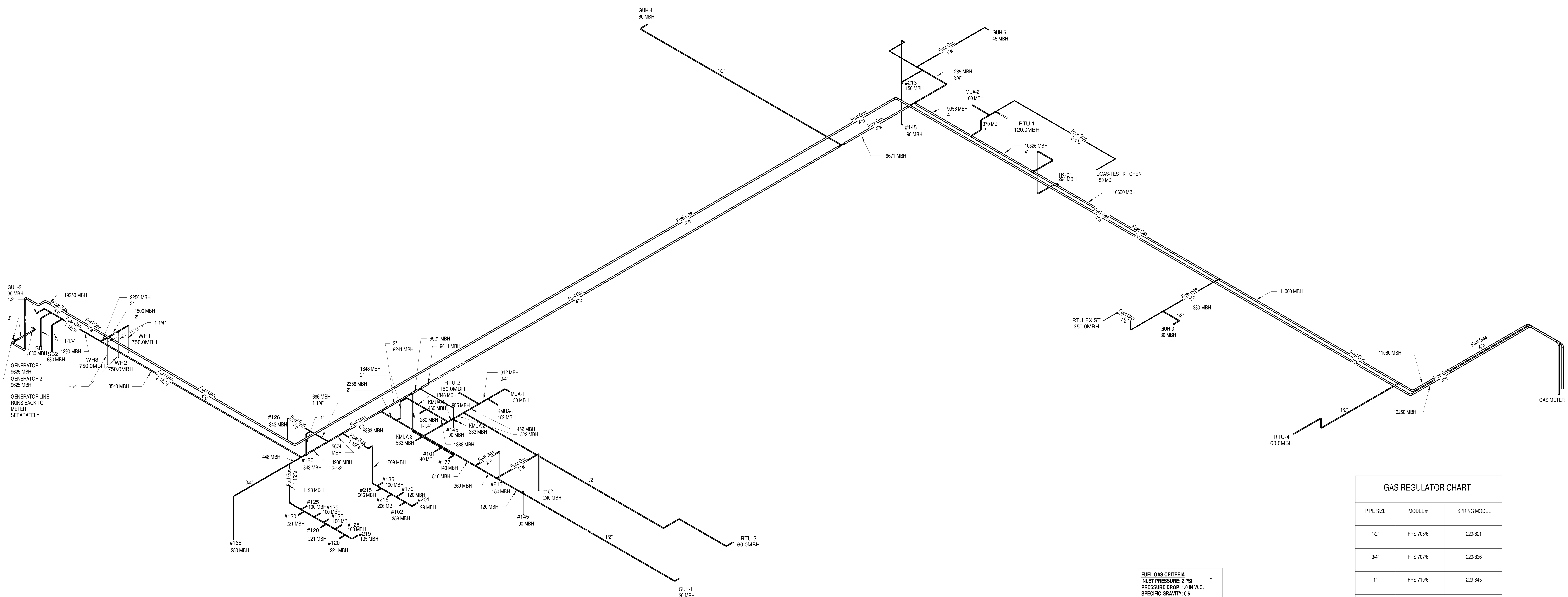
Total

9/24/2021 3:04:28 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

GAS GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL GAS FIRED EQUIPMENT SHALL HAVE SHUT OFF VALVES AT THE EQUIPMENT.
2. UNLESS OTHERWISE NOTED, GAS CONNECTION TO EQUIPMENT IS SHOWN DIAGRAMMATIC. CONTRACTOR SHALL ASSUME IN BIDDING THAT THE GAS CONNECTION IS LOCATED ON THE SIDE OF THE UNIT THAT IS MOST EXPENSIVE.
3. REFER TO RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
4. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS.



FUEL GAS CRITERIA
INLET PRESSURE: 2 PSI
PRESSURE DROP: 1.0 IN W.C.
SPECIFIC GRAVITY: 0.6
TOTAL DEVELOPED LENGTH: 700 FT

NOTE:
PC TO COORDINATE PRESSURE REGULATOR REQUIREMENTS WITH ALL GAS EQUIPMENT SUPPLIERS.

GAS REGULATORS FOR KMUA UNITS:
KMUA-1 162 MBH FRS 705 (1/2") Delta P = 1
KMUA-2 333 MBH FRS 705 (1/2")Delta P = 1.5"
KMUA-3 533 MBH FRS 705 (1/2") Delta P = 4"
KMUA-4 460 MBH FRS 705 (1/2") Delta P = 3"

GAS REGULATOR CHART

PIPE SIZE	MODEL #	SPRING MODEL
1/2"	FRS 705/6	229-821
3/4"	FRS 707/6	229-836
1"	FRS 710/6	229-845
1-1/4"	FRS 712/6	229-854
1-1/2"	FRS 715/6	229-854
2"	FRS 720/6	229-877
2-1/2"	FRS 725/6	229-886
3"	FRS 730/6	229-886
4"	FRS 5100	229-895
5"	FRS 5125	229-904
6"	FRS 5150	229-912

DUNGS PRESSURE REGULATORS INCOMING 2 PSI SET PRESSURE ACCORDING TO EQUIPMENT REQUIREMENTS.
REFER TO THE APPLIANCE MANUFACTURERS INSTALLATION REQUIREMENTS TO DETERMINE THE MAXIMUM LENGTH OF PIPE ALLOWED AFTER THE REGULATOR AND THE SIZING AND FITTING LIMITATIONS.
ALL REGULATORS ARE TO BE FULL SIZE IN AND OUT TO MATCH INCOMING LINE SIZE.

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
PLUMBING GAS RISER

scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-902.00
DOB BARCODE:

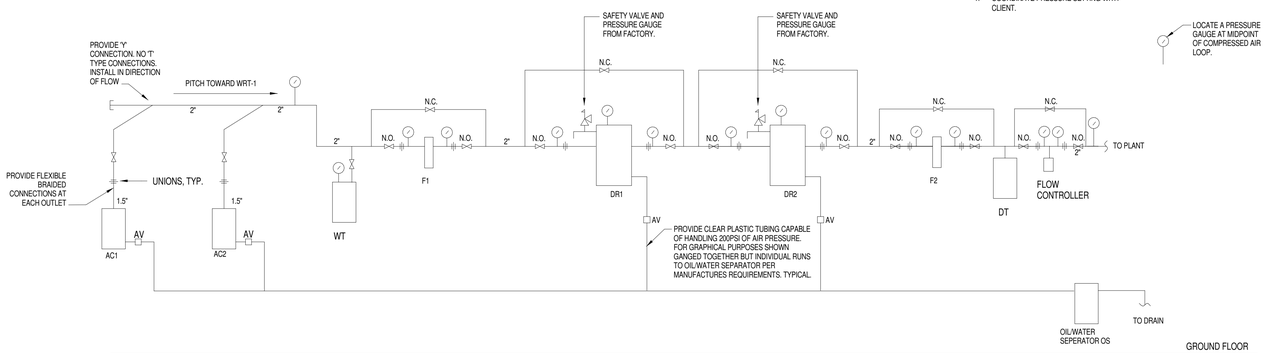
Total

9/24/2021 3:04:41 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

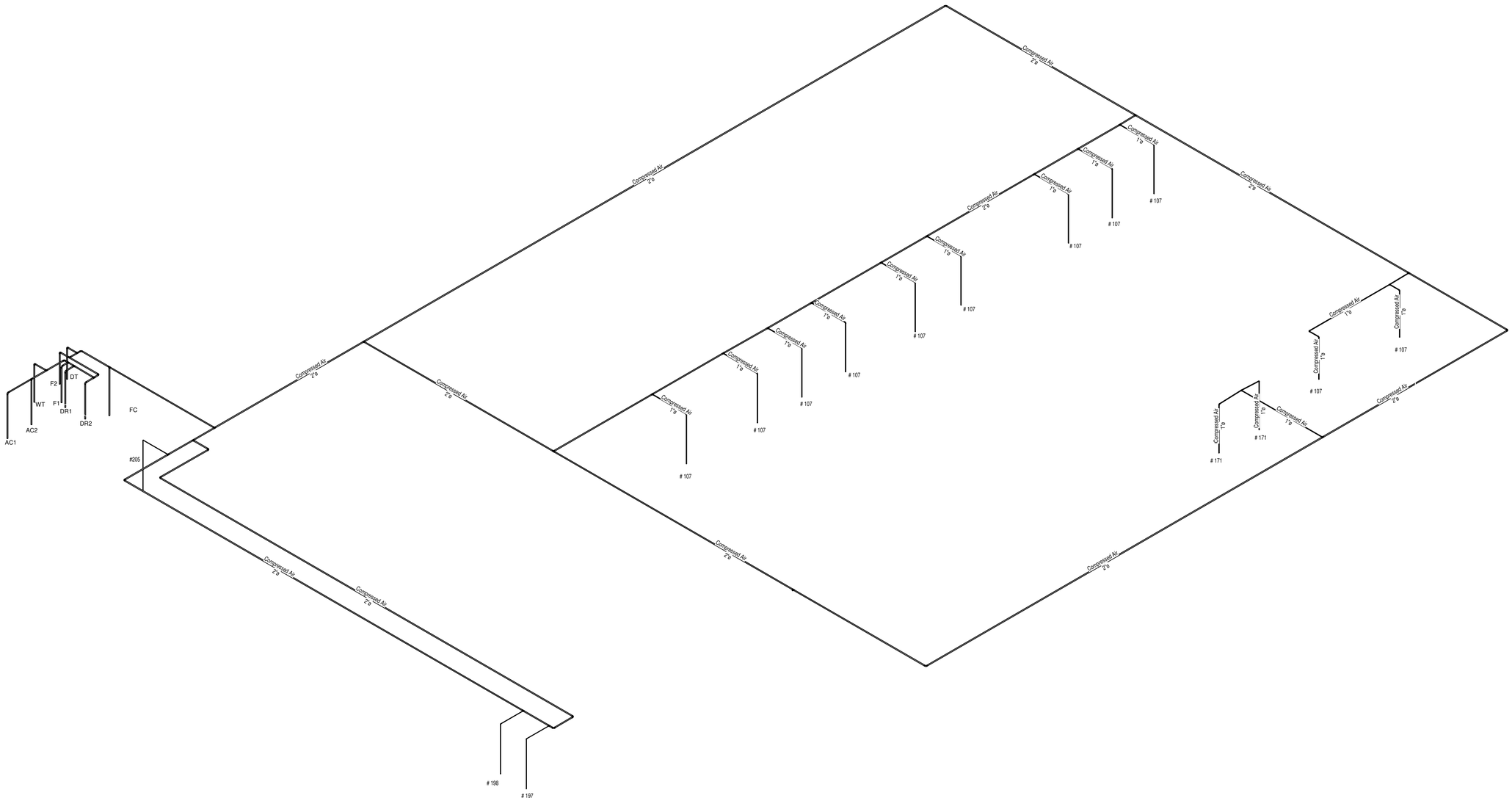
COMPRESSED AIR SYSTEM NOTES:

1. COORDINATE PRESSURE SETTING WITH CLIENT.



COMPRESSED AIR RISER SYSTEM DETAIL

SCALE: NONE



1 COMPRESSED AIR RISER

COMPRESSED AIR NOTES:

1. FINAL LOCATIONS OF AIR DROPS TO BE FIELD VERIFIED WITH OWNER ONCE EQUIPMENT IS PUT IN PLACE. CONTRACTOR SHALL ASSUME IN THIER BIDDING THE FARTHEST LENGTH OF COMPRESSED AIR DROP. ALL COMPRESSED AIR DROPS TO BE A MINIMUM OF 3/4 " CONFIRM WITH OWNER.
2. PROVIDE EXPANSION LOOP AT ALL EXPANSION JOINTS.

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGNATURE

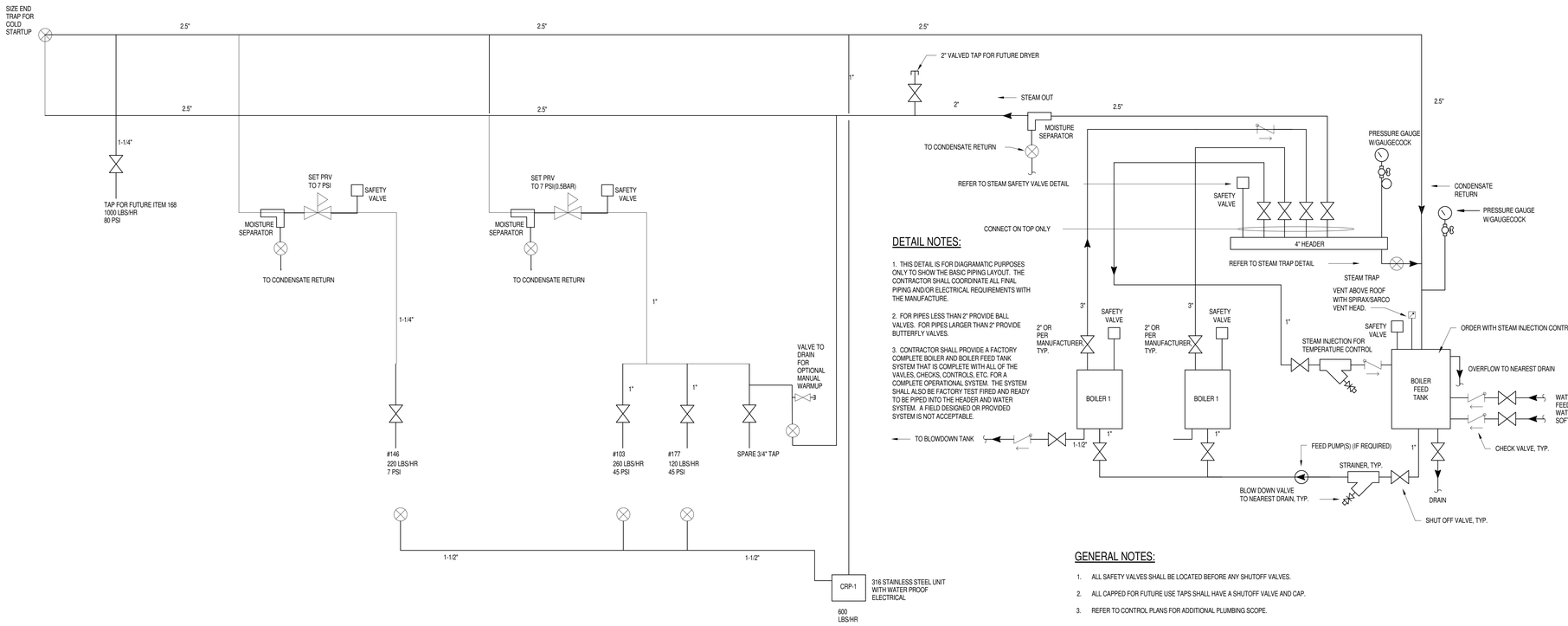
BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING COMPRESSED AIR RISER
scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-903.00
DOB BARCODE:
Total

9/24/2021 3:04:45 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



DETAIL NOTES:

1. THIS DETAIL IS FOR DIAGRAMATIC PURPOSES ONLY TO SHOW THE BASIC PIPING LAYOUT. THE CONTRACTOR SHALL COORDINATE ALL FINAL PIPING AND/OR ELECTRICAL REQUIREMENTS WITH THE MANUFACTURE.

2. FOR PIPES LESS THAN 2" PROVIDE BALL VALVES. FOR PIPES LARGER THAN 2" PROVIDE BUTTERFLY VALVES.

3. CONTRACTOR SHALL PROVIDE A FACTORY COMPLETE BOILER AND BOILER FEED TANK SYSTEM THAT IS COMPLETE WITH ALL OF THE VAVLES, CHECKS, CONTROLS, ETC. FOR A COMPLETE OPERATIONAL SYSTEM. THE SYSTEM SHALL ALSO BE FACTORY TEST FIRED AND READY TO BE PIPED INTO THE HEADER AND WATER SYSTEM. A FIELD DESIGNED OR PROVIDED SYSTEM IS NOT ACCEPTABLE.

GENERAL NOTES:

1. ALL SAFETY VALVES SHALL BE LOCATED BEFORE ANY SHUTOFF VALVES.
2. ALL CAPPED FOR FUTURE USE TAPS SHALL HAVE A SHUTOFF VALVE AND CAP.
3. REFER TO CONTROL PLANS FOR ADDITIONAL PLUMBING SCOPE.

1 STEAM RISER

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ELECTRONIC FILE, IS AN INSTRUMENT OF SERVICE. **BD ENGINEERING** RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY FEES HAVE BEEN PAID TO BD ENGINEERING AND A CONTRACT HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND SYSTEMS SPECIFIED CAN BE INSTALLED AS SHOWN ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SIGN & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING STEAM RISER

scale:

release date:

drawing date: 09/24/2021

drawn by: RL

approved by: KF

project no.: 2102

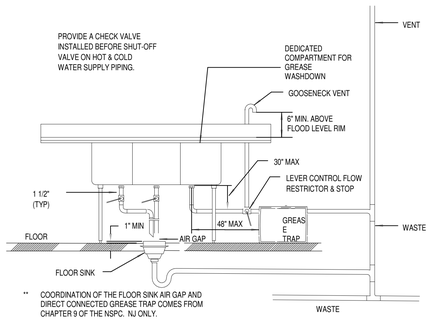
drawing no.: P-904.00

DOB BARCODE:

Total

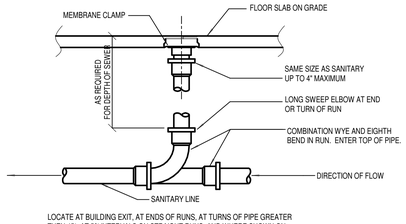
9/24/2021 3:04:45 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



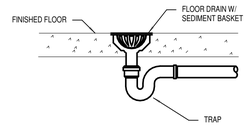
COMPARTMENT SINK DETAIL

SCALE: NONE



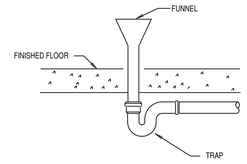
FLOOR CLEANOUT DETAIL

SCALE: NONE



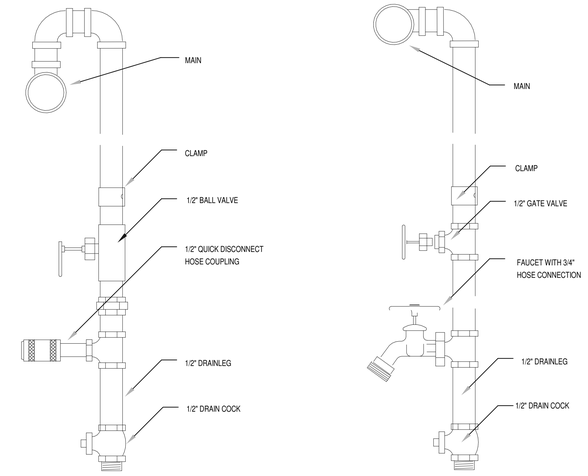
FLOOR DRAIN DETAIL

SCALE: NONE



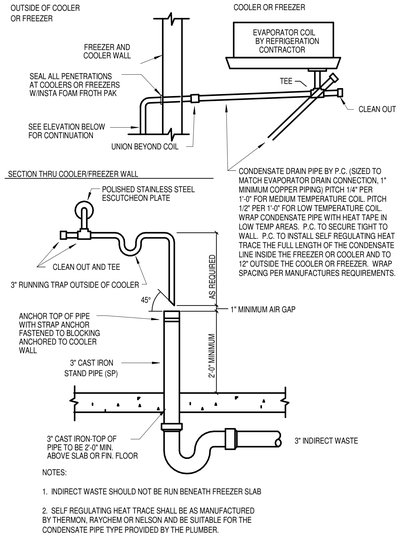
STAND PIPE WITH FUNNEL DETAIL

SCALE: NONE



TYPICAL AIR & WATER DROP DETAIL

SCALE: NONE



NOTES:

1. INDIRECT WASTE SHOULD NOT BE RUN BENEATH FREEZER SLAB
2. SELF REGULATING HEAT TRACE SHALL BE AS MANUFACTURED BY THERMON, RAYCHEM OR NELSON AND BE SUITABLE FOR THE CONDENSATE PIPE TYPE PROVIDED BY THE PLUMBER.

TYPICAL CONDENSATE DETAIL

SCALE: NONE

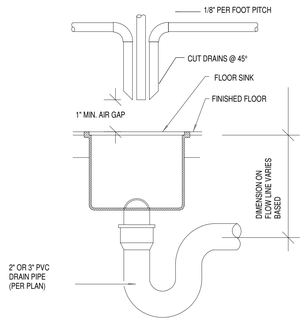
NOTE:
REFER TO 2016 ASHRAE HANDBOOK - HVAC SYSTEMS AND EQUIPMENT, I-P EDITION, PAGE 46.12 - TABLE #11.

EXPANSION PIPE LOOP

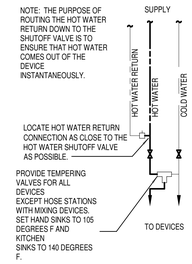
SCALE: NONE

FLOOR SINK INSTALLATION DETAIL

NO SCALE

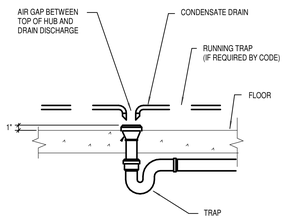


INDIRECT WASTE PIPING SHOWN FOR THREE-COMPARTMENT SINK



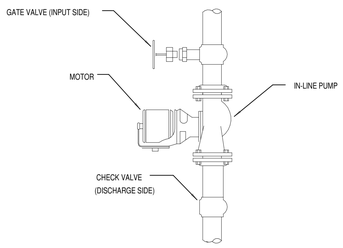
HOT WATER RETURN AT WATER DEVICE AND TEMPERING VALVE.

SCALE: NONE



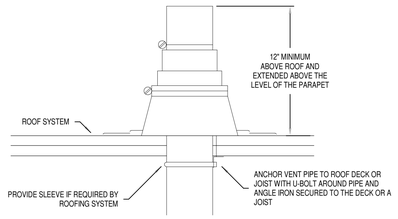
TYPICAL HUB DRAIN DETAIL

SCALE: NONE



TYPICAL INLINE PUMP DETAIL

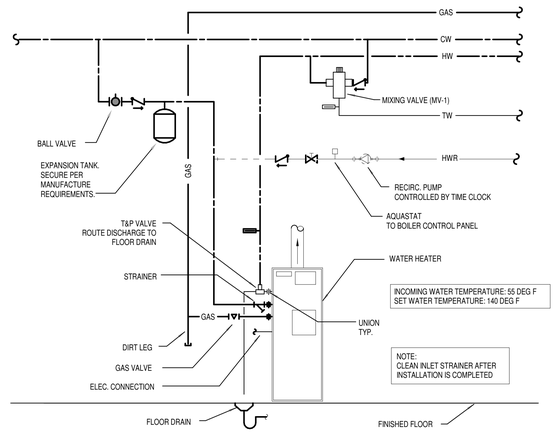
SCALE: NONE



REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VTR MINIMUM TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, AND ONE FOOT FROM ANY VERTICAL SURFACE. PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET ON VENT PIPE INSIDE BUILDING WITHIN SIX FEET OF VENT THRU ROOF LOCATION. FLASHING AND COUNTER FLASHING ARE TO BE COMPATIBLE WITH THE ROOFING SYSTEM.

VENT THROUGH ROOF DETAIL

SCALE: NONE



WATER HEATER DETAIL

SCALE: NONE

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORK AND ENGINEERING DESIGN, **ARE COPYRIGHTED.** WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL FEES HAVE BEEN PAID TO BD ENGINEERING AND WE HAVE RECEIVED A CONTRACT HAVE BEEN PROPERLY SIGNED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND MATERIALS SPECIFIED ARE SUITABLE FOR THE APPLICATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!**

copyright - BD ENGINEERING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

SEAL & SEAL

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	PLUMBING DETAILS
scale:	As indicated
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	P-1000.00
DOB BARCODE:	

Total

9/24/2021 3:04:48 PM

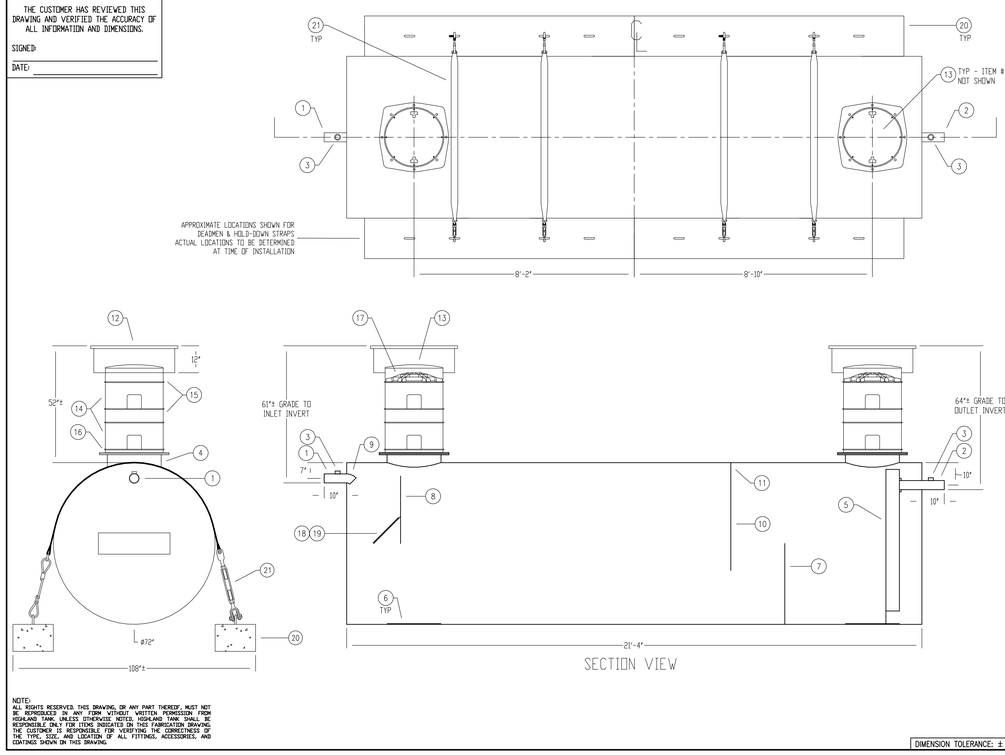
C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

CUSTOMER APPROVAL

THE CUSTOMER HAS REVIEWED THIS DRAWING AND VERIFIED THE ACCURACY OF ALL INFORMATION AND DIMENSIONS.

SIGNED:

DATE:



GENERAL SPECIFICATIONS

QUANTITY: ONE (1)
MODEL: PGI-4000-2
OPERATING CAPACITY: 4,012 GALLONS
TYPE: SINGLE WALL, HIGHGUARD, UNDERGROUND
MATERIAL: 1/4" CARBON STEEL
MATERIAL BASED ON 60" MAXIMUM BURIAL DEPTH
LAP FIT AND WELD INTERIOR AND EXTERIOR SEAMS
TANK TEST: 3-5 PSI AIR TEST
SURFACE PREP: SSPC-SP 10 BLAST INTERIOR SURFACES
SSPC-SP 6 BLAST EXTERIOR SURFACES
EXT. COATING: HIGHGUARD POLYURETHANE – 75 MILS
INT. COATING: CHEMTHANE 4200 PW (15 MILS DFT)
OPERATING PRESSURE: ATMOSPHERIC

NOTE: OPTIONAL 2" VENTS ON MANWAY RISERS AT THE DISCRETION OF THE OWNER

PROVIDED EQUIPMENT

1. 4"ø SCH 40 PIPE STUB – INLET
2. 4"ø SCH 40 PIPE STUB – OUTLET
3. 2" HC – VENT
4. 24"ø MANWAY FOR STACKABLE RISER
5. 6" SQUARE STEEL OUTLET BAFFLE WITH OPEN TOP
6. STRIKER PLATE
7. SLUDGE BAFFLE – 1/4"
8. UNDERFLOW BAFFLE – 1/4"
9. 4"ø 45° DIFFUSION ELBOW
10. GREASE DAM – 1/4"
11. 2" OPENING FOR AIR CIRCULATION
12. 36"ø GRADE-LEVEL MANWAY – SHIPPED LOOSE
13. 24"ø PVC COVER
14. (2) 24"ø x 12" STACKABLE RISER – ALL STACKABLE RISER COMPONENTS ARE PRE-ASSEMBLED AND COMPLETE MANWAY RISER IS SHIPPED LOOSE
15. (2) 24"ø x 6" STACKABLE RISER
16. STACKABLE RISER ADAPTER RING & GASKET
17. STACKABLE RISER SAFETY SCREEN
18. DIFFUSION BAFFLE – 7 GA
19. 16" x 16" WEAR PLATE – 1/4"
20. (4) CDA-15 CONCRETE DEADMAN
21. (4) POLYESTER HOLD-DOWN STRAPS

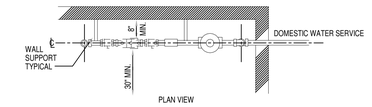
Highland Tank®

PASSIVE GREASE INTERCEPTOR
4,000 GALLON DOUBLE-BASIN

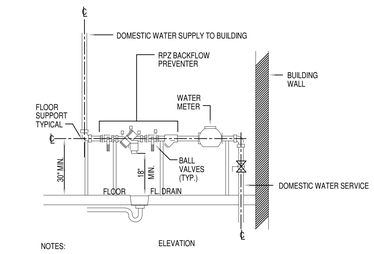
CUSTOMER:
PROJECT:
QUOTE NO.:
ORDER:

DIMENSION TOLERANCE: ± 1"	SCALE:	DATE:	DWG. BY:	DWG. NO:
	NTS	3/5/19	MGS	PGI-4000-2

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.



PLAN VIEW



ELEVATION

NOTES:

1. ALL CONNECTIONS TO THE DOMESTIC WATER SERVICE SHALL BE DOWNSTREAM OF THE BACKFLOW PREVENTION DEVICE. BY-PASSING OF THE BACKFLOW PREVENTION DEVICE IS NOT PERMITTED AND A VIOLATION OF THE HEALTH DEPT. RULES AND REGULATIONS.

2. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE WATER CO. REGULATIONS, CITY, COUNTY AND STATE HEALTH DEPARTMENT REQUIREMENTS.

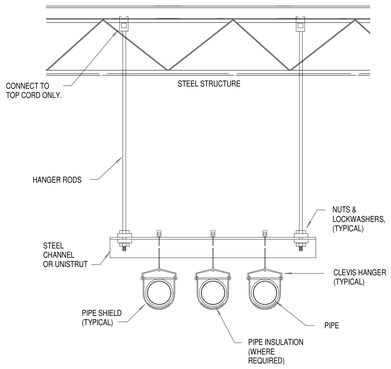
3. IT IS THE OWNER'S RESPONSIBILITY TO ENGAGE A CERTIFIED BACKFLOW PREVENTION DEVICE TESTER TO TEST THE RPZ ANNUALLY WITH RESULTS REPORTED TO THE TOWN WATER AUTHORITY/DISTRICT AND THE COUNTY DEPARTMENTOF HEALTH.

4. ALL POSITIVE DRAINAGE OUTLETS SHALL BE 12" MINIMUM ABOVE MAXIMUM FLOOD ELEVATION.

5. THE CONTRACTOR SHALL ADEQUATELY SUPPORT THE METER, RPZ AND PIPING FROM BOTH VERTICAL AND HORIZONTAL MOVEMENT.

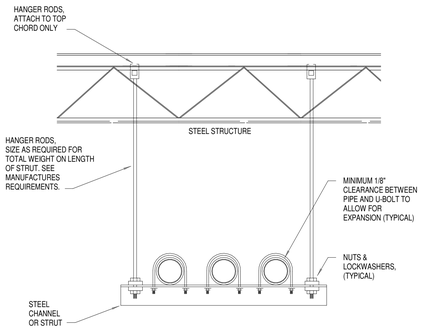
TYPICAL DOMESTIC WATER SERVICE DETAIL

SCALE: NONE



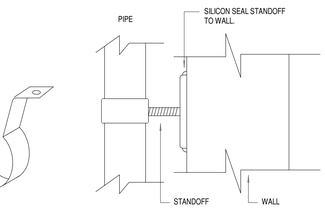
TRAPEZE PIPE HANGER DETAIL

SCALE: NONE



TRAPEZE PIPE HANGER DETAIL

SCALE: NONE



NOTES:

1. ALL EXPOSED PIPE SHALL BE SECURED USING A STAINLESS STEEL OR BRASS STANDOFF TYPE PIPE BRACKET. BRACKET SHALL PROVIDE A MINIMUM CLEARANCE OF 1" BETWEEN PIPE AND WALL OR CEILING. THE BRACKET METAL SHALL BE COMPATIBLE WITH THE PIPE MATERIAL. PLASTIC STANDOFFS ARE NOT ALLOWED.

2. ALL EXPOSED METAL PIPE IN FOOD PROCESSING AREAS AND FOOD STORAGE COOLERS SHALL BE WRAPPED IN A WASHABLE WATERPROOF PVC JACKET.

3. THE BRACKET SHOWN IS FOR DIAGRAMMATIC PURPOSES ONLY. THE CONTRACTOR SHALL HAVE THE OPTION TO SUBMIT ALTERNATE STANDOFFS FOR APPROVAL PRIOR TO BID.

4. ALL PIPING IN PROCESS AND WASHDOWN AREAS SHALL BE STAINLESS STEEL TYPE.

TYPICAL PIPE STAND-OFF DETAIL

SCALE: NONE

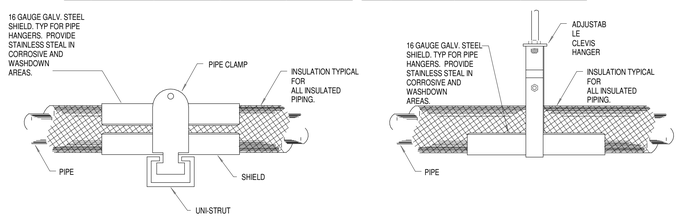
WATER OR STEAM PIPE HANGER SPACING (SCHEDULE 40 OR 80 STEEL)				
PIPE SIZE	SCH. 40 WEIGHT / FT WITH WATER (IN LBS.)	FTSCH. 80 WEIGHT / FT. WITH WATER (IN LBS.)	MAX HANGER SPACING (WATER)	ROD SIZE
1/2"	.981	1.188	7'	1/2"
3/4"	1.361	1.657	7'	1/2"
1"	2.054	2.481	7'	1/2"
1-1/4"	2.917	3.545	7'	1/2"
1-1/2"	3.601	4.395	7'	1/2"
2"	5.1	6.3	10'	3/4"
2-1/2"	7.86	9.490	10'	3/4"
3"	10.77	13.11	10'	3/4"
4"	16.29	13.95	10'	3/4"
6"	31.46	39.83	15'	3/4"
8"	50.18	63.11	15'	1"
10"	74.57	95.37	20'	1"
12"	101.92	132.42	20'	1"

WATER PIPE HANGER SPACING (COPPER TUBE)			
PIPE SIZE	WEIGHT / FT. WITH WATER (IN LBS.)	MAX HANGER SPACING (WATER)	ROD SIZE
1/2"	0.438	5'	1/2"
3/4"	0.83	5'	1/2"
1"	1.175	6'	1/2"
1-1/4"	1.564	6'	1/2"
1-1/2"	2.106	8'	1/2"
2"	3.367	8'	3/4"
2-1/2"	4.941	8'	3/4"
3"	6.874	10'	3/4"
4"	11.566	10'	3/4"
6"	25.068	10'	3/4"
8"	45.453	16'	1"
10"	70.613	16'	1"
12"	101.294	16'	1"

NOTE:

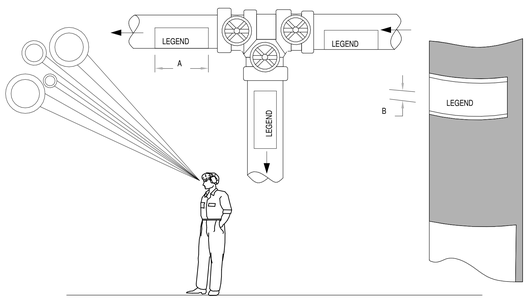
THE HANGER SPACING AND ROD SIZES ARE FROM ASHRAE'S 2004 HANDBOOK-HVAC SYSTEMS AND EQUIPMENT TABLE 6 PAGE 41.7, "SUGGESTED HANGER SPACING AND ROD SIZE FOR STRAIGHT HORIZONTAL RUNS"

THE WEIGHT PER FOOT IS FROM TABLE 2 AND TABLE 3 ON PAGE 41.3 AND 41.4.



PIPE HANGER SPACING REQUIREMENTS

SCALE: NONE



PIPE MARKING DETAIL

SCALE: NONE

SIZE OF LEGEND LETTERS		
OUTSIDE DIAMETER OF PIPE COVERING (IN.)	LENGTH OF COLOR FIELD, (A)	SIZE OF LETTERS, (B)
3/4" TO 1-1/4"	8"	1/2"
1-1/2" TO 2"	8"	3/4"
2-1/2" TO 6"	12"	1-1/4"
8" TO 10"	24"	2-1/2"
OVER 10"	32"	3-1/2"

DESIGNATION OF COLORS		
FLUID SERVICE	BACKGROUND COLOR	LETTER COLOR
FIRE QUENCHING LIQUIDS	SAFETY RED	WHITE
TOXIC AND CORROSIVE FLUIDS	SAFETY ORANGE	BLACK
FLAMMABLE FLUIDS	SAFETY YELLOW	BLACK
COMBUSTIBLE FLUIDS	SAFETY BROWN	WHITE
POTABLE, COOLING, BOILER FEED AND OTHER WATER	SAFETY GREEN	WHITE
COMPRESSED AIR	SAFETY BLUE	WHITE

NOTES:

1. ALL PIPE MARKINGS SHALL CONFORM TO 2007 EDITION OF THE ANSI/ASME A13.1 STANDARD. FIELD VERIFY THE PROPOSED PIPE MARKING COLORS WITH THE CLIENT PRIOR TO STARTING THE PROJECT.
2. REFER TO PLANS FOR PIPE SERVICE, SIZES AND LOCATIONS.
3. PIPE MARKING LABELS MUST EFFECTIVELY COMMUNICATE THE CONTENTS OF THE PIPES AND GIVE ADDITIONAL DETAIL IF SPECIAL HAZARDS (SUCH AS EXTREME TEMPERATURES OR PRESSURES) EXIST.
4. AN ARROW SHOULD BE USED IN CONJUNCTION WITH THE LEGEND TO SHOW WHICH DIRECTION THE MATERIAL FLOWS. IF FLOW CAN BE IN BOTH DIRECTIONS, ARROWS IN BOTH DIRECTIONS SHALL BE DISPLAYED.

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

STATE OF NEW JERSEY
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING DETAILS
scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-1001.00
DOB BARCODE:
Total

9/24/2021 3:04:51 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

PIPE SUPPORT SCHEDULE		
PIPE SIZE	MODEL NO.	MAX SPACING
1"	3-R/3-RAH	6'
1 1/4"	3-R/3-RAH	6'
1 1/2"	3-R/3-RAH	6'
2"	3-R/3-RAH	6'
2 1/2"	3-R/3-RAH	8'
3"	3-R/3-RAH	8'
4"	4-R/4-RAH	10'

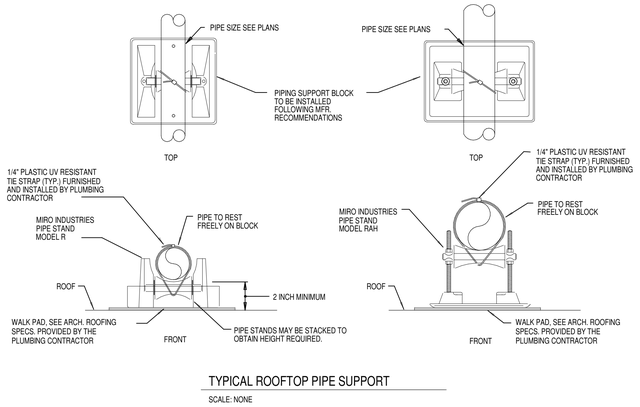
NOTES:

ADD PIPE STANDS 1'-0" FROM ALL CHANGES IN DIRECTION
AND DROPS THRU ROOF.
PIPING SHALL BE SUPPORTED AT ALL ELBOWS AND TEES AND AT SPACING SPECIFIED IN TABLE.

PIPING SHALL BE SLOPED AND ROUTED TO PREVENT TRAPPING CONDENSATE (EXCEPT AT DIRT LEGS) AND TO FACILITATE CONDENSATE DRAINAGE.

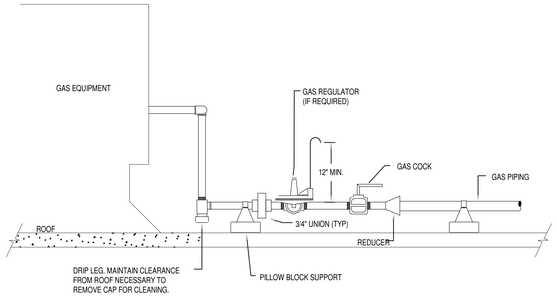
DO NOT ATTACH PIPESTANDS TO ROOF.

MIRO INDUSTRIES, INC.
170 WEST COTTAGE AVE
SANDY, UTAH 84070
(801) 566-3680



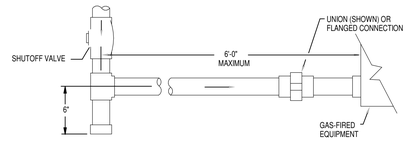
TYPICAL ROOFTOP PIPE SUPPORT

SCALE: NONE



TYPICAL ROOFTOP GAS CONNECTIONS

SCALE: NONE



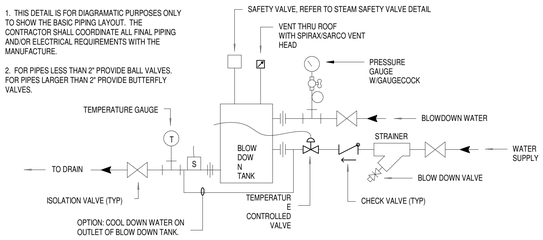
GAS CONNECTION DETAIL

SCALE: NONE

DETAIL NOTES:

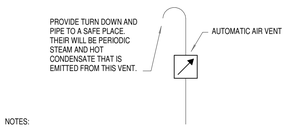
1. THIS DETAIL IS FOR DIAGRAMATIC PURPOSES ONLY TO SHOW THE BASIC PIPING LAYOUT. THE CONTRACTOR SHALL COORDINATE ALL FINAL PIPING AND/OR ELECTRICAL REQUIREMENTS WITH THE MANUFACTURE.

2. FOR PIPES LESS THAN 2" PROVIDE BALL VALVES. FOR PIPES LARGER THAN 2" PROVIDE BUTTERFLY VALVES.



BLOW DOWN TANK

SCALE: NONE

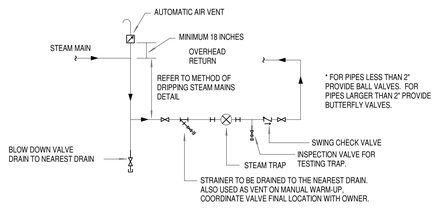


NOTES:

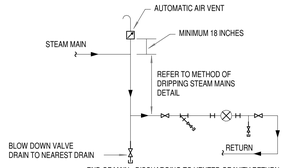
1. AUTOMATIC AIR VENTS SHALL BE SIZED PER THE STEAM PRESSURE PROVIDED.

AUTOMATIC AIR VENT

SCALE: NONE



END OF MAIN - DISCHARGING TO OVERHEAD RETURN



END OF MAIN - DISCHARGING TO VENTED GRAVITY RETURN

NOTES:

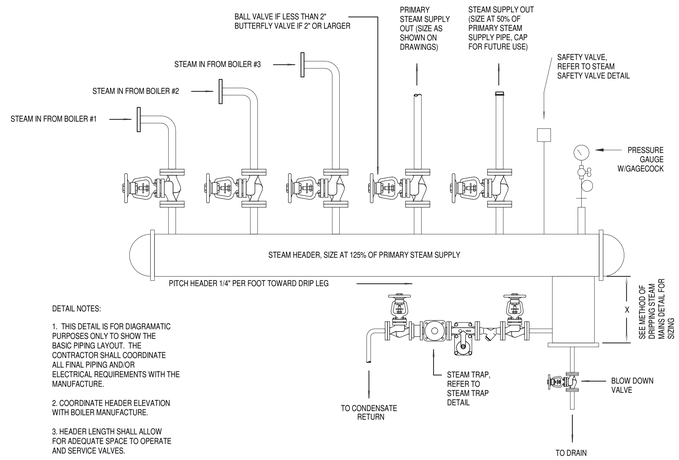
1. CONDENSATE FOR SYSTEMS WITH OVERHEAD RETURN MUST BE LIFTED. IN SYSTEMS OPERATING ABOVE 40 PSIG, THE TRAP DISCHARGE CAN BE PIPED DIRECTLY TO THE RETURN SYSTEM. HOWEVER, BACK PRESSURE AT THE TRAP DISCHARGE (RETURN LINE PRESSURE PLUS HYDRAULIC PRESSURE CREATED BY HEIGHT OF LIFT MUST NOT EXCEED STEAM MAIN PRESSURE, AND THE TRAP MUST BE SIZED TO ACCOMODATE THE RETURN LINE BACK PRESSURE.)

2. FOR SYSTEMS OPERATING UNDER 40PSIG OR THE BACK PRESSURE AT THE TRAP IS CLOSE TO THE OPERATING SYSTEM PRESSURE, THE CONDENSATE MUST FLOW BY GRAVITY. A COLLECTING LEG MUST BE USED AND THE CONDENSATE MUST DISCHARGE INTO A VENTED CONDENSATE RECEIVER FROM WHICH IT MUST BE PUMPED TO THE OVERHEAD CONDENSATE RETURN.

This detail is modified from Figure 5 and 8 on page 10.5 in the 2004 ASHRAE Handbook for HVAC Systems and Equipment.

STEAM END OF MAIN

SCALE: NONE



DETAIL NOTES:

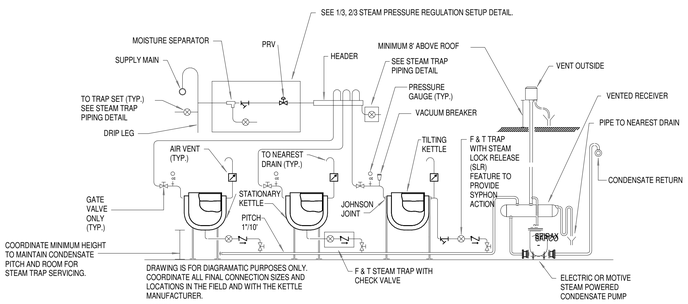
1. THIS DETAIL IS FOR DIAGRAMATIC PURPOSES ONLY TO SHOW THE BASIC PIPING LAYOUT. THE CONTRACTOR SHALL COORDINATE ALL FINAL PIPING AND/OR ELECTRICAL REQUIREMENTS WITH THE MANUFACTURE.

2. COORDINATE HEADER ELEVATION WITH BOILER MANUFACTURE.

3. HEADER LENGTH SHALL ALLOW FOR ADEQUATE SPACE TO OPERATE AND SERVICE VALVES.

STEAM HEADER PIPING

SCALE: NONE



NOTES:

1. THE CONTRACTOR SHALL COORDINATE THE FINAL EQUIPMENT CONNECTION SIZES WITH THE MANUFACTURE. PROVIDE ECCENTRIC REDUCERS AS REQUIRED.

2. THE KETTLE MANUFACTURE MAY PROVIDE PRESSURE RELIEF VALVES AT THE KETTLE STEAM CONNECTIONS. IF THESE ARE PROVIDED THE CONTRACTOR SHALL VENT THE SAFETY VALVES AS SHOWN IN THE "STEAM SAFETY VAVLE" DETAIL.

STEAM KETTLE HOOKUP

SCALE: NONE

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS, ARE AND SHALL REMAIN THE PROPERTY OF **CYBUL CYBUL WILHELM ARCHITECTS** AND ARE RESERVED THE RIGHT TO HAVE THIS WORK REPRODUCED, PUBLISHED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL REQUIRED FEES HAVE BEEN PAID TO THE COMPANY AND A CONTRACT HAS BEEN PROPERLY EXECUTED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE SUITABLE FOR BIDDING AND CONSTRUCTION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

copyright - BD ENGINEERING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

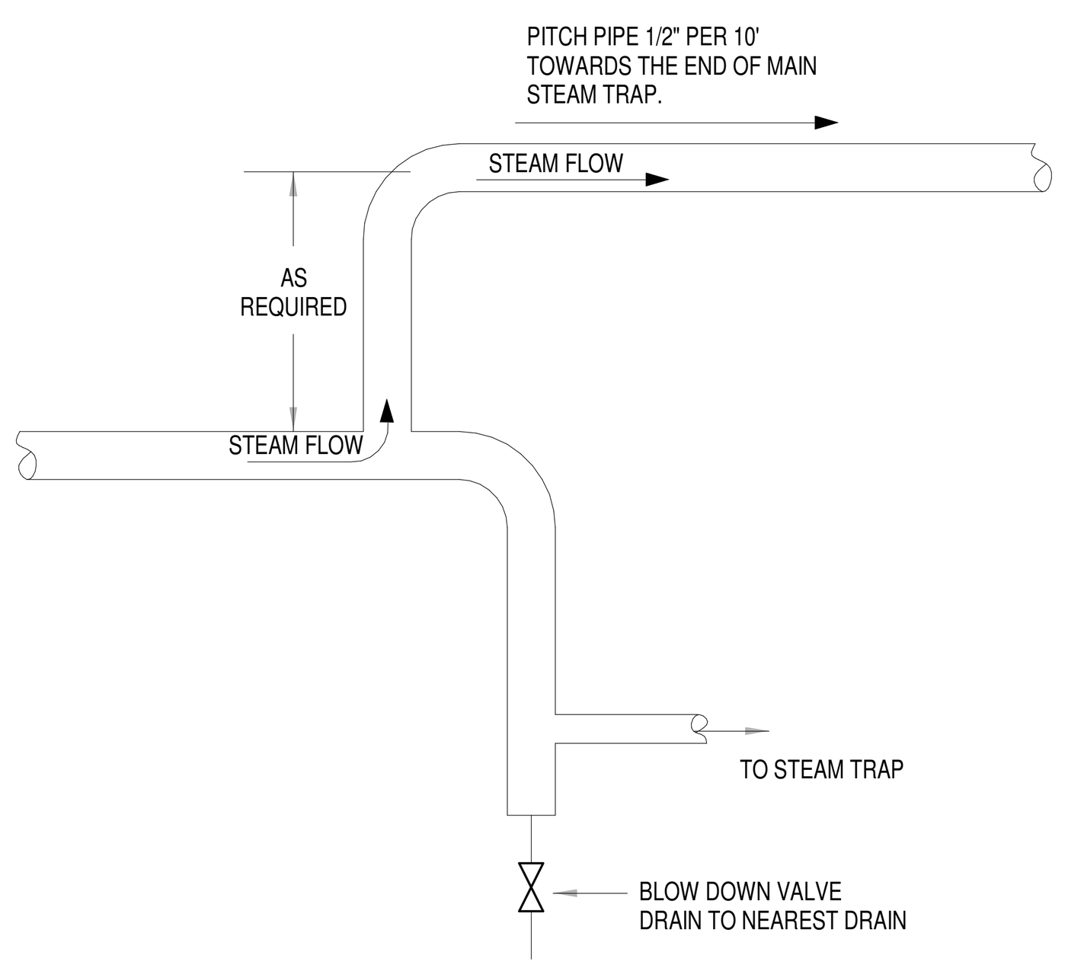
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING DETAILS
scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-1002.00
DOB BARCODE:
Total

9/24/2021 3:04:54 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



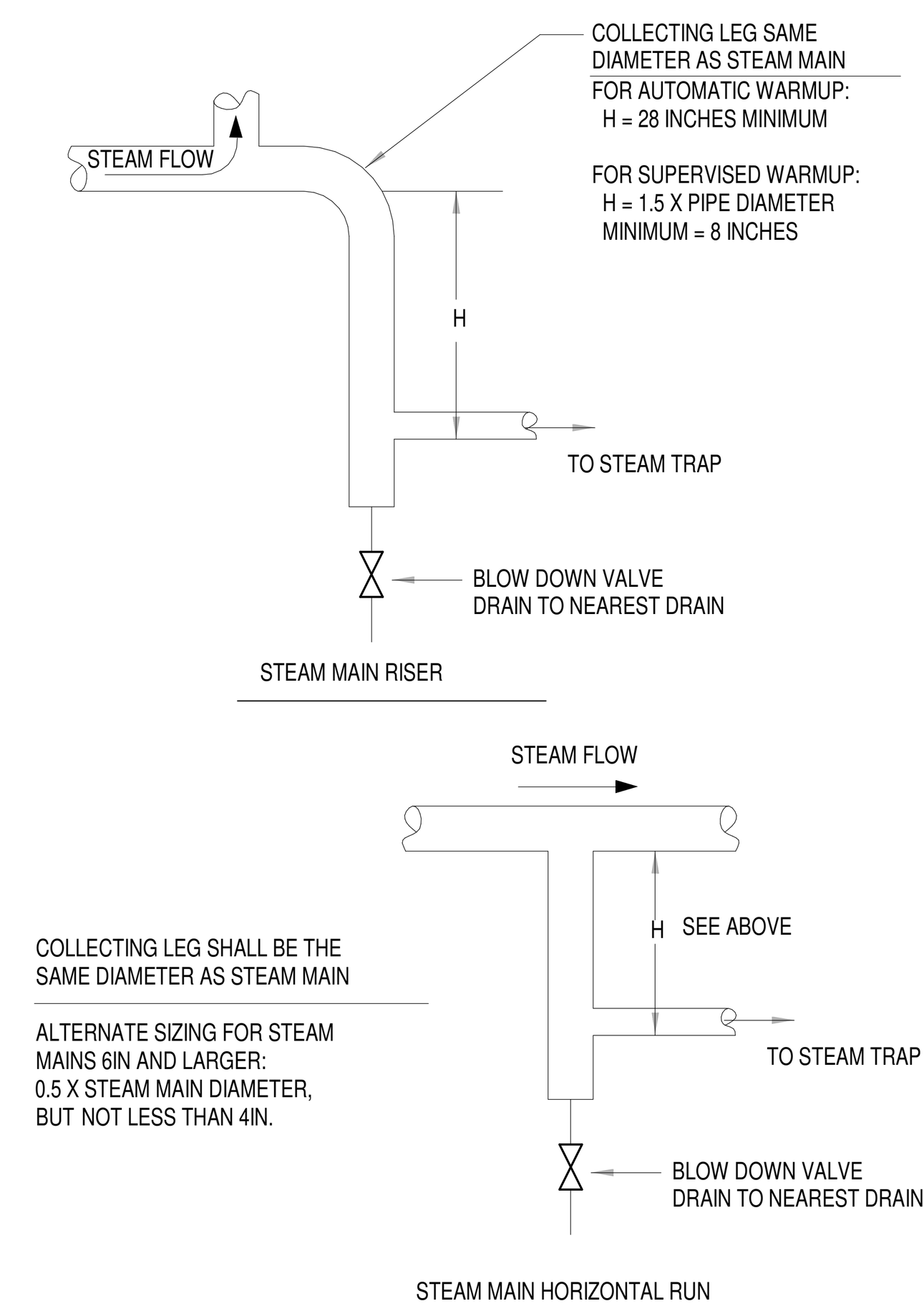
NOTES:

1. THE CONTRACTOR SHALL MAINTAIN A MINIMUM PITCH AS INDICATED ABOVE FOR THE STEAM SUPPLY MAIN. WHERE INDICATED ON THE PLANS OR REQUIRED DUE TO LIMITED HEADROOM THE CONTRACTOR SHALL PROVIDE THIS DETAIL TO RAISE THE MAIN AND CONTINUE THE PITCH.

IT IS RECOMMENDED TO PROVIDE THIS PITCH RECOVER METHOD AT EACH MAIN DRIP LEG.

STEAM SUPPLY MAIN PITCH RECOVER RISER

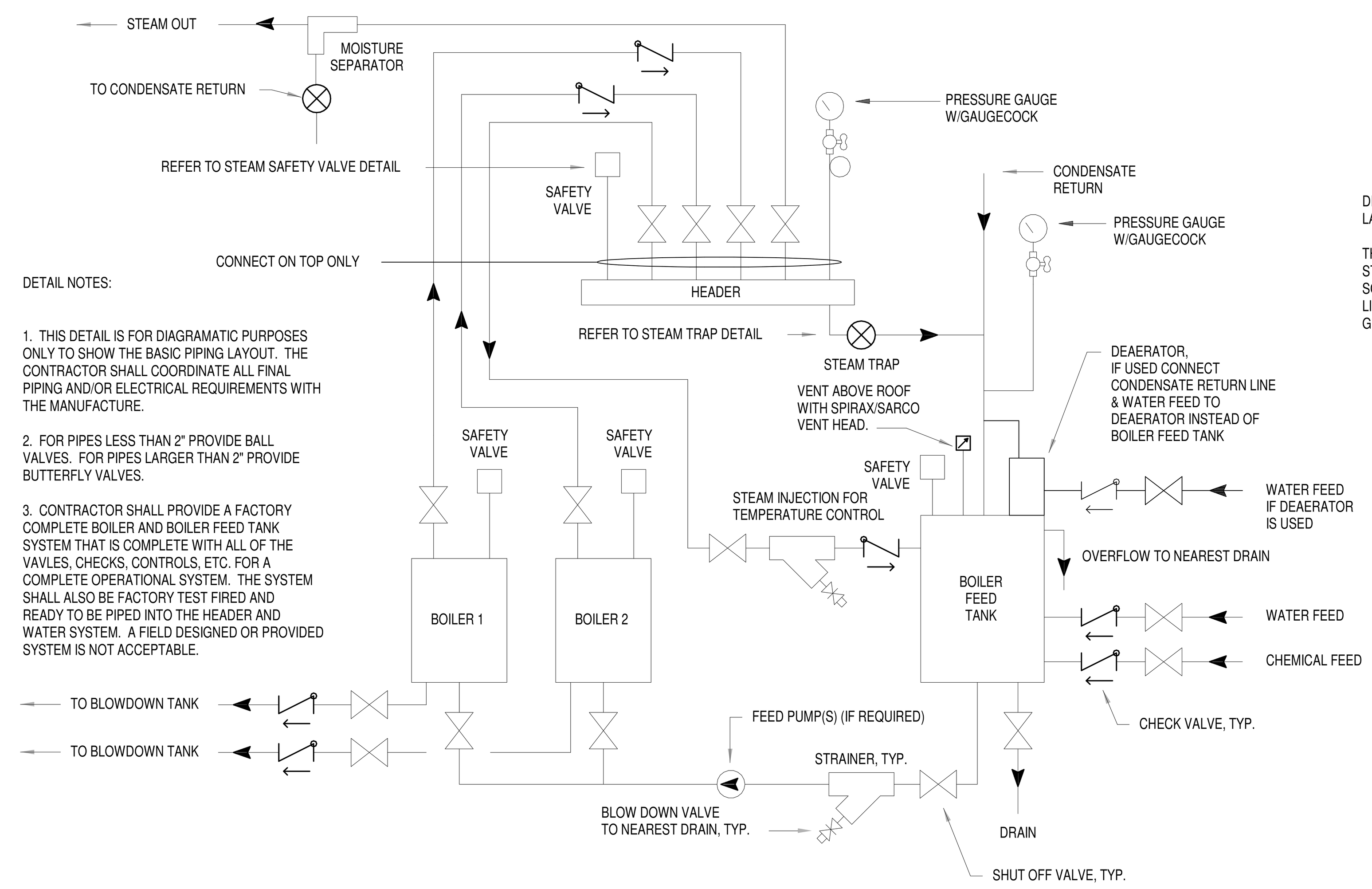
SCALE: NONE



This detail is from Figure 4 on page 10.5 in the 2004 ASHRAE Handbook for HVAC Systems and Equipment.

METHOD OF DRIPPING STEAM MAINS

SCALE: NONE



DETAIL NOTES:

1. THIS DETAIL IS FOR DIAGRAMATIC PURPOSES ONLY TO SHOW THE BASIC PIPING LAYOUT. THE CONTRACTOR SHALL COORDINATE ALL FINAL PIPING AND/OR ELECTRICAL REQUIREMENTS WITH THE MANUFACTURE.

2. FOR PIPES LESS THAN 2" PROVIDE BALL VALVES. FOR PIPES LARGER THAN 2" PROVIDE BUTTERFLY VALVES.

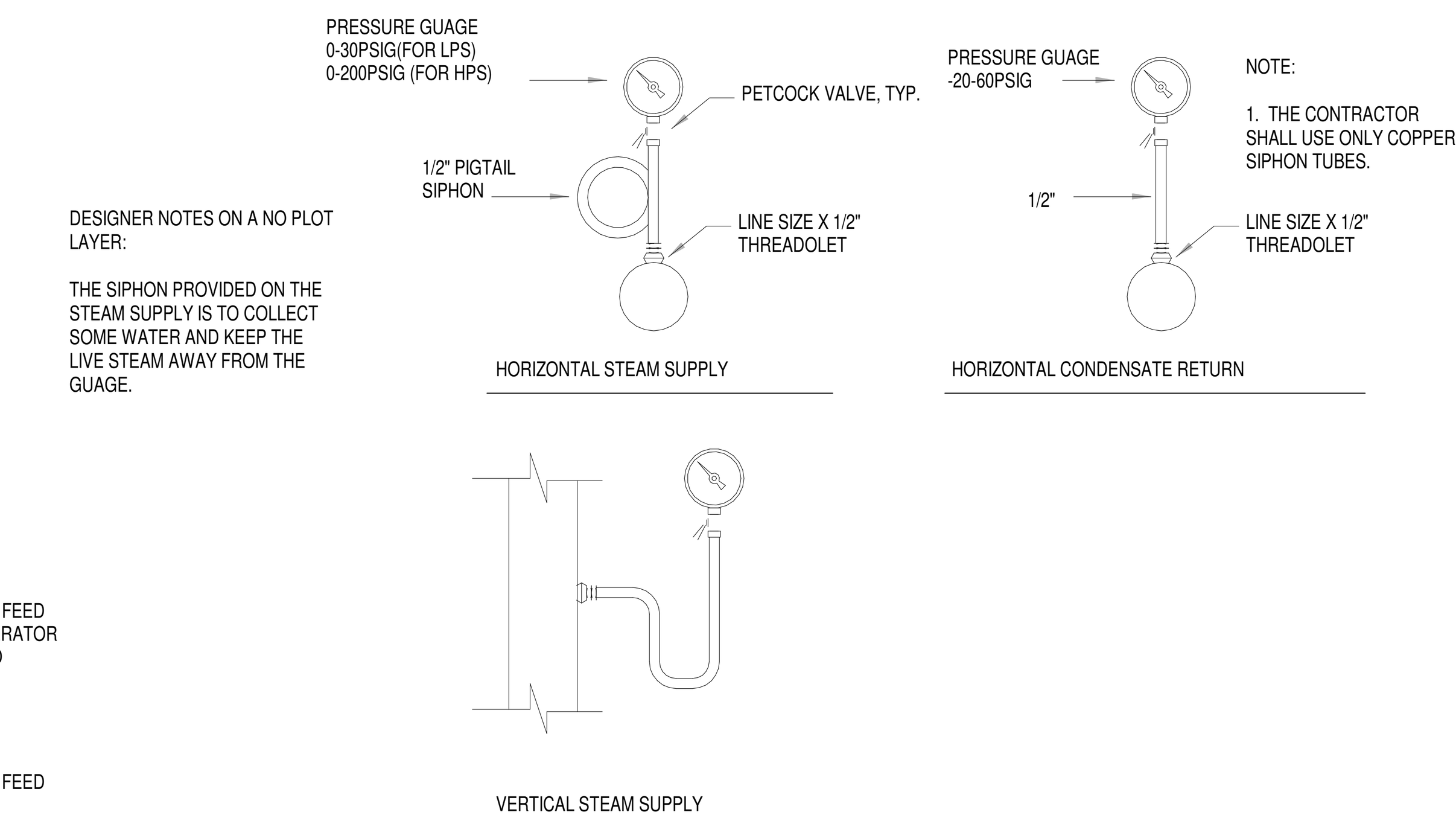
3. CONTRACTOR SHALL PROVIDE A FACTORY COMPLETE BOILER AND BOILER FEED TANK SYSTEM THAT IS COMPLETE WITH ALL OF THE VAVLES, CHECKS, CONTROLS, ETC. FOR A COMPLETE OPERATIONAL SYSTEM. THE SYSTEM SHALL ALSO BE FACTORY TEST FIRED AND READY TO BE PIPED INTO THE HEADER AND WATER SYSTEM. A FIELD DESIGNED OR PROVIDED SYSTEM IS NOT ACCEPTABLE.

MULTIPLE BOILER PIPING SCHEMATIC

SCALE: NONE

DESIGNER NOTES ON A NO PILOT LAYER:

THE SIPHON PROVIDED ON THE STEAM SUPPLY IS TO COLLECT SOME WATER AND KEEP THE LIVE STEAM AWAY FROM THE GUAGE.



NOTE:

1. THE CONTRACTOR SHALL USE ONLY COPPER SIPHON TUBES.

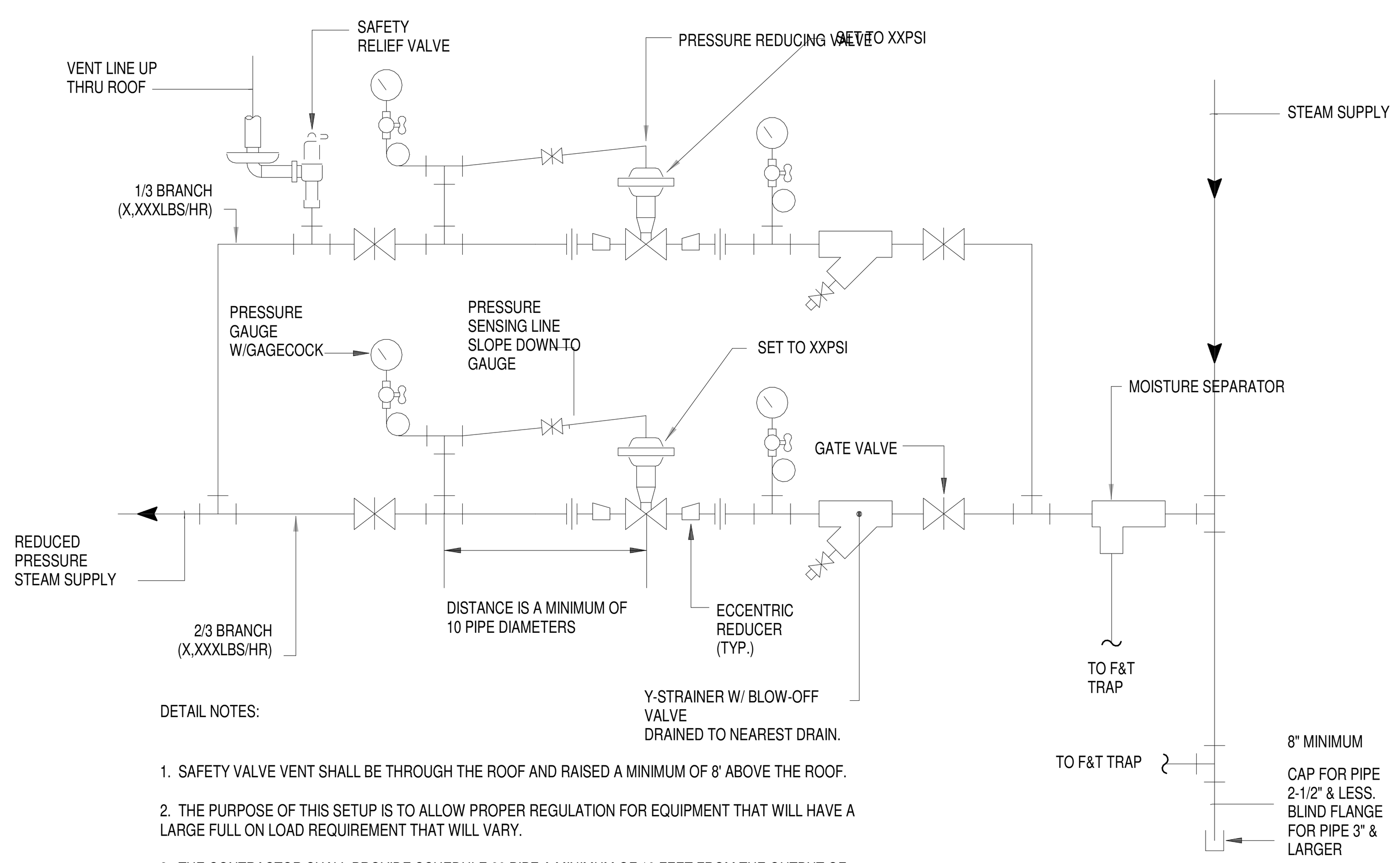
NOTE:

1. FOR CLEAN STEAM AND CORROSIVE FLUID APPLICATIONS THE CONRACTOR SHALL PROVIDE A DIAPRAGHM SEAL ON THE INLET TO THE GUAGE TO SEPARATE THE GUAGE FROM THE FLUID OR STEAM.

2. FOR THE STEAM SUPPLIES FILL THE SIPHONE TUBE WITH WATER PRIOR TO ATTACHING THE PRESSURE GUAGE AND TURNING THE SYSTEM ON. FOR CLEAN STEAM APPLICATIONS USE DISTILLED WATER.

PRESSURE GAUGES

SCALE: NONE



DETAIL NOTES:

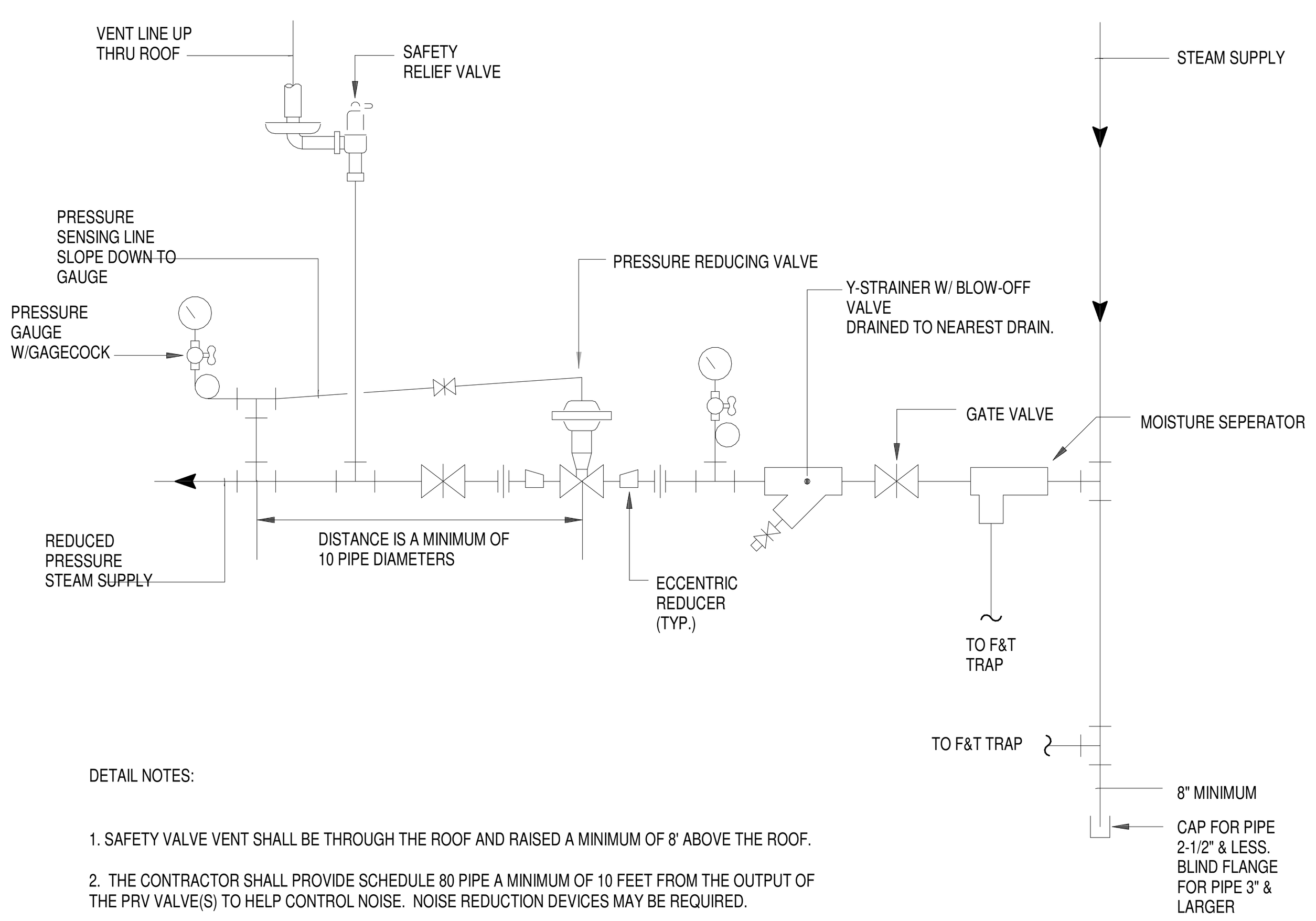
1. SAFETY VALVE VENT SHALL BE THROUGH THE ROOF AND RAISED A MINIMUM OF 8' ABOVE THE ROOF.

2. THE PURPOSE OF THIS SETUP IS TO ALLOW PROPER REGULATION FOR EQUIPMENT THAT WILL HAVE A LARGE FULL ON LOAD REQUIREMENT THAT WILL VARY.

3. THE CONTRACTOR SHALL PROVIDE SCHEDULE 80 PIPE A MINIMUM OF 10 FEET FROM THE OUTPUT OF THE PRV VALVE(S) TO HELP CONTROL NOISE. NOISE REDUCTION DEVICES MAY BE REQUIRED.

1/3, 2/3 STEAM PRESSURE REGULATION SETUP

SCALE: NONE



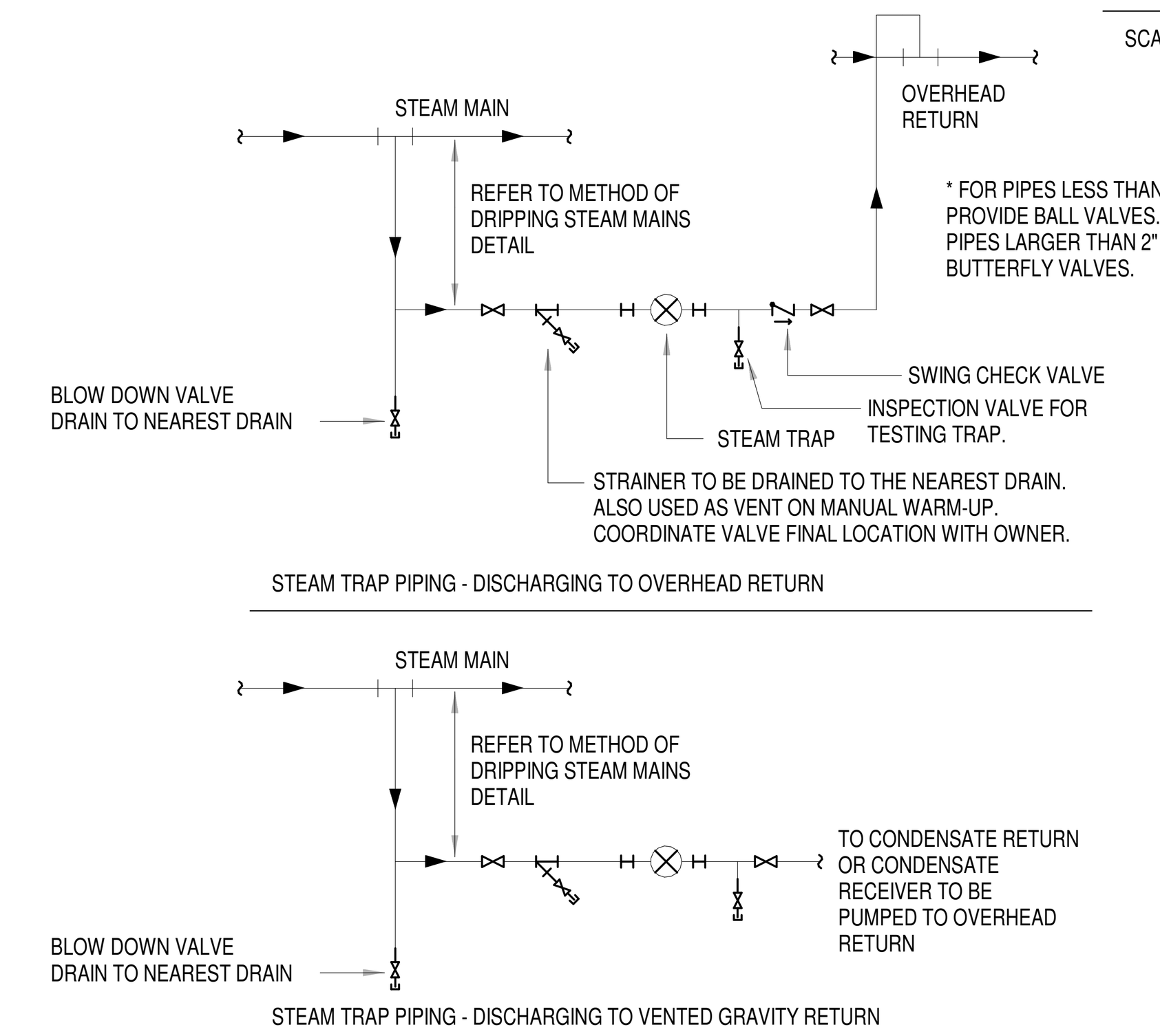
DETAIL NOTES:

1. SAFETY VALVE VENT SHALL BE THROUGH THE ROOF AND RAISED A MINIMUM OF 8' ABOVE THE ROOF.

2. THE CONTRACTOR SHALL PROVIDE SCHEDULE 80 PIPE A MINIMUM OF 10 FEET FROM THE OUTPUT OF THE PRV VALVE(S) TO HELP CONTROL NOISE. NOISE REDUCTION DEVICES MAY BE REQUIRED.

STEAM PILOT OPERATED PRESSURE REDUCING STATION

SCALE: NONE



NOTES:

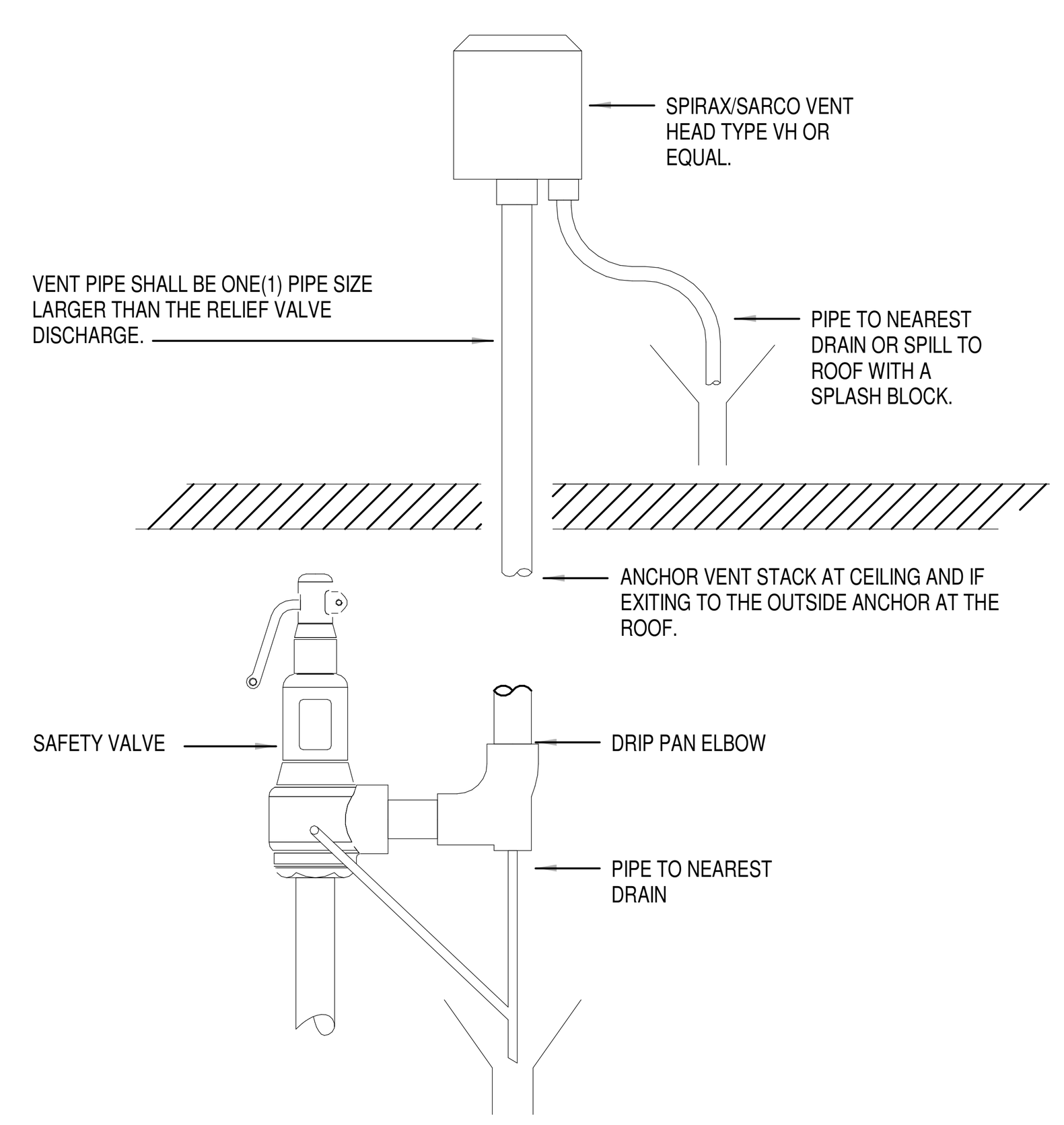
1. CONDENSATE FOR THE OVERHEAD RETURN MUST BE LIFTED. IN SYSTEMS OPERATING ABOVE 40 PSIG, THE TRAP DISCHARGE CAN BE PIPED DIRECTLY TO THE RETURN SYSTEM. HOWEVER, BACK PRESSURE AT THE TRAP DISCHARGE (RETURN LINE PRESSURE PLUS HYDRAULIC PRESSURE CREATED BY HEIGHT OF LIFT MUST NOT EXCEED STEAM MAIN PRESSURE, AND THE TRAP MUST BE SIZED TO ACCOMODATE THE RETURN LINE BACK PRESSURE.

2. FOR SYSTEMS OPERATING UNDER 40PSIG, THE STEAM FLOW IS REGULATED BY MODULATING THE STEAM CONTROL VALVES, OR WHERE THE BACK PRESSURE AT THE TRAP IS CLOSE TO THE SYSTEM PRESSURE, THE CONDENSATE MUST FLOW BE GRAVITY. A COLLECTING LEG MUST BE USED AND THE CONDENSATE MUST DISCHARGE INTO A VENTED CONDENSATE RECEIVER FROM WHICH IT MUST BE PUMPED TO THE OVERHEAD CONDENSATE RETURN.

This detail is from Figure 5 and 8 on page 10.5 in the 2004 ASHRAE Handbook for HVAC Systems and Equipment.

STEAM TRAP PIPING

SCALE: NONE



NOTES:

1. THE SAFETY VALVE SET PRESSURE SHALL BE SET HIGH ENOUGH TO ALLOW THE VALVE TO REMAIN CLOSED DURING NORMAL OPERATION, YET ALLOW IT TO OPEN AND RESEAT TIGHTLY WHEN CYCLING. A MINIMUM DIFFERENTIAL OF 5 PSI OR 10% OF INLET PRESSURE (WHICHEVER IS GREATER) IS TO BE THE SET POINT OF THE SAFETY VALVE.

2. INSTALLATION OF THE VALVE SHALL BE VERTICALLY WITH THE DRAIN HOLES OPEN OR PIPED TO THE NEAREST DRAIN.

3. PROVIDE A DRIP PAN ELBOW PIPED TO THE NEAREST DRAIN. THE DRAIN PIPING FROM THE DRIP PAN ELBOW SHALL BE PROPERLY SECURED TO CARRY THE WEIGHT FROM THE DISCHARGE PIPING. THE SAFETY VALVE SHALL NOT CARRY ANY OF THE WEIGHT OF THE DISCHARGE PIPING OR THE VALVE SEAT COULD BECOME DISTORTED AND MALFUNCTION.

4. THE CONTRACTOR SHALL USE A MODERATE AMOUNT OF PIPE THREAD LUBRICANT (FIRST 2 TO 3 THREADS ON MALE THREADS ONLY.

5. INSTALL CLEAN FLANGE CONNECTIONS WITH NEW GASKETS, PROPERLY ALIGNED AND PARALLEL, AND BOLTED WITH EVEN TORQUE TO PREVENT DISTORTION.

6. WIRE OR CABLE PULLS SHALL BE ATTACHED TO TEST LEVERS TO ALLOW REMOTE TESTING OF THE SAFETY RELIEF VALVES. THE WIRE OR CHAIN SHALL ALLOW A VERTICAL PULL AND THEIR WEIGHT SHALL NOT BE CARRIED BY THE VALVE.

The above notes are transcribed from the ASHRE Fundamentals of Steam System Design copyright dated 2006.

STEAM SAFETY VALVE

SCALE: NONE

APPLICATION	TRAP SELECTION	SAFETY FACTOR
BOILER HEADER	INVERTED BUCKET, F&T	1.5
STEAM MAINS AND BRANCH LINES	INVERTED BUCKET, F&T AND THERMOSTATIC	3
STEAM SEPARATOR	INVERTED BUCKET	3
TRACER LINES	INVERTED BUCKET, THERMOSTATIC	2
UNIT HEATERS AND AIR HANDLERS	INVERTED BUCKET, F&T	3
FINNED RADIATION AND PIPE COILS	INVERTED BUCKET, F&T AND THERMOSTATIC	3
PROCESSOR AIR HEATERS	INVERTED BUCKET, F&T	2-3
SHELL AND TUBE HEAT EXCHANGERS	INVERTED BUCKET, F&T	2
FLASH TANK	INVERTED BUCKET, F&T	3

NOTES:

1. REFER TO THE DRAWINGS FOR ADDITIONAL INFORMATION FOR THE TRAP TYPES FOR THE VARIOUS APPLICATIONS.

2. THIS CHART IS A STANDARD DETAIL. NOT ALL OF THE APPLICATIONS SHOWN MAY BE APPLICABLE FOR THIS PROJECT. REFER TO THE DRAWINGS FOR ADDITIONAL INFORMATION.

3. THE TRAP PROVIDED SHALL BE SIZED FOR THE APPROPRIATE CONDENSATE LOAD TIMES THE SAFETY FACTORS SHOWN ABOVE. THE FINAL SIZE OF THE TRAP SHALL TAKE INTO CONSIDERATION THE STEAM SYSTEM WARM-UP LOAD. IF THE WARM-UP OF THE SYSTEM IS AUTOMATIC THE TRAP SHALL BE SIZED TO HANDLE THE EXTRA CONDENSATE AND AIR LOAD. IF IT IS A SUPERVISED (MANUAL) START UP THEN THE TRAP NEEDS TO BE SIZED FOR THE RUNNING LOADS. THE TRAP SIZES SHALL BE COORDINATED WITH THE MANUFACTURE AND SHALL BE CAPABLE OF HANDLING THE DESIGN STEAM PRESSURE.

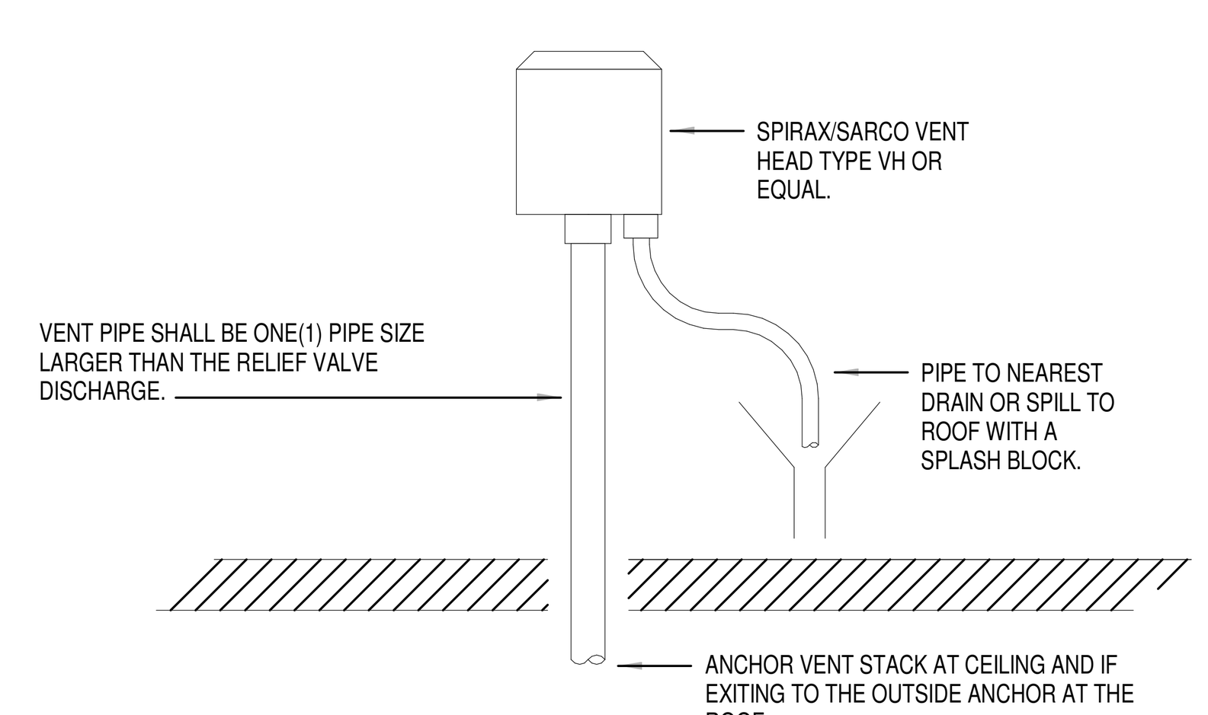
4. THE STEAM TRAP SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE DRIP LEG.

5. IF A REQUIRED STEAM TRAP SIZE IS NOT AVAILABLE OR THE STEAM TRAP IS TO BE OVERSIZED DUE TO AN AUTOMATIC WARMUP REQUIREMENT THEN THE CONTRACTOR SHALL PROVIDE SMALLER STEAM TRAPS WITH THE SAME AGGREGATE CAPACITY IN PARALLEL, QUANTITY OF PARALLEL STEAM TRAPS TO BE AS REQUIRED FOR THE LOAD. PROVIDE ALL NECESSARY STRAINERS, ISOLATION AND TESTING VALVES AS SHOWN ON THE DETAILS FOR ONE STEAM TRAP.

This chart is from page 10-8 2000 ASHRAE Handbook for HVAC Systems and Equipment.

STEAM TRAP SELECTION AND SAFETY FACTORS

SCALE: NONE

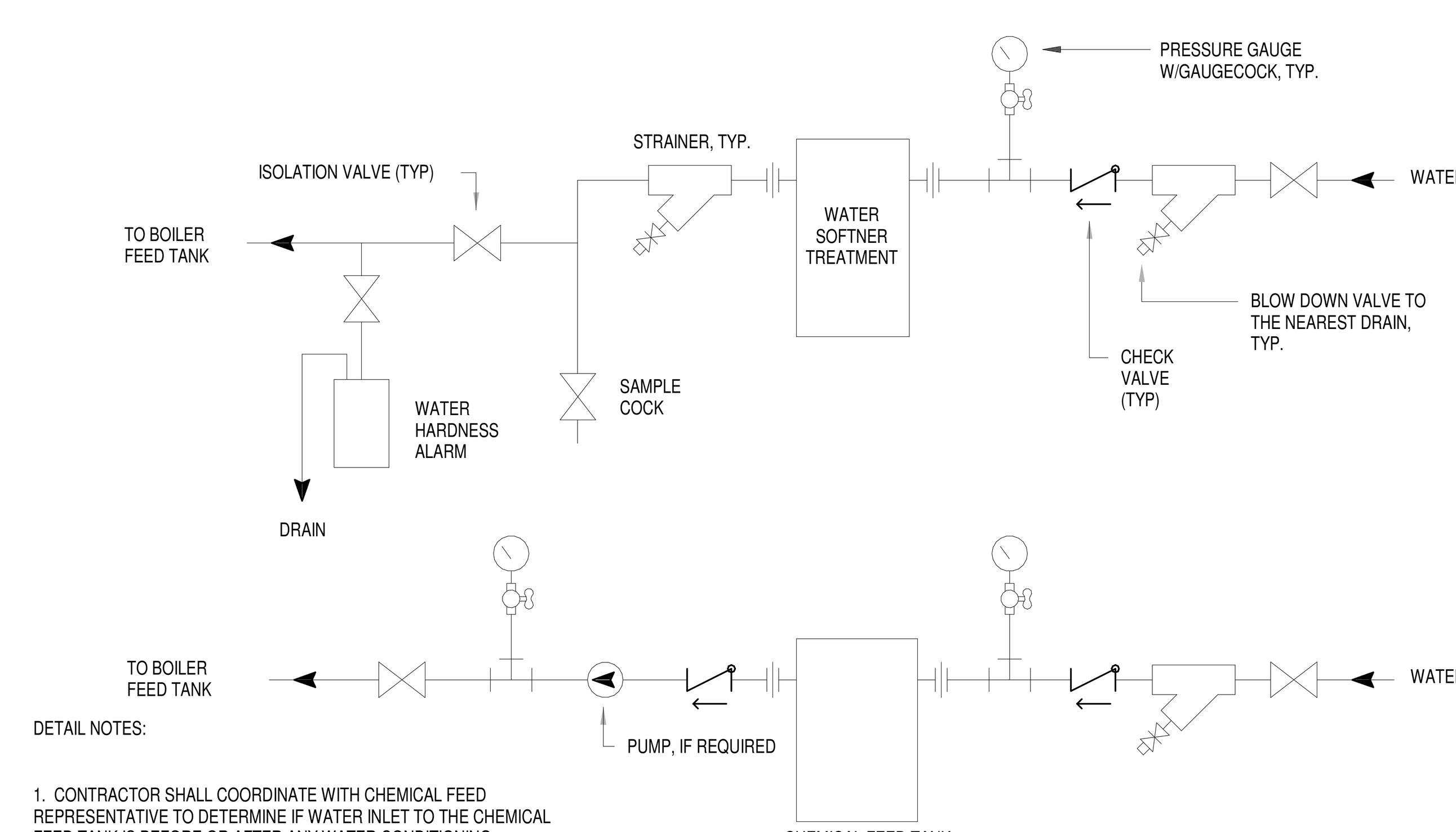


NOTES:

1. THIS VENT HEAD SHALL BE USED ON ALL STEAM VENTING APPLICATIONS EXCEPT FOR SAFETY VALVE VENTING. EXAMPLES OF STEAM VENTING APPLICATIONS ARE BUT ARE NOT LIMITED TO, FLASH TANKS, STEAM PROCESS, BLOW DOWN TANK, ETC.

STEAM VENT HEAD

SCALE: NONE



DETAIL NOTES:

1. CONTRACTOR SHALL COORDINATE WITH CHEMICAL FEED REPRESENTATIVE TO DETERMINE IF WATER INLET TO THE CHEMICAL FEED TANK IS BEFORE OR AFTER ANY WATER CONDITIONING.

2. THIS DETAIL IS FOR DIAGRAMATIC PURPOSES ONLY TO SHOW THE BASIC PIPING LAYOUT. THE CONTRACTOR SHALL COORDINATE ALL FINAL PIPING AND/OR ELECTRICAL REQUIREMENTS WITH THE MANUFACTURE.

3. FOR PIPES LESS THAN 2" PROVIDE BALL VALVES. FOR PIPES LARGER THAN 2" PROVIDE BUTTERFLY VALVES.

WATER SOFTNER & CHEMICAL FEED

SCALE: NONE

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL & SIGNATURE
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
PLUMBING DETAILS

scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.:
P-1003.00

DOB BARCODE:

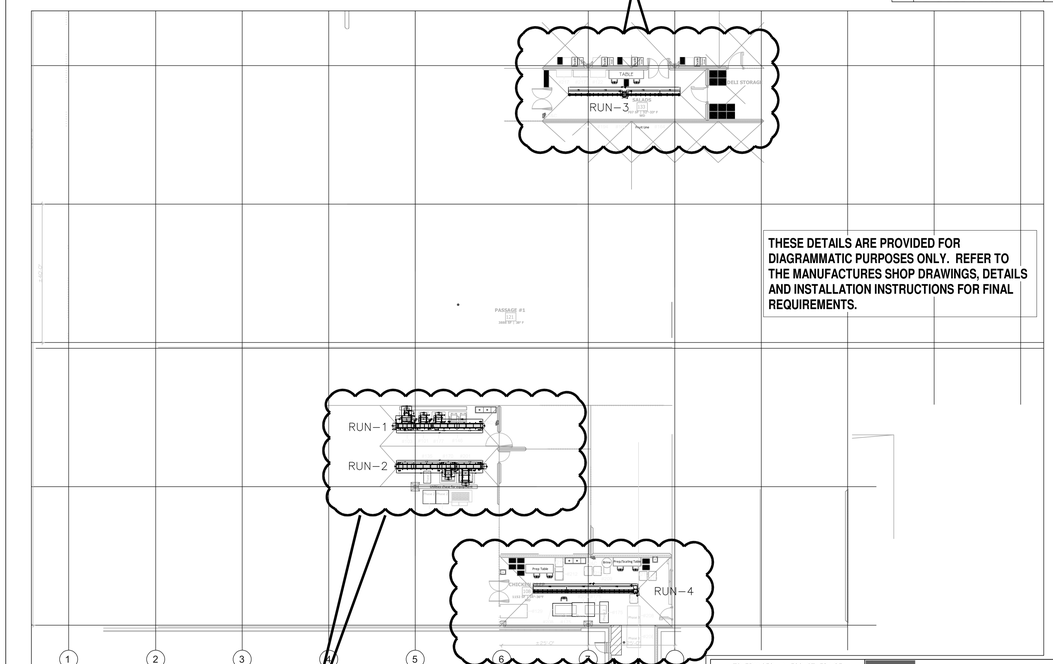
Total

9/24/2021 3:04:57 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

REVISIONS			
REV	DESCRIPTION	DATE	BY
0	INITIAL RELEASE – RO	06/30/2021	DK
1	UPDATED RUN–1 DRAIN IN HOT KITCHEN AND INCLUDED CHICKEN PREP & SALAD AREA SLOT DRAINS	08/20/2021	DK



THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT
PRINT NAME
SIGNATURE DATE
NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/– 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE
DK	DK	08/20/2021

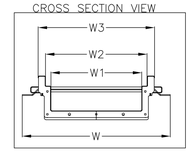
CUSTOMER/PROJECT: LORENZO FOODS

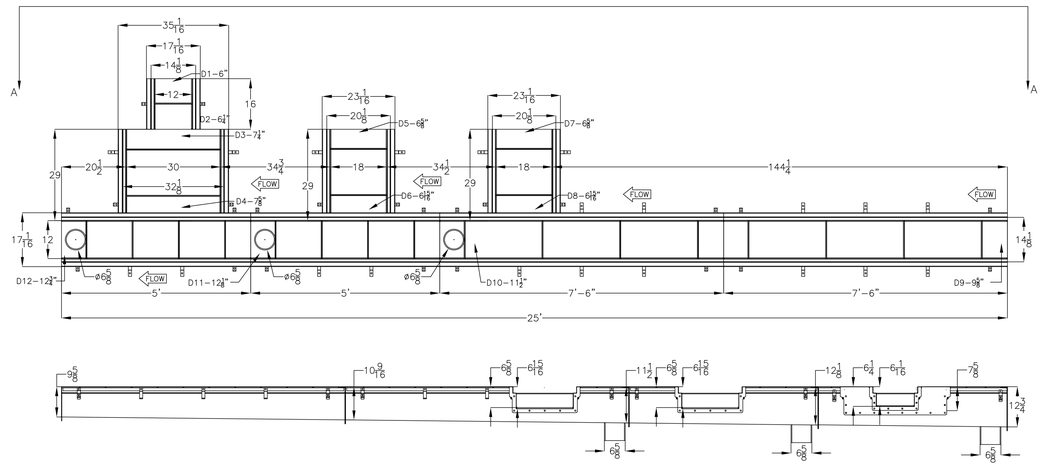
DESCRIPTION: FSFLAT TRENCH & 10000L SLOT DRAIN–KEYPLAN — REV. 1

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF–KEYPLAN	A	NTS	1 OF 5

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

CROSS SECTION VIEW





SECTION A–A

FLAT BOTTOM TRENCH DRAIN RUN–1 (HOT KITCHEN)
TOP & ELEVATION VIEW

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT
PRINT NAME
SIGNATURE DATE
NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/– 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE
DK	DK	08/20/2021

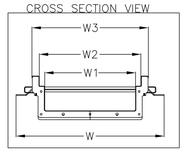
CUSTOMER/PROJECT: LORENZO FOODS

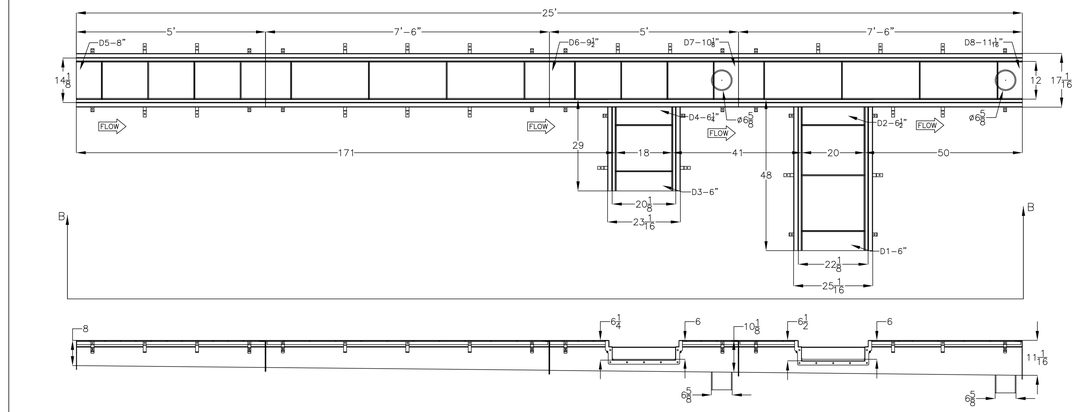
DESCRIPTION: FSFLAT TRENCH DRAIN–RUN–1 (HOT KITCHEN) — REV. 1

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF–TF–1–HK	A	NTS	2 OF 5

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

CROSS SECTION VIEW





SECTION B–B

FLAT BOTTOM TRENCH DRAIN RUN–2 (HOT KITCHEN)
TOP & ELEVATION VIEW

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT
PRINT NAME
SIGNATURE DATE
NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/– 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE
DK	DK	08/20/2021

CUSTOMER/PROJECT: LORENZO FOODS

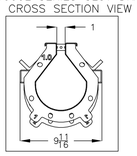
DESCRIPTION: FSFLAT TRENCH DRAIN–RUN–2 (HOT KITCHEN) — REV. 1

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF–TF–2–HK	A	NTS	3 OF 5

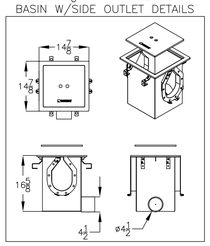
NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

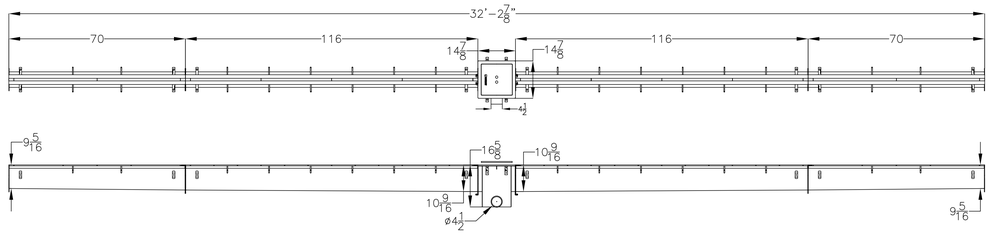
REVISIONS			
REV	DESCRIPTION	DATE	BY
0	INITIAL RELEASE – RO	06/30/2021	DK
1	UPDATED RUN–1 DRAIN IN HOT KITCHEN AND INCLUDED CHICKEN PREP & SALAD AREA SLOT DRAINS	08/20/2021	DK

10000L SERIES SLOT DRAIN
CROSS SECTION VIEW



12x12x16⅝" FG MIDDLE CATCH BASIN W/SIDE OUTLET DETAILS





10000L SERIES SLOT DRAIN RUN–3 (SALADS)
TOP & ELEVATION VIEW

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT
PRINT NAME
SIGNATURE DATE
NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/– 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE
DK	DK	08/20/2021

CUSTOMER/PROJECT: LORENZO FOODS

DESCRIPTION: FS10000L SERIES SLOT DRAIN–RUN–3 (SALADS) — REV. 1

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF–SD–3–SALADS	A	NTS	4 OF 5

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENT OF THE VARIOUS ELEMENTS AND THEIR **COPYRIGHTING**, ARE RESERVED. THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL DRAWINGS AND SPECIFICATIONS HAVE BEEN PROPERLY SIGNED AND HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE DIMENSIONS AND CONDITIONS SHOWN ON THIS DRAWING ARE CONSISTENT ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE NO. GE 45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING DETAILS
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-1004.00
DOB BARCODE:
Total

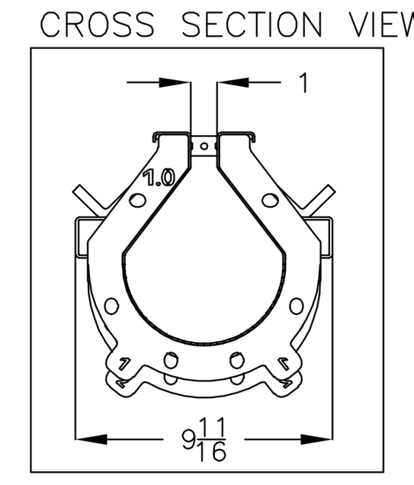
9/24/2021 3:05:10 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

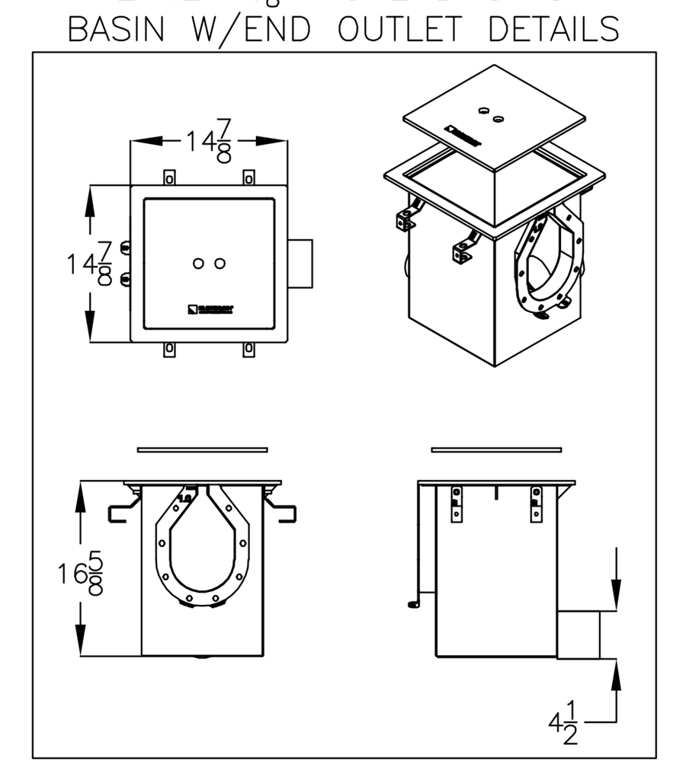
NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

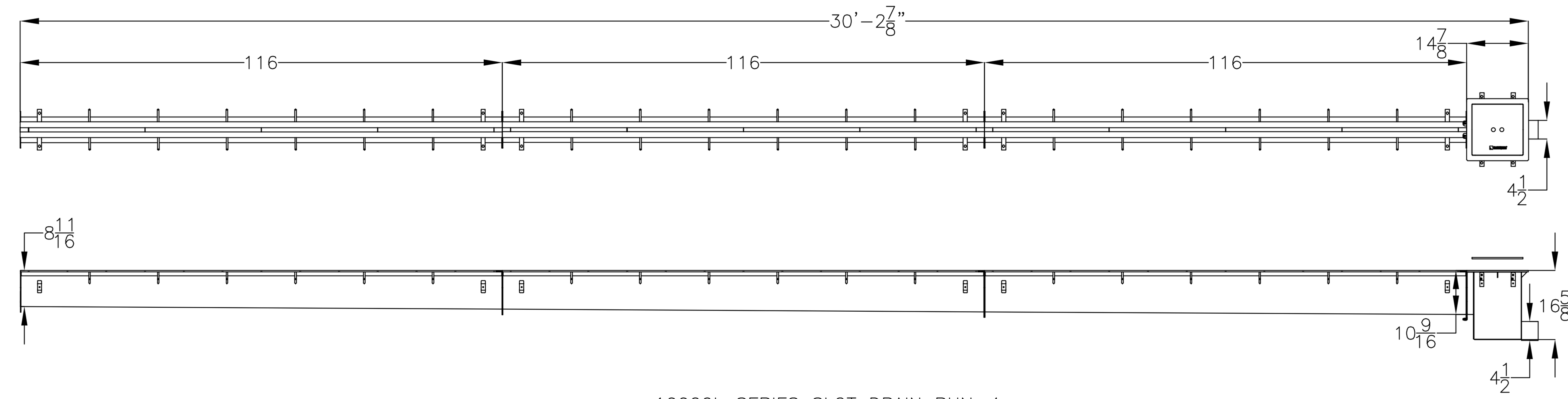
REVISIONS			
REV	DESCRIPTION	DATE	BY
0	INITIAL RELEASE – R0	06/30/2021	DK
1	UPDATED RUN-1 DRAIN IN HOT KITCHEN AND INCLUDED CHICKEN PREP & SALAD AREA SLOT DRAINS	08/20/2021	DK

10000L SERIES SLOT DRAIN CROSS SECTION VIEW



12x12x16 5/8" FG END CATCH BASIN W/END OUTLET DETAILS





10000L SERIES SLOT DRAIN RUN-4 (CHICKEN PREP) TOP & ELEVATION VIEW

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT

PRINT NAME

SIGNATURE DATE

NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/- 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE	CUSTOMER/PROJECT
DK	DK	08/20/2021	LORENZO FOODS

ALL DRAWINGS ARE THE EXCLUSIVE PROPERTY OF SLOT DRAIN SYSTEMS. ANY REPRODUCTION IN PART OR IN WHOLE IS PROHIBITED WITHOUT PROPER CONSENT.

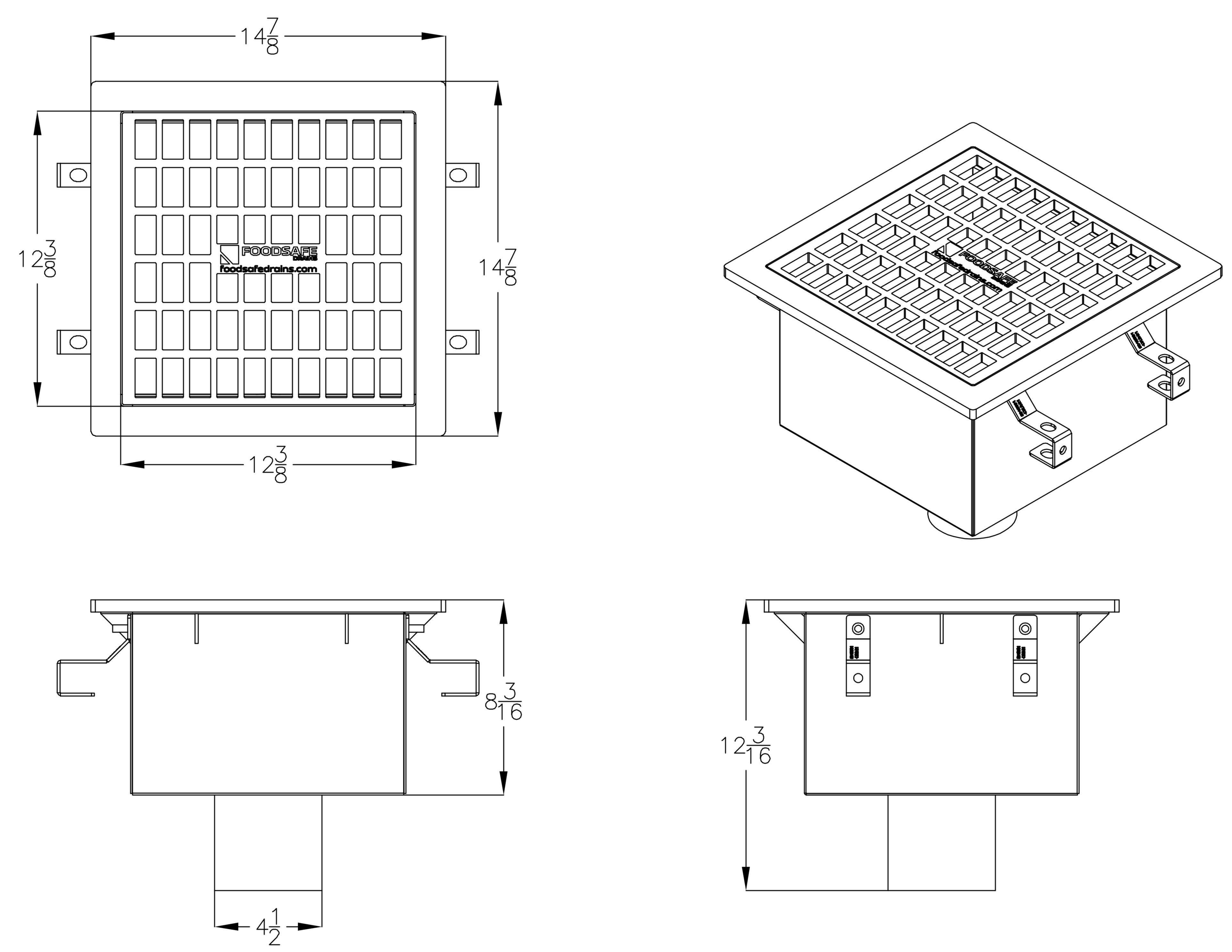
DESCRIPTION: FS10000L SERIES SLOT DRAIN-RUN-4 (CHICKEN PREP) REV. 1

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF-SD-4-CHICKENPR	A	NTS	5 OF 5

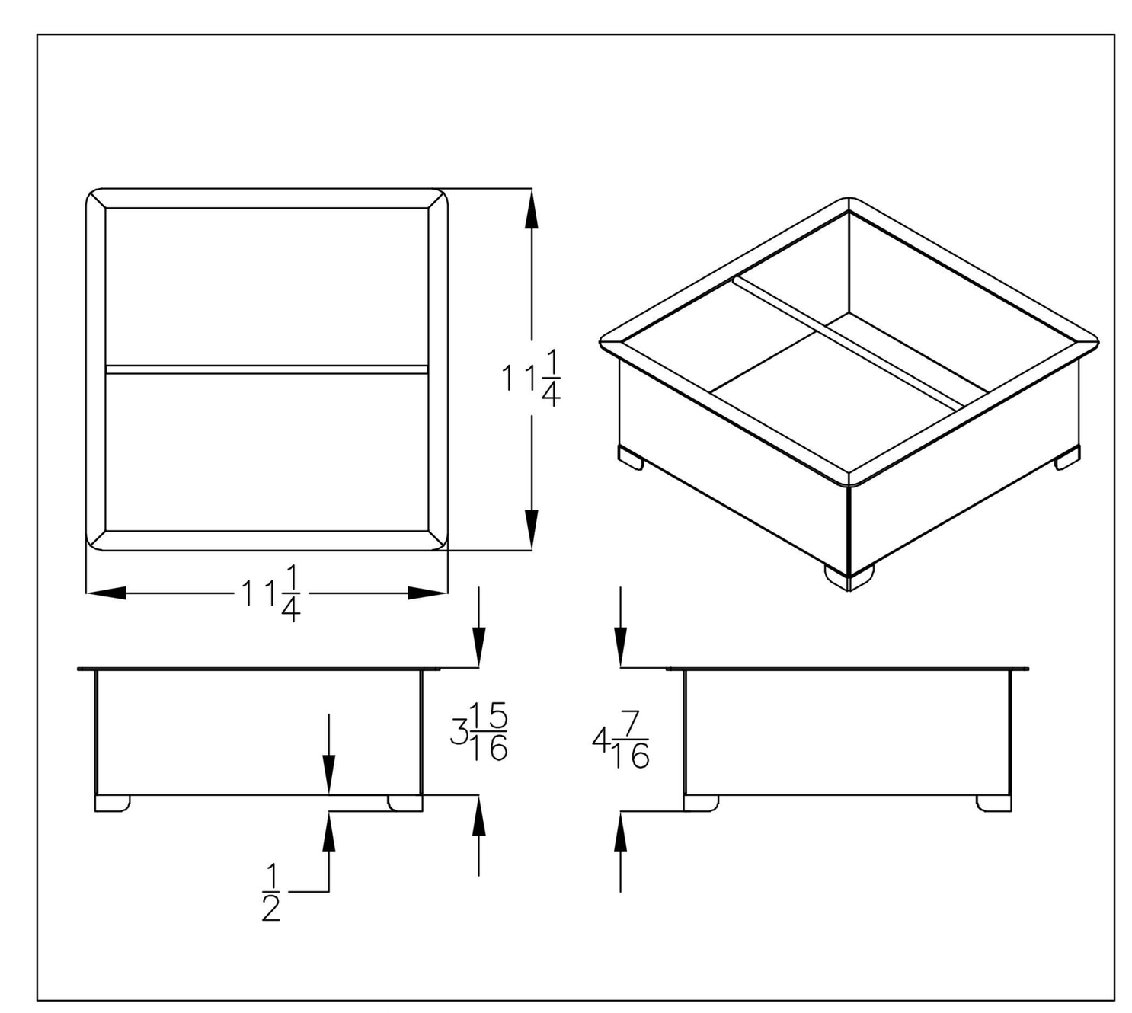
THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: STAINLESS STEEL T304/T316
2. SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES.
3. REFER TO https://info.slotdrainsystems.com/installresources FOR INSTALLATION INSTRUCTIONS.

REVISIONS			
REV	DESCRIPTION	DATE	BY
0	INITIAL RELEASE – R0	08/20/2021	DK



12x12x8" SQUARE AREA DRAIN/FLOOR SINK DETAILS



12x12" STRAINER BASKET DETAILS

CUSTOMER APPROVAL
☐ APPROVED AS IS
☐ APPROVED WITH REVISIONS NOTED
☐ REVISE AS NOTED AND RESUBMIT

PRINT NAME

SIGNATURE DATE

NOTE: MANUFACTURING WILL COMMENCE UPON RECEIPT OF THE SIGNED APPROVAL DRAWING.

TOLERANCES UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS +/- 1/8"
ALL DIMENSIONS ARE IN INCHES

GLOBAL DRAIN TECHNOLOGIES

DRAWN BY	CHECKED BY	DATE	CUSTOMER/PROJECT
DK	DK	08/20/2021	LORENZO FOODS

ALL DRAWINGS ARE THE EXCLUSIVE PROPERTY OF SLOT DRAIN SYSTEMS. ANY REPRODUCTION IN PART OR IN WHOLE IS PROHIBITED WITHOUT PROPER CONSENT.

DESCRIPTION: 12x12x8 SQ AD/FLOOR SINK W/PERF GRATE LAYOUT REV. 0

ORDER NO.	DWG NO.	SIZE	SCALE	SHEET
	ZLORENZOF-12x12x8AD/FS	A	NTS	1 OF 1

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING DETAILS

scale: 12" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: RL

approved by: KF

project no.: 2102

drawing no.: P-1005.00

DOB BARCODE:

Total

9/24/2021 3:05:19 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

FOR ALL PROCESS EQUIPMENT REFER TO THE ARCHIECTURAL SCHEDULES ON THE ARCHITECTS DRAWINGS

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE	MANUFACTURER	MODEL	MISC. SECTION		FIXTURE ACCESSORIES	PLUMBING CONNECTION SIZES				NOTES
				MOUNT TYPE	MATERIAL/COLOR		CW	HW	SAN	VENT	
2CS	2 COMPARTMENT SINK	ELKAY	WNSF8320R2	DROP IN	STAINLESS STEEL	FAUCET LK943AF14LC	1/2"	1/2"	3-1/2"	1-1/2"	
DF	DRINKING FOUNTAIN	ELKAY	LZSG8S	WALL	STAINLESS STEEL		1/2"	-	1-1/2"	1-1/2"	115 V
FCO	FLOOR CLEANOUT	FOOD SAFE DRAINS	FSFCO-84	FLOOR	316 STAINLESS STEEL	PTRAP-54 316 TRAP	-	-	4"	-	PROVIDE FORLIFT GRADE. MOUNT FLUSH TO TOP OF FLOOR.
FD-1	FLOOR DRAIN	FOOD SAFE DRAINS	FSD AREA-ROUND	FLOOR	316 STAINLESS STEEL	PTRAP-54 316 TRAP, MAGNETIC LOCK	-	-	4"	2-1/2"	PROVIDE WITH FORKLIFT DUTY TOPWITH MAGNETIC LOCK AND REMOVEABLE SEDIMENT BASKET
FD-2	FLOOR DRAIN	WATTS	FD-1100-B	FLOOR	EPOXY COATED CAST IRON WITH STAINLESS TOP		-	-	4"	2-1/2"	HEAVY DUTY
FD-3	FLOOR DRAIN	WATTS	FD-100-A	FLOOR	EPOXY COATED CAST IRON		-	-	2"	1-1/2"	
FFHB	HOSE BIB	JR SMITH	5519	WALL	BRONZE. STAINLESS	STAINLESS STEEL RECESSED BOX WITH LOCK KEY	3/4"	-	-	-	INTEGRAL VACCUUM BREAKER AND DUAL CHECK VALVE W/ 1" GARDEN HOSE THREAD
FS	FLOOR SINK	FOOD SAFE DRAINS	12x12x8" FLOOR SINK	FLOOR	316 STAINLESS STEEL	PTRAP-54 316 TRAP, SQ AD/FLOOR SINK W/ PERF GRATE LAYOUT	-	-	4"	2"	12X12x8 DEEP. PROVIDE USDA COMPLIANT SS DOME BOTTOM, 1/2 GRATE, SEDIMENT BUCKET. ZLORENZOF-12x12x8AD:FS
GI	GREASE INTERCEPTOR	HIGHLAND TANK	PGI-4000	RECESSED	CARBON STEEL WITH HI-TEMP COATING	MANHOLE EXTENSIONS AS REQUIRED	-	-	4"	2"	PROVIDE CHEMLINE4000 EPOXY INTERIOR COATING. SUBSTITUTIONS ARE NOT ALLOWED AS HIGHLAND TANK IS BASIS OF DESIGN AND HAS PERFORMED THE BUOYANCY CALCULATIONS
HS	KNEE VALVE SINK	ADVANCED TABCO	7-PS-30	WALL	STAINLESS STEEL		1/2"	1/2"	1-1/2"	1-1/2"	
HST	HOSE STATION	ARMSTRONG	3032	WALL			3/4"	3/4"	-	-	
KS	KITCHEN SINK	KOHLER	K-3348-3	COUNTER	STAINLESS STEEL	FAUCET 15171-F	1/2"	1/2"	1-1/2"	1-1/2"	
LAV	BATHROOM SINK	KOHLER	K-2005	WALL	WHITE/ VITREOUS CHINA	BACKSPLASH, FAUCET 15182-4NDRA	1/2"	1/2"	1-1/2"	1-1/2"	
LAV-2	BATHROOM SINK	BRADLEY	LVGD3	WALL	QUARTZ	FAUCET S53-3700	1/2"	1/2"	1-1/2"	1-1/2"	BATTERY POWERED FAUCET
LS	LAB SINK	KOHLER	K-5267-1	DROP IN	STAINLESS STEEL	FAUCET K-10433	1/2"	1/2"	1-1/2"	1-1/2"	
MS	MOP SINK	FIAT	TSB-700 SERIES	FLOOR	TERRAZZO	FAUCET K-8907	1/2"	1/2"	3"	1-1/2"	
NT	ACID NUETRALIZATION TANK	MIFAB	MI-NEUT-30-HD3000	RECESSED	POLYETHYLINE	HEAVY DUTY COVER	-	-	3"	3"	
RD-1	ROOF DRAIN	JR SMITH	1010	ROOF	CAST IRON	OPTIONAL 1020 SIDE OUTLET ATTACHMENT	-	-	-	-	MATCH SIZE OF EXISTING ROOF DRAIN
RD-2	OVERFLOW ROOF DRAIN	JR SMITH	1080	ROOF	CAST IRON		-	-	-	-	MATCH SIZE OF EXISTING ROOF DRAIN
RH	ROOF HYDRANT	WOODFORD	SRH-MS	ROOF	GALVANIZED		3/4"	-	-	-	FREEZLESS, DOES NOT REQUIRE DRAIN, INTEGRAL VACUUM BREAKER AND BACKFLOW PREVENTION
TD30	SLOT DRAIN	FOOD SAFE DRAINS	FS10000L SERIES	FLOOR	316 STAINLESS STEEL	RUNTRAP-54, 12x12x16-5/8" END CATCH BASIN W/ SIDE OUTLET	-	-	4"	2"	SIDE OUTLET CATCH BASIN, CATCH BASIN LOCATED END OF SLOT DRAIN. ZLORENZOF-SD-4-CHICKENPR
TD32	SLOT DRAIN	FOOD SAFE DRAINS	FS10000L SERIES	FLOOR	316 STAINLESS STEEL	RUNTRAP-54, 12x12x16-5/8" CENTER CATCH BASIN W/ SIDE OUTLET	-	-	4"	2"	SIDE OUTLET CATCH BASIN, CATCH BASIN LOCATED MIDDLE OF SLOT DRAIN. ZLORENZOF-SD-3-SALADS
TDHK1	TRENCH DRAIN	FOOD SAFE DRAINS	FSFLAT TRENCH DRAIN-RUN-1	FLOOR	316 STAINLESS STEEL	RUNTRAP-54	-	-	4"	2"	BOTTOM OUTLET. ZLORENZOF-TF-1-HK
TDHK2	TRENCH DRAIN	FOOD SAFE DRAINS	FSFLAT TRENCH DRAIN-RUN-2	FLOOR	316 STAINLESS STEEL	RUNTRAP-54	-	-	4"	2"	BOTTOM OUTLET. ZLORENZOF-TF-2-HK
UR	ADA URINAL	KOHLER	K-4991-ET	WALL	WHITE / VITREOUS CHINA	FLUSHOMETER K-13520	3/4"	-	2"	-	
WC-1	WATER CLOSET	KOHLER	K-84325	WALL	WHITE / VITREOUS CHINA	FLUSHOMETER K-76321	1"	-	4"	2"	
WCO	WALL CLEANOUT	ZURN	Z1441	WALL	CAST IRON	STAINLESS STEEL ACCESS COVER	-	-	4"	-	

PLUMBING EQUIPMENT SCHEDULE

TAG	EQUIPMENT	MANUFACTURER	MODEL	SERVICE	PUMP SECTION		HEAD PRESSURE (FT)	HP	VOLTAGE	PHASE	AMPS	ELECTRICAL SECTION	NOTES
					PUMP TYPE	FLOW RATE (GPM)						AFC RATING	
EXP	EXPANSION TANK	TACO	PAX84-150										
RCP	RECIRCULATION PUMP	EBARRA	EVMSUF3-5	HW RECIRC	RECIRCULATION	10	42.00	0.33			1.9		

PLUMBING COMPRESSED AIR EQUIPMENT SCHEDULE

TAG	EQUIPMENT	MANUFACTURER	MODEL	HP	VOLTAGE	PHASE	AMPS	NOTES
AC1	AIR COMPRESSOR	SULLAIR	3009V-V05	40.00	460	3	57.8	OUTLET CONNECTION 1-1/2", SAFETY RELEIF VALVE 1/2" 150 PSIG 300CFM FULL LOAD 125PSI. VALVE-3, 2.5" BACK MNT 200 PSIG DRY GAUGE-3 PRESSURE GUAGE, ELECTRONIC TIMER DRAIN VALVE 90900-04
AC2	AIR COMPRESSOR	SULLAIR	3009V-V05	40.00	460	3	57.8	OUTLET CONNECTION 1-1/2", SAFETY RELEIF VALVE 1/2" 150 PSIG 300CFM FULL LOAD 125PSI VALVE-3, 2.5" BACK MNT 200 PSIG DRY GAUGE-3 PRESSURE GUAGE, ELECTRONIC TIMER DRAIN VALVE 90900-04
DR1	DRYER	SULLIAR	DHL-200-VO1		115	1	2.0	200 SCFM TO -40 DEG F
DR2	DRYER	SULLAIR	DHL-200-VO1		115	1	2.0	200 SCFM TO -40 DEG F
DT	DRY TANK	STEEL FAB	200 GAL VERT TANK					
F1	PRE-FILTER	SULLAIR	SXTF-025F					PIPE CONNECTION 1-1/2"
F2	FILTER	SULLAIR	SXTH-0250F					PIPE CONNECTION 1-1/2"
FC	FLOW CONTROLLER	OPTIFLO	OP-200-GRN-RL					MAX FLOW 200 SCFM. SET TO 115 PSI
OS	OIL SEPARATOR	CLEAN RESOURCES	IDC 500					INSTALL IN RECESSED PIT
WT	WET TANK	STEEL FAB	400 GAL VERT TANK					

PLUMBING STEAM EQUIPMENT SCHEDULE

TAG	EQUIPMENT	MANUFACTURER	MODEL	FLOW RATE (GPM)	PUMP TYPE	HEAD	HP	VOLTAGE	PHASE	AMPS	NOTES
BFT	VERTICAL FEED TANK	COLUMBIA	VRT-2				0.75	115	1	13.8	
BS	BLOWDOWN SEPARATOR	COLUMBIA	BS-1								
CRP	CONDENSATE RETURN PUMP	BFS INDUSTRIES	LPS2	13	CONDENSATE RETURN	46	0.33	120	1	7.5	PROVIDE 316 STAINLESS STEEL, WATERTIGHT NEMA 4X, FOR 600LBS/HR, 25 GAL CAPACITY
SB1	STEAM BOILER	COLUMBIA	CT-15								630 MBH SET BOILER TO 80 PSI
SB2	STEAM BOILER	COLUMBIA	CT-15								630 MBH SET BOILER TO 80 PSI

PLUMBING GAS WATER HEATER SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	STORAGE CAPACITY	INPUT MBH	GAS PRESSURE	VOLTAGE	AMPS	PHASE	RECOVERY	EFFICIENCY	NOTES
WH1	MECHANICAL ROOM	AO SMITH	BTHS-750A	120	750.0	3.5"-14" WC	120	5	1	882 USGH @ 100 DEG F RISE	0.97	PROVIDE CONDENSATE NEUTRALIZATION KIT 100289340
WH2	MECHANICAL ROOM	AO SMITH	BTHS-750A	120	750.0	3.5"-14" WC	120	5	1	882 USGH @ 100 DEG F RISE	0.97	PROVIDE CONDENSATE NEUTRALIZATION KIT 100289340
WH3	MECHANICAL ROOM	AO SMITH	BTHS-750A	120	750.0	3.5"-14" WC	120	5	1	882 USGH @ 100 DEG F RISE	0.97	PROVIDE CONDENSATE NEUTRALIZATION KIT 100289340

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORK AND DESIGN DEPICTED THEREIN, **COPYRIGHTED**, ARE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, **FABRICATED**, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL REQUIRED AGREEMENTS HAVE BEEN EXECUTED AND ALL REQUIRED FEES HAVE BEEN PROPERLY TITLED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT AND MATERIALS SPECIFIED ARE SUITABLE FOR THE CONDITIONS ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

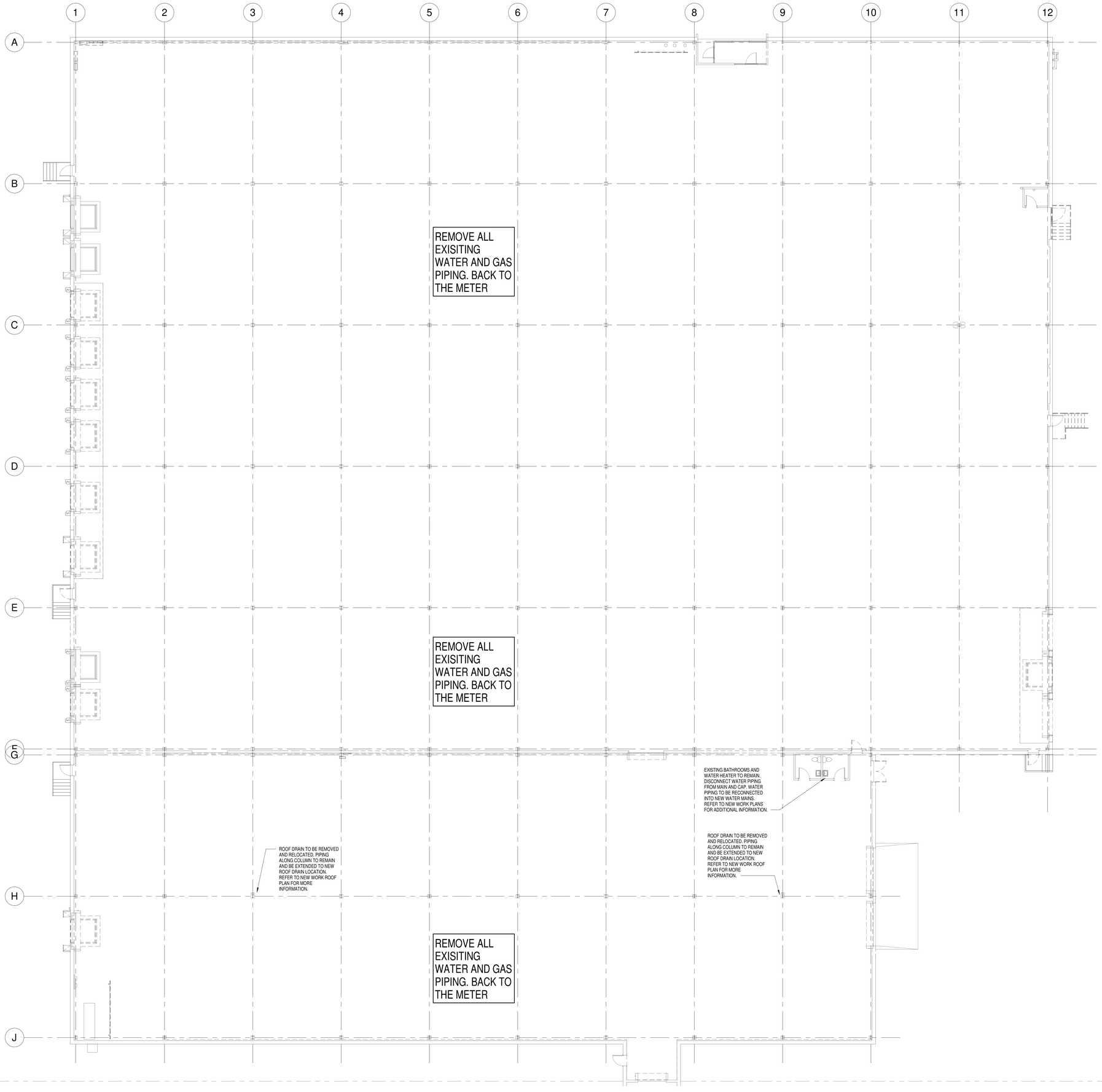
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: PLUMBING SCHEDULES
scale:
release date:
drawing date: 09/24/2021
drawn by: RL
approved by: KF
project no.: 2102
drawing no.: P-2000.00
DOB BARCODE:
Total

9/24/2021 3:05:25 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 PLUMBING DEMOLITION PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS AND ARCHITECTURAL DESIGN CONTAINED THEREIN, ARE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, PRESENTED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN OBTAINED AND FEES HAVE BEEN PROPERLY TILED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION OF THE PROJECT COMPLIES WITH ALL THE INFORMATION ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro
25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

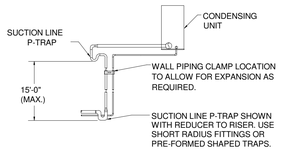
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	PLUMBING DEMOLITION PLAN
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	RL
approved by:	KF
project no.:	2102
drawing no.:	PD-100.00
DOB BARCODE:	Total

9/24/2021 3:05:29 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

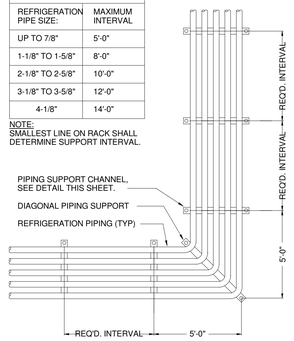


NOTES:
PIPING SHOWN WITHOUT INSULATION

1 SUCTION AND LIQUID LINE RISER DETAIL
NOT TO SCALE

SUPPORT INTERVAL SCHEDULE	
REFRIGERATION PIPE SIZE:	MAXIMUM INTERVAL
UP TO 7/8"	5'-0"
1-1/8" TO 1-5/8"	8'-0"
2-1/8" TO 2-5/8"	10'-0"
3-1/8" TO 3-5/8"	12'-0"
4-1/8"	14'-0"

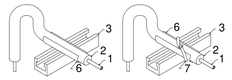
NOTE:
SMALLEST LINE ON RACK SHALL DETERMINE SUPPORT INTERVAL.



2 OVERHEAD PIPING SUPPORT DETAIL
NTS

DETAIL # 1 - BASE OF RISER
BOTTOM OF RISER
WHEN CLAMPING REQUIRED

DETAIL # 2 - RISER LINE
DETAIL OF RISER CLAMPING

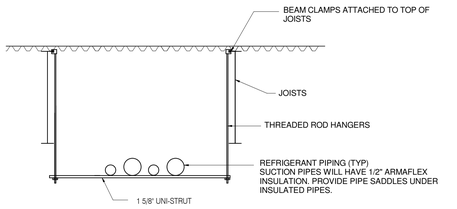


DETAIL # 3 - TOP OF RISER AND HORIZONTAL RUNS
WHERE LINES SHOULD NOT BE FIRMLY CLAMPED

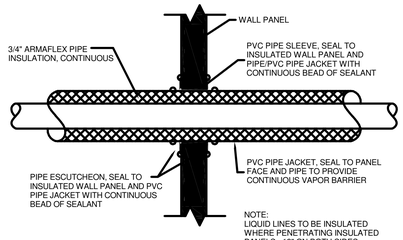
LEGEND

1 ACR COPPER REFRIGERATION LINES TYPE L
2 APPROVED, CLOSED CELL INSULATION. THICKNESS AS DESIGNATED FOR THE PARTICULAR APPLICATION.
3 STANDARD PIPE SUPPORT MATERIAL.
4 STANDARD PIPE CLAMP TO MATCH SUPPORT MATERIAL. CLAMP TO BE 1" LARGER THAN PIPE WITH 1/2" WALL INSULATION AND 2" LARGER WITH 1" WALL INSULATION. ON RISER LINES CLAMP IS NOT TO COMPRESS INSULATION, ONLY TO PREVENT UNUSUAL MOVEMENT. ALL SUPPORT OF RISER IS TO BE DONE AT BASE OF RISER OR AT TOP OF RISER.
5 NYLON LOCKNUT (AIRCRAFT TYPE) AND STANDARD BOLT.
6 PLATE OR SHEET METAL SADDLE (12" MINIMUM LENGTH) TO PREVENT COMPRESSION OF INSULATION.
7 NYLON TIE WRAP. DESIGNED TO SECURE BUT NOT TO TOTALLY PREVENT NORMAL EXPANSION AND CONTRACTION MOVEMENT.

3 REFRIGERATION PIPING DETAIL
NOT TO SCALE



4 TYPICAL HANGING DETAIL FOR REFRIGERATION PIPING
NO SCALE



5 **PIPE PENETRATION DETAIL**
N.T.S.

DETAILS

REFRIGERATION GENERAL NOTES:

1. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, RECEIVING, STORING, RIGGING AND INSTALLING ALL REFRIGERATION SYSTEM COMPONENTS.

2. ALL ROOFTOP EQUIPMENT MUST BE PROPERLY SECURED TO BUILDING STEEL IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES.

3. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL REFRIGERATION CONTROLS AND THE COMPLETE WIRING AND CONDUIT FOR CONTROLS AS REQUIRED, INCLUDING TEMPERATURE AND DEFROST CONTROLS.

4. REFRIGERATION CONTRACTOR SHALL KEEP ALL HIS WORK CLEAN AND ORGANIZED. CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL WASTE AND PACKING MATERIALS GENERATED BY HIS WORK. COORDINATE DUMPSTER LOCATION WITH THE OWNERS REPRESENTATIVE.

5. ALL CONDENSATE PIPING, HEAT TRACE AND INSULATION TO BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.

6. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL REFRIGERATION EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.

7. PROVIDE DISCONNECT SWITCHES FOR ALL REFRIGERATION EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.

8. REFRIGERATION CONTRACTOR TO PROVIDE MOTOR STARTER, CONTACTOR, SOLENOIDVALVES AND CONTROLS AS REQUIRED FOR TEMPERATURE AND DEFROST CONTROL.

GENERAL NOTES

XX
XXY — REFRIGERATION CIRCUIT DESIGNATION

MODEL # — REFRIGERATION EVAPORATOR (HIGH PROFILE TYPE)

REFRIGERATION EVAPORATOR (BETWEEN THE RAIL TYPE)

SUCTION/LIQUID LINE DOWN

DT — DEFROST TERMINATION THERMOSTAT

SUCTION/LIQUID LINE UP

REFRIGERATION THERMOSTAT

CONDENSATE PIPING

REFRIGERATION SYMBOLS

PROJECT NOTES:

THE CONTRACTOR SHALL RECEIVE AND REVIEW ALL OF THE PROJECTS DRAWINGS AND SPECIFICATIONS SUCH AS ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, FIRE ALARM, SPRINKLER, SITE, ETC. TO UNDERSTAND THE FULL SCOPE OF WORK. FAILURE TO RECEIVE AND REVIEW THOSE PLANS DURING BIDDING WILL RESULT IN THE DENIAL OF EXTRA'S.

Sheet Number	Sheet Name
R-100	REFRIGERATION COVER SHEET
R-101	REFRIGERATION SPECIFICATIONS
R-200	REFRIGERATION GROUND FLOOR
R-201	REFRIGERATION ROOF PLAN
R-300	REFRIGERATION SCHEDULES AND DETAILS
R-400	REFRIGERATION GROUND FLOOR PIPING
R-401	REFRIGERATION ROOF PIPING PLAN

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR:
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: REFRIGERATION COVER SHEET
scale:
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: R-100.00
DOB BARCODE:
Total

9/24/2021 3:05:34 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

REFRIGERATION EQUIPMENT

GENERAL SCOPE OF WORK

1. THE REFRIGERATION CONTRACTOR SHALL FURNISH AND DELIVER TO THE SITE, THE AIR-COOLED CONDENSING UNITS, EVAPORATORS, AND ALL CONTROL COMPONENTS INCLUDING THE THERMOSTATS AS REQUIRED FOR THE COMPLETE INSTALLATION FOR THIS PROJECT. THIS EQUIPMENT WILL BE AS DETAILED IN THE REFRIGERATION DRAWINGS, LEGENDS AND SPECIFICATIONS PREPARED BY THE ENGINEER.

REFERENCE STANDARDS AND CODES

1. CODE COMPLIANCE, LAWS, ORDINANCES, RULES, AND REGULATIONS:

A. THE CONTRACTOR'S INSTALLATION, INCLUDING WORK AND MATERIALS, SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS RELATIVE TO THIS PROJECT AND OF THE AUTHORITIES HAVING JURISDICTION.

B. IF THE CONTRACTOR PERFORMS ANY WORK NOT IN COMPLIANCE, AND DOES SO WITHOUT WRITTEN AUTHORIZATION BY THE OWNER, THE CONTRACTOR SHALL BEAR ALL COSTS RELATIVE TO CORRECTING THE INSTALLATION TO COMPLY WITH THE ORIGINAL SPECIFICATION REQUIREMENTS.

C. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THE BID INCLUDES ALL THESE CODE REQUIREMENTS AND PROCEDURES.

D. THE ENTIRE REFRIGERATION INSTALLATION INCLUDING PIPING AND EQUIPMENT MUST COMPLY WITH ALL CODE REQUIREMENTS FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS, BASED ON THE SPECIFIC STORE SEISMIC ZONE CLASSIFICATION.

E. ALL ELECTRICAL EQUIPMENT SHALL UL LISTED, WHERE APPLICABLE.

F. ALL REFRIGERATION EQUIPMENT SHALL BE F.M. APPROVED WHERE APPLICABLE.

CONDENSING UNIT REQUIREMENTS

GENERAL:

1. THIS SECTION DEALS WITH THE SPECIFICATIONS AND DESIGN DETAILS FOR THE SUPPLY AND DELIVERY OF COMPLETE REFRIGERATION SYSTEMS AND ASSOCIATED HARDWARE, AS REQUIRED IN ORDER TO PROVIDE PROPER REFRIGERATION FOR THE WALK-INS AS DETAILED IN THE REFRIGERATION DRAWINGS.

A. REFER TO THE ATTACHED REFRIGERATION LEGENDS FOR THE SPECIFIC SYSTEM REQUIREMENTS.
B. CONFIRM ALL VOLTAGES WITH ELECTRICAL DRAWINGS

CONDENSING UNIT REQUIREMENTS

A. LIQUID RECEIVERS:

1. THE RECEIVER SHALL BE EQUIPPED WITH PRESSURE RELIEF VALVES.

B. LIQUID LINE SOLENOID VALVES:
1. WHERE INDICATED ON THE LEGENDS, LIQUID LINE SOLENOID VALVES MUST BE FACTORY INSTALLED. IT IS MANDATORY THAT THESE BE SELECTED AT A PRESSURE DROP NO GREATER THAN 0.5 PSIG WHENEVER POSSIBLE, HOWEVER, CARE SHALL BE TAKEN TO ENSURE SUFFICIENT PRESSURE DIFFERENTIAL TO ALLOW THE VALVES TO MODULATE PROPERLY. SPORLAN OR ALCO VALVES ARE REQUIRED.

C. SCHRADER VALVES:
1. ALL SCHRADER VALVES SHALL HAVE THE PROPER LENGTH EXTENSION TO COMPENSATE FOR OVERALL CLEARANCE OF SPECIFIED INSULATION THICKNESS.

D. SUCTION FILTERS:
1. EACH INDIVIDUAL COMPRESSOR SHALL INCORPORATE AN OVERSIZED REPLACEMENT CORE SUCTION FILTER. THE FILTER HOUSING SHALL BE MANUFACTURED OF BRASS USING BRASS OR STAINLESS STEEL BOLTS. THE FILTERS SHALL BE OF A HIGH MOISTURE CAPACITY, REMOVAL STYLE SPORLAN RCW OR EQUAL. SUCTION FILTERS MUST BE OF A TYPE AND CAPACITY AS APPROVED BY THE COMPRESSOR MANUFACTURER.

E. MECHANICAL PRESSURE INPUT:
1. THE MECHANICAL CONNECTIONS TO ALL PRESSURE CONTROL DEVICES, INCLUDING UNLOADING SYSTEMS (WHERE APPLICABLE) SHALL BE BASED ON THE USE OF THE ECOSAFE HOSE AS MANUFACTURED BY JOHNSON CONTROLS/ PENN.

F. SINGLE POINT ELECTRICAL:
1. EACH CONDENSING UNIT MUST INCORPORATE A SINGLE POINT ELECTRICAL CONNECTION, WHEREBY THE COMPRESSORS AND EVAPORATORS ARE FACTORY WIRED VIA CIRCUIT BREAKERS AND/OR CONTACTORS TO THIS SINGLE ELECTRICAL SOURCE WITHIN ITS ELECTRICAL PANEL.

G. SINGLE PHASE PROTECTION AND ALARM:
1. EACH COMPRESSOR SYSTEM SHALL INCLUDE A DEDICATED SINGLE PHASE PROTECTION CIRCUIT. MONITORING OF PHASE PROTECTION SHALL BE ACCOMPLISHED VIA THE CONDENSING UNIT CONTROL PANEL.
2. THE CONTROL PANEL FOR EACH UNIT SHALL INCLUDE THE NECESSARY BREAKERS AND CONTACTORS REQUIRED TO PROVIDE POWER AND CONTROL THE EVAPORATOR FANS AND DEFROST CIRCUITS. ALL CONTACTORS AND BREAKERS MUST BE FACTORY FURNISHED AND INSTALLED.

H. COMPRESSOR MECHANICAL CONTROLS:
1. EACH INDIVIDUAL COMPRESSOR SHALL INCORPORATE THE FOLLOWING CONVENTIONAL CONTROLS:
- ADJUSTABLE PENN SERIES LOW SUCTION PRESSURE WITH MICROSET.
- ADJUSTABLE PENN SERIES HIGH PRESSURE, MANUAL RESET.
- OIL CONTROLS COPELAND SENTRONICS.

I. COMPRESSOR CRANKCASE HEATERS:
1. EACH COMPRESSOR SHALL INCORPORATE A CRANKCASE HEATER.

J. ELECTRIC DEFROST:
1. WHERE ELECTRIC DEFROST IS INDICATED ON THE LEGENDS, EACH REFRIGERATION CIRCUIT UTILIZING ELECTRIC DEFROST WILL OPERATE IN THE FOLLOWING MANNER. THE DEFROST CIRCUIT BREAKER AND CONTACTOR WILL BE PROVIDED AND LOCATED IN THE CONTROL PANEL. THE REQUIRED CONTACTORS SHALL BE PROVIDED AND INSTALLED BY THE MANUFACTURER.

2. THE EXACT QUANTITY OF DEFROST CONTACTORS PER REFRIGERATED CIRCUIT MUST BE CONFIRMED WITH ELECTRICAL DRAWINGS.

3. THE CONDENSING UNIT CONTROL PANEL SHALL INCLUDE THE NECESSARY TIMECLOCK AND CONTROL COMPONENTS TO ENABLE DEFROST CONTROL, INCLUDING DEFROST TERMINATION.

K. LIQUID DRIERS:
1. EACH UNIT SHALL INCORPORATE A REPLACEABLE CORE LIQUID FILTER/DRIER. THE FILTER/ DRIERS SHALL BE OF A HIGH MOISTURE CAPACITY REMOVAL STYLE (SPORLAN RCW OR EQUAL) AND OF A TYPE AND CAPACITY AS APPROVED AND RECOMMENDED BY THE COMPRESSOR MANUFACTURER.

PIPING AND INSULATION

1. REFRIGERANT PIPING:

UNLESS OTHERWISE SPECIFIED, ALL REFRIGERATION PIPING SHALL BE REFRIGERATION GRADE TYPE L OR TYPE K HARD DRAWN, DEGREASED SEALED COPPER TUBING.

FITTINGS SHALL BE WROUGHT COPPER OR FORGED BRASS AND ONLY LONG RADIUS ELBOWS SHALL BE USED. ALL CHANGES IN THE LINE SIZE AND DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS ONLY. ABSOLUTELY NO "STAB-INS" OF FORMED LONG SWEEP ELBOWS ARE PERMITTED.

SUCTION LINE FILTERS ARE TO BE INSTALLED FOR DIRECTION OF FLOW WITHOUT BYPASS RELIEF. FILTER PRESSURE DROP CAN THEN BE MEASURED BETWEEN THE FILTER GAUGE AND THE FITTING ON THE SUCTION SERVICE VALVE.

2. INSULATION:

INSULATION SHALL BE ARMACELL ARMAFLEX II OR RUBATEX R-180FS. ALL SUCTION LINES WITH 1" WALL THICKNESS INSULATION. ALL LIQUID LINES SHALL BE INSULATED WITH ½" WALL THICK INSULATION.

ALL INSULATION JOINTS SHALL BE SEALED WITH RUBBER CEMENT TO ENSURE A "DRIP-TIGHT" SEAL. INSULATION SHALL BE SHIPPED ON TUBING PRIOR TO JOINT BRAZING WHERE POSSIBLE, AS AN ALTERNATE TO SPLITTING AND THEN SEALING THE JOINT. EACH JOINT SHALL THEN BE TAPED WITH APPROVED TAPE FOLLOWING THE GLUE PROCESS.

ALL INSULATION LOCATED OUTDOORS SHALL BE COVERED IN A UV RESISTANT COVERING.

EVAPORATOR COILS

1. GENERAL:
A. ALL EVAPORATORS SHALL BE AS MANUFACTURED BY CENTURY AND COLMAC.
B. REFER TO REFRIGERATION LEGENDS FOR SPECIFIC EVAPORATOR COILS.
C. REFER TO THE REFRIGERATION LEGENDS FOR EVAPORATOR VOLTAGE REQUIREMENTS.

2. OPTIONS:
A. EVAPORATOR COILS SHALL BE FURNISHED WITH THE FOLLOWING FACTORY INSTALLED OPTIONS/ACCESSORIES:
1. SPORLAN OR ALCO THERMOSTATIC EXPANSION VALVES (SWEAT TYPE).
2. LIQUID LINE CLEANABLE STRAINERS.
3. INDIVIDUAL DEFROST TERMINATION THERMOSTATS (ELECTRIC DEFROST MODELS).
4. INDIVIDUAL FAN DELAY THERMOSTATS (ELECTRIC DEFROST MODELS).

GUARANTEE AND WARRANTY

1. THE REFRIGERATION CONTRACTOR SHALL WARRANT ALL EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM TURNOVER. DEFECTS IN MATERIAL OR WORKMANSHIP SHALL BE CORRECTED BY MANUFACTURER AT NO COST TO THE OWNER DURING THE WARRANTY PERIOD.

2. THE REFRIGERATION CONTRACTOR SHALL ASSIGN AND FURNISH TO THE OWNER, A COPY OF ALL "WARRANTIES" FOR EQUIPMENT OR MANUFACTURED COMPONENTS SUPPLIED ON THE PROJECT.

-END REFRIGERATION EQUIPMENT SPECIFICATIONS-

REFRIGERATION INSTALLATION

PART 1 - GENERAL

1.1 SUMMARY OF SCOPE

A. RESPONSIBILITIES INCLUDE:
1. RECEIVE, STORE, RIG AND INSTALL ALL REFRIGERATION EQUIPMENT INCLUDING CONDENSING UNITS AND EVAPORATORS.
2. PROVIDE ALL LABOR AND MATERIALS TO INSTALL, COMMISSION AND OPTIMIZE THE OPERATION OF THE SYSTEMS AS DETAILED IN THE PLANS AND SPECIFICATIONS.
3. WARRANTY ALL PARTS AND LABOR FOR ONE FULL YEAR FROM ACCEPTANCE BY THE OWNER. THIS INCLUDES PROVIDING REGULAR MAINTENANCE DURING THE WARRANTY PERIOD.

1.2 RELATED DOCUMENTS

A. THE FOLLOWING DRAWINGS AND DOCUMENTS SHALL ACCOMPANY AND BE CONSIDERED PART OF THESE SPECIFICATIONS.

RELATED MATERIAL: (DRAWINGS AND/OR SPECIFICATIONS)
1. REFRIGERATION DRAWINGS (R SERIES)
2. REFRIGERATION LEGENDS

1.3 MECHANICAL INSTALLATION AND CONTRACTOR OBLIGATIONS

A. GENERAL SCOPE OF WORK:
WORK REQUIRED UNDER THIS SECTION INCLUDES ALL LABOR, MATERIALS, TOOLS, AND EQUIPMENT NECESSARY FOR INSTALLATION OF ALL REFRIGERATION SYSTEMS ON THIS PROJECT AS DETAILED ON THE DESIGN PROJECT DRAWINGS AND AS HEREIN SPECIFIED, OR AS REQUIRED BY GOOD INSTALLATION PRACTICE TO MAKE THE REFRIGERATION SYSTEMS FULLY OPERATIONAL. THE CONTRACTOR SHALL COMMISSION ALL OF THE REFRIGERATION EQUIPMENT TO A FULLY OPERATIONAL STATE, MAKE ALL REQUIRED ADJUSTMENTS AND CALIBRATIONS, PERFORM AND MAKE ALL INITIAL TESTS TO ENSURE COMPLIANCE WITH THESE SPECIFICATIONS AND THEIR INTENT, AND OBTAIN ALL NECESSARY APPROVALS IN WRITING FROM ALL GOVERNING BODIES HAVING JURISDICTION OVER THIS WORK TO ENSURE COMPLIANCE WITH ALL LAWS AND ORDINANCES IN EFFECT.

ANY OMISSIONS FROM THESE SPECIFICATIONS OR FROM THE REFRIGERATION PLANS AND SCHEDULES WITH REFERENCE TO ANY PARTS AND/OR LABOR NECESSARY FOR THE COMPLETE INSTALLATION MUST NOT BE CONSTRUED AS RELEASING THE CONTRACTOR FROM RESPONSIBILITY FOR FURNISHING SUCH PARTS AND/OR LABOR.

1. FOR SPECIFIC DETAILS OF THE INSTALLATION, REFER TO THE FIXTURE PLAN; REFRIGERATION LEGENDS, REFRIGERATION PLANS, PIPING PLANS, LINE SIZING PLANS, MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND TO THE APPLICABLE CODES AND ORDINANCES.

2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY REFRIGERANT PIPING, FITTINGS, VIBRATION ELIMINATORS, LINE VALVES, SOLENOID VALVES, THERMOSTATIC EXPANSION VALVES, DEHYDRATORS, STRAINERS, SIGHT GLASSES, MOISTURE INDICATORS, REFRIGERANT, OIL, FILTERS, INSULATION AND ALL FITTINGS AND ACCESSORIES NECESSARY TO PERFORM A COMPLETE INSTALLATION UNLESS OTHERWISE SPECIFIED, TOGETHER WITH ALL LABOR REQUIRED TO COMPLETE THE INSTALLATION AND PERFORM THE SERVICE COVERED BY THIS SPECIFICATION.

3. THE CONTRACTOR IS RESPONSIBLE FOR UNLOADING, ASSEMBLING, AND INSTALLING ALL COILS, CONDENSING UNITS AND OTHER REFRIGERATION EQUIPMENT UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL ALSO ARRANGE FOR THE REMOVAL OF CRATING AND PACKING MATERIALS AND SHALL LEAVE THE UNCRATING AREA AND THE PROJECT SITE IN A CLEAN AND ORDERLY CONDITION.

4. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE PROJECT, AND SHALL COOPERATE WITH OTHER CONTRACTORS DOING WORK IN THE BUILDING. IF ANY CONFLICT, INTERFERENCE, OR DISCREPANCIES COME TO THE ATTENTION OF THE CONTRACTOR, HE SHALL NOTIFY THE OWNER IMMEDIATELY BEFORE PROCEEDING FURTHER WITH THE INSTALLATION. ABSOLUTE COMPLIANCE WITH THE SCHEDULE AS SUBMITTED BY THE CLIENT IS ESSENTIAL.

B. INSTALLATION SCOPE OF WORK - SYSTEM DESCRIPTION

REFER TO THE REFRIGERATION PLANS FOR DETAILS OF THE INSTALLATION FOR THIS PROJECT. THE REFRIGERATION CONTRACTOR SHALL FURNISH AND INSTALL ALL OF THE REFRIGERATION SYSTEMS AS SPECIFIED IN THE DRAWINGS AND REFRIGERATION LEGENDS. THE CONTRACTOR SHALL RECEIVE, RIG, INSTALL AND COMMISSION ALL OF THE COMPRESSOR SYSTEMS AND ASSOCIATED COMPONENTS TO COMPLETION.

THE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FURNISHING AND INSTALLATION OF:
- SUCTION, LIQUID AND CONDENSATE PIPING INCLUDING VALVES AND FITTINGS
- PIPING INSULATION
- REFRIGERANT
- SYSTEM COMMISSIONING, CALIBRATION, TESTING AND CONTROL OPTIMIZATION

EXTREME AND SPECIAL COORDINATION BETWEEN THE REFRIGERATION CONTRACTOR AND THE GENERAL CONTRACTOR IS NECESSARY FOR THE ERECTION AND INSTALLATION OF THE EVAPORATORS AND CONDENSING UNITS.

SYSTEM REQUIREMENTS:

1. THE COMPRESSOR SYSTEMS WILL BE AS DETAILED ON THE REFRIGERATION DRAWINGS AND REFRIGERATION LEGENDS.

2. THE SCOPE OF WORK SHALL FURTHER INCLUDE, BUT NOT BE LIMITED TO THE FURNISHING, WHERE SPECIFIED, AND INSTALLATION OF THE FOLLOWING ITEMS:

A. RIGGING AND INSTALLATION OF CONDENSING UNITS.
B. INSTALLATION OF EVAPORATOR COILS INCLUDING CONDENSATE PIPING, HEAT TRACE AND INSULATION.
C. REFRIGERATION VALVES, FITTINGS AND PIPING.
D. PIPING HANGERS, UNISTRUT, FASTENERS, BOLTS, ETC.
E. REFRIGERANT.
F. COMPRESSOR OIL.
G. INSULATION OF REFRIGERANT SUCTION AND LIQUID LINES.
H. FURNISHING AND INSTALLING OF REFRIGERANT PIPING.
I. CHARGING AND LUBRICATING OF SYSTEMS.
J. ADJUSTMENT OF CONTROLS.
K. COMMISSIONING OF THE DEFROST TERMINATION AND TEMPERATURE CONTROL SYSTEMS.
L. IDENTIFICATION OF SYSTEMS.
M. COMMISSIONING OF ALL REFRIGERATION SYSTEMS.

4. RECEIVING AND SETTING

A. THE REFRIGERATION CONTRACTOR SHALL RECEIVE AND BE RESPONSIBLE FOR THE RIGGING AND LOCATING THE AIR-COOLED CONDENSING UNITS AND THE EVAPORATORS. A PROFESSIONAL LICENSED AND INSURED RIGGING CONTRACTOR MUST BE UTILIZED FOR THIS PURPOSE.

B. REMOVE TAGS, WIRES AND BLOCKING FOR SHIPPING FROM THE CONDENSING UNITS.

5. COMPRESSOR OIL

THE REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL COMPRESSORS ARE OPERATING WITH THE CORRECT QUANTITY AND TYPE OF REFRIGERANT OIL. THIS APPLIES PRIOR TO STARTUP, AND FOLLOWING INITIAL OPERATION TO ENSURE THAT THE OIL QUANTITIES HAVE STABILIZED. THE REFRIGERATION CONTRACTOR SHALL PROVIDE ALL OIL AS REQUIRED INCLUDING ANY OIL REQUIRED TO TOP OFF THE SYSTEMS AFTER THEY HAVE REACHED EQUALIZATION

7. EVAPORATOR COILS

A. REFER TO REFRIGERATION LEGENDS FOR SPECIFIC EVAPORATOR COIL TYPES AND LOCATIONS.

B. REFER TO THE REFRIGERATION EQUIPMENT SPECIFICATIONS FOR ACCESSORIES AND CONTROLS.

C. REFRIGERATION CONTRACTOR SHALL INSTALL ALL EVAPORATOR COILS AS PER PLANS AND SPECIFICATIONS.

D. COILS SHOULD BE MOUNTED IN WALK-IN BOXES AS SHOWN ON THE MANUFACTURERS SHOP DRAWINGS OR AS DIRECTED BY OWNER.

E. COILS SHOULD BE MOUNTED TO PROVIDE SUFFICIENT SPACE FOR MAINTENANCE AND CLEANING WITHOUT HINDERING REFRIGERATION PERFORMANCE.

8. CONDENSING UNITS

A. REFER TO REFRIGERATION LEGEND FOR SPECIFIC MODELS AND LOCATIONS.

B. REFER TO THE REFRIGERATION EQUIPMENT SPECIFICATIONS FOR ACCESSORIES AND CONTROL METHODS.

C. REFRIGERATION CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL CONDENSING UNITS AND ASSOCIATED PIPING. CONDENSING UNITS SHALL BE FIELD INSTALLED ON THE ROOF OF THE BUILDING ON A RAISED STEEL PLATFORM. REFER TO THE REFRIGERATION PLANS FOR DETAILED INSTALLATION REQUIREMENTS.

9. REFRIGERATION LEGENDS

FOR COMPLETE AND DETAILED REFRIGERATION LEGENDS, REFER TO "REFRIGERATION SCHEDULES".

C. REFRIGERATION DRAINS

1. INSTALLATION MUST CONFORM TO ALL STATE AND LOCAL CODE REQUIREMENTS.

COOLER AREAS - INSTALLATION OF THE EVAPORATOR COIL CONDENSATE DRAINS SHALL BE PERFORMED BY THE REFRIGERATION CONTRACTOR. ALL OF THESE CONDENSATE DRAIN LINES SHALL BE COPPER.

A. THE REFRIGERATION CONTRACTOR SHALL INSULATE ALL THE MEAT COOLER CONDENSATE DRAINS. ELECTRIC HEATER TAPE WILL BE SUPPLIED AND INSTALLED AROUND THESE CONDENSATE LINES BY THE REFRIGERATION CONTRACTOR. THE ELECTRIC HEATER TAPE SHALL EXTEND THROUGH THE BOX WALL TO THE OUTSIDE OF THE BOX. POWER TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WALK-IN CONDENSATE LINES SHALL EXIT THE REFRIGERATED SPACE AS SOON AS PRACTICAL. THE DRIP LINES SHALL HAVE A THREADED BRASS OR COPPER UNION CONNECTED TO THE COIL PAN. A "P" TRAP SHALL BE INSTALLED NEAR CURB DRAIN OUTSIDE OF THE REFRIGERATED AREA. WALK-IN COIL CONDENSATE DRIP LINES SHALL INCORPORATE A MINIMUM NUMBER OF FITTINGS AND EMPLOY LONG RADIUS ELBOWS. THE REFRIGERATION CONTRACTOR SHALL SEAL ALL OPENINGS CUT IN COOLER AND FREEZER PANELS. USE BUTYL RUBBER CAULK ON BOTH SIDES OF THE PANEL AT THE PENETRATION.

D. AUTOMATED CONTROL SYSTEM

1. THE REFRIGERATION SYSTEMS WILL UTILIZE TIME CLOCKS AND THERMOSTATS TO MONITOR AND CONTROL THE COMPRESSORS AND INDIVIDUAL TEMPERATURE AND DEFROST FUNCTIONS. REFER TO THE REFRIGERATION PLANS FOR SPECIFIC FIXTURE TEMPERATURE CONTROL METHODS. THE REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR, BUT NOT LIMITED TO, THE FOLLOWING:

A. FURNISH AND INSTALL THERMOSTATS FOR THE TEMPERATURE CONTROL OF THE WALK-IN SPACES. THE THERMOSTAT IS TO BE WIRED BACK TO THE CONDENSING UNIT CONTROL PANEL.

B. REFRIGERATION CONTRACTOR MUST CAREFULLY REVIEW THE REFRIGERATION DESIGN PLANS AND FULLY ADHERE TO THE REQUIREMENTS AS SPECIFIED AND DETAILED THEREIN.

C. THE REFRIGERATION CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE COMPLETE COMMISSIONING OF ALL COMPRESSOR CONTROLS.

1.4 GUARANTEE AND WARRANTY

A. REFRIGERATION CONTRACTOR SHALL WARRANT ALL MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR AFTER TURN OVER AND ACCEPTANCE FROM THE OWNER. DEFECTS IN MATERIAL OR WORKMANSHIP SHALL BE CORRECTED WITHOUT DELAY AND AT ANY COST TO THE OWNER DURING THE WARRANTY PERIOD.

B. THE REFRIGERATION CONTRACTOR SHALL ASSIGN AND FURNISH TO THE OWNER A COPY OF ALL "WARRANTIES" FOR EQUIPMENT OR MANUFACTURED COMPONENTS SUPPLIED ON THE PROJECT. IT IS THE RESPONSIBILITY OF THE REFRIGERATION CONTRACTOR TO PROCESS WITHOUT DELAY ALL "WARRANTY" CLAIMS THAT OCCUR DURING THE WARRANTY PERIOD. TERMS AND CONDITIONS STATED ON MANUFACTURER'S WARRANTIES SHALL APPLY TO THE OWNER.

A. THE REFRIGERATION CONTRACTOR SHALL PROVIDE TO OWNER TWO (2) FULL SETS OF ALL EVAPORATOR COIL SPECIFICATION SHEETS, CONDENSING UNIT DATA SHEETS, ETC. IN THREE-RING BINDERS. THIS MANUAL SHALL INCLUDE SPECIFICATIONS OF ALL REFRIGERATION EQUIPMENT INSTALLED BY THIS CONTRACTOR.

B. DURING THE ONE (1) YEAR WARRANTY PERIOD, THE REFRIGERATION CONTRACTOR SHALL FURNISH, AT NO CHARGE TO THE OWNER, ALL LABOR AND MATERIALS NOT SPECIFICALLY COVERED BY ANY "MANUFACTURER'S WARRANTY."

C. SHOULD ANY DEFECTS DEVELOP WITHIN THE WARRANTY PERIOD, THE REQUIRED REPAIRS OR REPLACEMENTS, INCLUDING LABOR AND MATERIALS, SHALL BE MADE WITHOUT CHARGE OR DELAY TO THE OWNER.

D. THE CONTRACTOR SHALL GUARANTEE EACH PIECE OF EQUIPMENT SUPPLIED BY HIM TO MEET THE CAPACITY AND DUTY REQUIREMENTS HEREINAFTER SPECIFIED. THE SATISFACTORY PERFORMANCE OF THE EQUIPMENT AND SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

E. OFFICIAL ACCEPTANCE OF THE COMPLETED CONTRACT SHALL ONLY COMMENCE WHEN THE INSTALLATION IS FINALIZED IN EVERY RESPECT AND HAS BEEN IN OPERATION UNDER LOAD CONDITIONS FOR A PERIOD OF AT LEAST ONE WEEK TO THE SATISFACTION OF THE OWNER.

1.5 MATERIALS, EQUIPMENT AND SUBSTITUTIONS

A. DESCRIPTION:
ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND THE PRODUCT OF A REPUTABLE MANUFACTURER. MATERIALS AND EQUIPMENT SHALL FULLY CONFORM TO THE APPLICABLE SPECIFICATIONS AND STANDARDS, AND SHALL COMPLY WITH SIZE, MAKE TYPE AND QUALITY SPECIFIED OR AS OTHERWISE SPECIFICALLY APPROVED IN WRITING BY THE OWNER AND ENGINEER. DO NOT USE MATERIAL OR EQUIPMENT FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS DESIGNED.

IT SHALL BE UNDERSTOOD THAT THE PLANS CANNOT INDICATE EVERY SPECIALTY OR DETAIL; HOWEVER, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SUCH SPECIALTIES AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION IN ACCORDANCE WITH THE NORMAL INTERPRETATION OF THE PLANS AND SPECIFICATIONS FOR A FULLY OPERATIONAL SYSTEM, GOOD PRACTICE, AND TO THE SATISFACTION OF THE OWNER AND ENGINEER.

B. SUBSTITUTIONS:
WHERE MANUFACTURER'S NAMES, CATALOG NUMBERS, OR TRADE NAMES APPEAR IN THE SPECIFICATIONS, IT IS NOT THE INTENT TO RESTRICT OR ELIMINATE COMPETITION, BUT MERELY TO ESTABLISH QUALITY OF MATERIAL REQUIRED. WHERE THE WORDS "OR APPROVED EQUAL" APPEAR, THE "EQUAL" ITEM MUST CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS AND MUST BE SUBMITTED, WITH COMPLETE INFORMATION, TO THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO USE.

ALL COSTS ASSOCIATED WITH ADDITIONAL WORK THAT MAY BE REQUIRED BY OTHER TRADES AS A RESULT OF A SUBSTITUTION OF EQUIPMENT AND/OR MATERIALS, SHALL BE BORNE BY THE CONTRACTOR.

MATERIALS THAT ARE NOT SATISFACTORY TO THE OWNER SHALL BE REMOVED FROM THE PREMISES.

1.6 REFERENCE STANDARDS AND CODES

A. CODE COMPLIANCE, LAWS, ORDINANCES, RULES, AND REGULATIONS:

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS RELATIVE TO THIS PROJECT.

2. IF THE CONTRACTOR PERFORMS ANY WORK NOT IN COMPLIANCE, AND DOES SO WITHOUT WRITTEN AUTHORIZATION BY THE OWNER, THE CONTRACTOR SHALL BEAR ALL COSTS RELATIVE TO CORRECTING THE INSTALLATION TO COMPLY WITH THE ORIGINAL SPECIFICATION REQUIREMENTS.

1.7 SHOP DRAWINGS, SUBMITTALS

A. FOR THE REFRIGERATION CONTRACTOR, THE MAJOR TYPES OF MATERIAL BEING INSTALLED FOR THE REFRIGERATION EQUIPMENT INSTALLATION SHALL BE DETAILED IN A SUBMITTAL FORMAL. THIS SUBMITTAL SHALL INCLUDE, BUT NOT LIMITED TO, COMPLETE AND CONCISE DATA RELATING TO THE REFRIGERANT TUBING GRADE, THE TYPE OF BRAZING MATERIALS, VALVES AND INSULATION TYPES. IN ALL CASES MANUFACTURER'S DATA SHALL BE INCLUDED.

B. SHOP DRAWINGS AND BROCHURES COVERING ALL MAJOR EQUIPMENT ITEMS SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO DELIVERY AND INSTALLATION OF SAID EQUIPMENT.

C. INSTALLATION SHOP DRAWINGS SHALL BE PREPARED BY THE REFRIGERATION CONTRACTOR AND SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO INSTALLATION COMMENCEMENT.

PART 2 - PRODUCTS

2.1 REFRIGERANTS, PIPING AND INSULATION

A. REFRIGERANTS

1. THE REFRIGERANT SHALL BE DELIVERED TO THE JOB IN ORIGINAL SEALED CONTAINERS.

2. UNDER NO CIRCUMSTANCES SHALL THERE BY ANY MIXING OF REFRIGERANTS.

3. ADDITIONAL REFRIGERANT MAY BE REQUIRED FOR SYSTEMS AFTER PROPER SUPERHEAT HAS BEEN SET ON ALL EXPANSION VALVES.

A. CONTRACTOR SHALL TAKE EXTREME CAUTION TO PREVENT THE LOSS OF ANY REFRIGERANT TO THE ATMOSPHERE. ABSOLUTELY NO PLANNED REFRIGERANT VENTING IS PERMITTED.

4. CONTRACTOR SHALL OBTAIN, READ AND UNDERSTAND ALL WARNINGS AND INSTRUCTIONS LISTED ON THE REFRIGERANT CONTAINER LABEL, PACKAGING AND IN THE SAFETY AND HANDLING INSTRUCTIONS AS PROVIDED BY THE REFRIGERANT MANUFACTURER.

FOR SPECIFIC REFRIGERANTS USED IN EACH SITUATION, THE CONTRACTOR MUST REFER TO THE REFRIGERATION SCHEDULE TO ASCERTAIN THE ACTUAL REFRIGERANT TO BE UTILIZED. USE ONLY THE REFRIGERANT IN ANY EQUIPMENT FOR WHICH THAT EQUIPMENT WAS DESIGNED BY THE MANUFACTURER.

B. REFRIGERANT PIPING

1. THE REFRIGERATION CONTRACTOR MUST CAREFULLY REVIEW THE PIPING PLANS. THESE DOCUMENTS MAY INDICATE THE PIPING SCHEDULES, ROUTING AND OTHER REQUIREMENTS OF WHICH WILL BE NECESSARY FOR THE REFRIGERATION INSTALLATION.

2. TUBING SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER WITH HORIZONTAL RUNS SLOPED TOWARD THE COMPRESSOR AT A RATE OF ONE INCH (1") PER TWENTY FOOT (20'). HANGERS OR STRAPS SHALL BE INSTALLED SO AS TO ADEQUATELY PREVENT VIBRATION OR UNDUE STRAIN ON ANY PIPE OR FITTING. CLAMP LINES WITH "UNISTRUT" OR EQUIVALENT AT LEAST EVERY TEN (10) FEET.

A. CADMIUM PLATED OR GALVANIZED NUTS AND BOLTS WITH SELF-LOCKING TYPE NUTS SHALL BE USED ON ALL PIPE CLAMPS. LOCK TIGHT SHALL BE APPLIED TO ALL NUTS.

B. ALL PIPING TO BE INSTALLED IN SUCH A MANNER AS TO COMPLETELY PREVENT ANY TYPE OF RUBBING AGAINST ANY OTHER OBJECTS/SURFACES.

C. REFRIGERATION LINES MUST BE ROUTED ADEQUATELY TO CLEAR FANS, MOTORS, AND EXPANSION VALVES.

D. ALL PIPING SHALL BE INSTALLED SO THAT NORMAL SERVICING OF THE COMPRESSOR AND RELATED EQUIPMENT IS NOT HINDERED. DO NOT OBSTRUCT THE VIEW OF THE CRANKCASE OIL SIGHT GLASS OR RUN PIPING SO IT INTERFERES WITH REMOVAL OF COMPRESSOR, CYLINDER HEADS, END BELLS, ACCESS PLATES, FANS, FAN MOTORS, COIL, FILTERS, CONDENSERS, ETC.

E. SUCTION LINE FILTERS ARE TO BE INSTALLED FOR DIRECTION OF FLOW WITHOUT BYPASS RELIEF. FILTER PRESSURE DROP CAN THEN BE MEASURED BETWEEN THE FILTER GAUGE FITTING AND THE FITTING ON THE SUCTION SERVICE VALVE.

F. REFRIGERATION PIPING MUST NOT BE INSTALLED ABOVE ANY ELECTRICAL DISTRIBUTION PANEL(S), TRANSFORMERS OR OTHER ELECTRICAL COMPONENTS. EXTREME CARE SHALL BE APPLIED TO SATISFY THIS REQUIREMENT.

G. DO NOT USE:
- SHORT RADIUS 90° ELBOWS
- 45° ELBOWS
- PLASTIC CAPS
- SCHRAEDER VALVES ON CONDENSER OR RECLAIM DISCHARGE LINES
- DRILLED TEES IN FIXTURES

H. ALL COUPLINGS AND REDUCERS SHOULD BE WELDED AROUND THE ROLLED STOP, OR STAKED STOP.

I. FURNISH AND INSTALL ADEQUATE SYSTEM SHUT-OFF VALVES TO FACILITATE MAINTENANCE, EMERGENCY SERVICE AND MODIFICATIONS WITHOUT LOSS OF REFRIGERANT.

3. UNLESS OTHERWISE SPECIFIED, ALL REFRIGERATION PIPING SHALL BE REFRIGERATION GRADE TYPE L OR TYPE K HARD DRAWN, CLEANED, DEHYDRATED AND CAPPED TO AVOID CONTAMINATION PRIOR TO INSTALLATION.

4. FITTINGS SHALL BE WROUGHT COPPER OR FORGED BRASS AND ONLY LONG RADIUS ELBOWS SHALL BE USED. ALL CHANGES IN THE LINE SIZE AND DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS ONLY. ABSOLUTELY NO "STAB-INS" OR FORMED LONG SWEEP ELBOWS ARE PERMITTED.

5. CUSHION ALL PIPES WITH CURVED SHEET METAL SECTIONS GLUED AROUND THE ARMAFLEX, ON THE INTERMEDIATE SUPPORTS WHERE PIPE IS NOT CLAMPED. WHERE THE CLAMPS ARE APPLIED DIRECTLY ONTO THE COPPER LINES, HYDRAZORB CUSHION CLAMP ASSEMBLIES SHALL BE USED WITH 1-5/8" WIDTH STEEL CHANNEL. STEEL CLAMP PARTS MUST NOT TOUCH OR RUB THE COPPER PIPE.

6. WHERE VERTICAL RISERS OF MORE THAN FIVE (5) FEET OCCUR IN A SUCTION LINE, THE RISER SHALL BE TRAPPED AT THE BOTTOM (INVERTED P TRAP). INSTALL AN ADDITIONAL TRAP FOR EACH TEN FEET (10') OF RISER.

7. DOUBLE SUCTION LINE RISERS SHALL BE INSTALLED ON ALL CIRCUITS AS INDICATED SHOWN ON THE REFRIGERATION PIPING PLANS.

8. WHERE A BRANCH SUCTION LINE ENTERS A MAIN SUCTION LINE IT SHALL ENTER AT THE TOP. PIPING SHALL BE ARRANGED SO REFRIGERANT OR OIL CANNOT DRAIN FROM THE SUCTION LINE INTO THE EVAPORATOR.

9. VERTICAL DISCHARGE RISERS SHALL BE TRAPPED AT THE BOTTOM TO PREVENT OIL FROM DRAINING BACK INTO THE COMPRESSOR. INSTALL AN ADDITIONAL TRAP EQUALLY SPACED FOR EACH TEN (10) FEET OF RISER.

10. PIPING SHOULD BE LOCATED SO THAT THE ACCESS TO THE SYSTEM COMPONENTS IS NOT HINDERED AND THAT ALL COMPONENTS THAT COULD POSSIBLY REQUIRE FIXTURE MAINTENANCE ARE EASILY ACCESSIBLE.

11. ALL JOINTS IN THE COMPRESSOR DISCHARGE SUCTION AND LIQUID LINES SHALL BE BRAZED WITH A SUITABLE HIGH TEMPERATURE SILVER SOLDER ALLOY CONTAINING NOT LESS THAN FIFTEEN PERCENT (15%) SILVER. AT ANY COPPER TO BRASS JOINT WHERE DAMAGE COULD OCCUR FROM EXCESS HEAT USE 15% SILVER, BUT MUST UTILIZE A HEAT WRAP IN BRAZING PROCESS. USE A SOLDER WITH AT LEAST THIRTY-FIVE PERCENT (35%) SILVER CONTENT ON ALL COPPER TO STEEL, BRASS TO STEEL, OR STEEL-TO-STEEL JOINTS.

DURING ALL OF THE BRAZING OPERATIONS, DRY NITROGEN MUST BE BLED THROUGH THE PIPING AT VERY LOW PRESSURE TO PREVENT OXIDATION AND SCALING.

12. IN ORDER TO AVOID DAMAGE TO THE INTERNAL SILFOS JOINTS IN VIBRATION ELIMINATORS, LINE CONNECTIONS TO VIBRATION ELIMINATORS ARE TO BE MADE WITH SILVER SOLDER ALLOY, TO 1,200 DEG. F (WELL BELOW THE 1,300 DEG. F MELTING POINT OF SILFOS).

13. TO PREVENT CONTAMINATION OF THE LINE INTERNALLY, LIMIT THE SOLDERING PASTE OR FLUX TO THE MINIMUM REQUIRED. FLUX ONLY THE MALE PORTION OF THE CONNECTION, NEVER THE FEMALE.

1. PROTECTION OF THE PIPING SYSTEM SHALL BE THIS CONTRACTOR'S RESPONSIBILITY. TEMPORARY PROTECTION SHALL BE PROVIDED UNTIL THE JOB IS IN SATISFACTORY CONDITION, AND PERMANENT PROTECTION SHALL BE PROVIDED BY THE BUILDING CONTRACTOR AS REQUIRED TO PROTECT THE PIPING, FITTINGS, ETC. FROM DAMAGE. THIS CONTRACTOR IS TO SUPERVISE THE CONSTRUCTION OF PERMANENT GUARDS AND TO SEE THAT FUTURE ACCESS WILL NOT BE BARRED BY ITS DESIGN.

2. INSTALL SCHRADER TYPE VALVES AT EACH EVAPORATOR OUTLET TO FACILITATE ADJUSTMENTS OF THE SUPERHEAT SETTINGS AND TO ESTABLISH PRESSURE DROP. ADDITIONAL SCHRADER VALVES MUST BE INSTALLED IN ALL OF THE LONG BRANCH SUCTION LINES, TO FACILITATE PUMP-OUT OF EXCESS REFRIGERANT DURING PERIODS WHEN THE SYSTEM MUST BE PUMPED DOWN.

3. WALK-IN COOLER EVAPORATOR COILS SHALL BE PROPERLY SUPPORTED FROM A "UNISTRUT" FRAME, ONE FOR EACH HANGER BRACKET, WHICH ITSELF MUST BE SUPPORTED FROM AN INDEPENDENT STRUCTURAL SYSTEM PROPERLY DESIGNED AND CONSTRUCTED BASED ON THE WEIGHT AND SIZES OF EACH COIL.

4. THE REFRIGERATION CONTRACTOR SHALL VERIFY THAT ALL EQUIPMENT INSTALLED HAS PROPER PRESSURE RELIEF PROTECTION, AND THAT RELIEF PARTS ARE DIRECTED DOWNWARD OR PIPED TO RELIEVE DOWNWARD. ALL PRESSURE RELIEF PIPING SHALL BE PIPED TO THE OUTDOOR ENVIRONMENT AND BE INSTALLED AS PER CODES.

5. TO FACILITATE MOVEMENT OF THE PIPING AS A RESULT OF CONTRACTION AND EXPANSION DURING REFRIGERATION OPERATION, THE REFRIGERATION CONTRACTOR SHALL PROVIDE AND INSTALL EXPANSION LOOPS THROUGHOUT THE STORE'S REFRIGERATION PIPING. THESE LOOPS SHALL CONSIST OF FITTINGS OR BENT TUBING TO ACHIEVE A "U" BEND OF A REQUIRED RADIUS SUFFICIENT FOR ANTICIPATED EXPANSION. PIPE HANGERS MUST PERMIT FREE MOVEMENT OF THE REFRIGERANT LINES. ONLY LONG RADIUS ELBOWS SHOULD BE USED IN FORMING THE EXPANSION "U" AND SHALL MEASURE AT LEAST 3" INSIDE THE "U". IF NATURAL "L" OR "U" SHAPES ARE FORMED AS A RESULT OF THE PIPING LAYOUT, THESE CAN BE UTILIZED IN LIEU OF SECONDARY "U" BENDS.

6. REFER TO REFRIGERATION DRAWINGS FOR REFRIGERATION LINE SIZING.

C. INSULATION

1. INSULATION SHALL BE ARMACELL ARMAFLEX II, RUBATEX R-180FS. ALL SUCTION LINES SHALL BE INSULATED WITH 1" WALL THICKNESS INSULATION. ALL LIQUID LINES MUST BE INSULATED WITH ½" THICKNESS INSULATION.

ALL REFRIGERANT SUCTION LINES SHALL BE INSULATED THE ENTIRE LENGTH OF THE RUN WITH ARMAFLEX.

2. ALL OPENINGS IN THE COOLERS FOR PIPING ACCESS SHALL BE COMPLETELY SEALED WITH "SILICONE" SEALANT OR INSTA-FOAM PRODUCTS.

3. INSULATION JOINTS SHALL BE SEALED WITH RUBBER CEMENT TO ENSURE A "DRIP-TIGHT"SEAL.

INSULATION SHALL BE SLIPPED ON THE TUBING PRIOR TO JOINT BRAZING WHERE POSSIBLE, IN PREFERENCE TO SPLITTING, AND THEN SEALING THE JOINT. EACH JOINT MUST THEN BE COVERED WITH AN INSULATED SLEEVE GLUED AROUND THE JOINT.

4. ALL OF THE SUCTION FITTINGS, ELBOWS AND T CONNECTIONS MUST BE PROPERLY INSULATED WITH PREFORMED INSULATION MATERIAL, DESIGNED FOR THIS PURPOSE, SECURELY FASTENED TO EACH COMPONENT. WRAPPING WITH INSULATED TAPE IS UNACCEPTABLE AS THE ONLY METHOD OF COMPONENT INSULATION.

5. ALL REFRIGERATION LINES WHICH RUN THROUGH PLENUM SPACES MUST BE INSULATED WITH AP ARMAFLEX ELASTOMETRIC FOAM INSULATION WITH A 25/50 FLAME-SPREAD AND SMOKE DEVELOPED RATINGS.

6. INSULATION SHALL BE MITERED, PRE-ADHERED AND LONGITUDINALLY SLIT TO FIT OVER P-TRAPS, TEES AND ELBOWS OR BENDS OVER 90°.

7. ARMAFLEX INSULATION WHICH IS LOCATED OUTDOORS, MUST INCORPORATE A WEATHER RESISTANT PROTECTIVE FINISH, SUCH AS ARMACELL ARMAFLEX FINISH.

PART 3 - EXECUTION

3.1 SYSTEM TESTING AND START-UP

A. TESTING EVACUATION AND CHARGING

1. THE REFRIGERATION CONTRACTOR MUST TAKE EXTREME CAUTION TO ENSURE THAT NO HCFC/HFC PRODUCTS ARE DISCHARGED OR OTHERWISE RELEASED INTO THE ATMOSPHERE.

2. AFTER COMPLETION OF ALL CONNECTIONS, THE REFRIGERATION PIPING TESTING PROCEDURE SHALL BE COMPLETED IN THE FOLLOWING MANNER. PRIOR TO COMMENCEMENT OF PRESSURE TESTING OR EVACUATION, REMOVE AND CAP ALL PRESSURE TRANSDUCERS. INTRODUCE DRY NITROGEN THROUGH A PRESSURE REGULATOR INTO PIPING BEING TESTED SO THAT THE PRESSURE EXCEEDS 150 PSI GAUGE. VALVE OFF ALL COMPRESSORS IF ANY TESTING IS DONE OVER 175 PSIG GAUGE.

3. PIPING MUST HOLD PRESSURE WITH NITROGEN VALVED OFF. IF PRESSURE DOES NOT HOLD GIVEN PRESSURE FOR (12) HOURS ADD THE PROPER REFRIGERANT TO THE SYSTEM AND USE A HALIDE TORCH AND / OR AN ELECTRONIC LEAK DETECTOR TO FIND THE LEAKS. REPAIR ALL SYSTEMS LEAKS.

4. PRESSURIZED SYSTEMS MAY BE VENTED TO OTHER SYSTEMS UNDERGOING PRESSURE TESTING TO CONSERVE NITROGEN. MAINTAIN AT LEAST ONE POUND GAUGE PRESSURE ON ALL SYSTEMS CONTAINING REFRIGERANT MIXED WITH NITROGEN.

5. THE REFRIGERATION CONTRACTOR MUST UTILIZE THE FOLLOWING EQUIPMENT TO COMPLETE THE EVACUATION TEST: TWO (2) TWO-STAGE VACUUM PUMPS, (OR EQUIPMENT EQUAL TO OR SUPERIOR TO) EACH WITH A CAPACITY OF 2CFM (MINIMUM REQUIREMENT); EVACUATE SYSTEMS FROM TWO (2) INDEPENDENT LOCATIONS USING THE MANUFACTURER'S RECOMMENDED CONNECTION POINTS TO REACH ALL PORTIONS OF THE SYSTEM. USE MULTIPLE 3/8" OR ½" COPPER TUBING ONLY (NO GAUGE HOSES). OPEN ALL VALVES WITH MANUAL STEMS AND ADD BYPASS LOOPS AS NECESSARY. AN ELECTRONIC MICRON INSTRUMENT SUCH AS MANUFACTURED BY ROBINAIR MUST BE INSTALLED TO SENSE PIPING PRESSURE WITH THE VACUUM PUMP VALVED OFF. AN AUTHORIZED REPRESENTATIVE SHALL BE PRESENT AT THE SCHEDULED TIME OFF NOTICE ANY AND ALL EVACUATION TESTS, SO THEY MAY WITNESS THE VACUUMS OBTAINED. A MINIMUM OF FORTY-EIGHT (48) HOURS NOTICE IS REQUIRED.

6. EVACUATE EACH SYSTEM TO AN ABSOLUTE PRESSURE NOT EXCEEDING 1,500 MICRONS. BREAK THE VACUUM TO 2.0 PSIG, WITH THE REFRIGERANT TO BE USED IN THE SYSTEM. REPEAT THE EVACUATION PROCESS, AGAIN BREAKING THE VACUUM WITH REFRIGERANT. INSTALL A DRIER OF THE REQUIRED SIZE IN THE LIQUID LINE, OPEN THE COMPRESSOR SUCTION AND DISCHARGE VALVES, AND EVACUATE TO AN ABSOLUTE PRESSURE NOT EXCEEDING 500 MICRONS. LEAVE THE VACUUM PUMP RUNNING FOR NOT LESS THAN TWO HOURS WITHOUT INTERRUPTION. RAISE THE SYSTEM PRESSURE TO 2.0 PSIG WITH REFRIGERANT, AND REMOVE THE VACUUM PUMP.

7. CONTACTORS SHALL MAINTAIN RECORDS OF TEST PRESSURES AND VACUUM READINGS ON EACH PORTION OF PIPING TESTED AND SHALL RECORD LENGTH OF TIME TEST PRESSURE AND VACUUMS THAT WERE HELD. TWO (2) COPIES OF THIS RECORD OF TESTING SHALL BE SUBMITTED TO THE ENGINEER AND THE OWNER. ANY SYSTEM PLACED IN OPERATION WITHOUT FINAL EVACUATION BEING WITNESSED BY ENGINEER OR OWNER SHALL AT OWNER'S REQUEST BE PURGED AND RE-EVACUATED. THE ADVANCE NOTICE REQUIREMENT IS INTENDED TO ARRANGE THE OWNER OR HIS REPRESENTATIVE TO BE PRESENT TO WITNESS THE VACUUM READINGS. FURTHER WHEN REQUESTED BY AUTHORITIES HAVING JURISDICTION, A DATED DECLARATION OF TEST SHALL BE PROVIDED FOR ALL SYSTEMS CONTAINING 55# OR MORE OF REFRIGERANT.

8. THE CONTRACTOR SHALL PROTECT ALL SYSTEM COMPONENTS FROM DAMAGE DUE TO EXCESS PRESSURE DURING THE TEST PROCEDURE.

B. START-UP

ABSOLUTE COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS MUST BE FULLY ADHERED TO. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL APPLICABLE EQUIPMENT.

COMPRESSOR AND CONDENSING UNITS ARE NORMALLY DELIVERED TO THE JOB WITH AN INITIAL OIL CHARGE LUBRICANT. HOWEVER, THE REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND CHARGING OF EACH SYSTEM WITH THE CORRECT OIL TYPE AND AMOUNT TO BRING THE LEVEL OF EACH RESERVOIR UP TO THE CENTER OF THE UPPER SIGHT GLASS. THIS PROCEDURE MUST BE CONTINUED UNTIL THE OIL LEVEL STABILIZES, FOLLOWING AT LEAST (21) DAYS OF OPERATION. USE ONLY OIL THAT IS APPROVED BY COMPRESSOR MANUFACTURER. ALL OIL MUST BE DELIVERED TO THE JOB IN FACTORY SEALED, UNOPENED CONTAINERS. THE CONTRACTOR MUST USE EXTREME CAUTION DURING OIL HANDLING TO PREVENT THE INGRESS OF MOISTURE LADEN AIR.

1. BEFORE OPERATING ANY MOTOR OR OTHER MOVING PARTS, THE PARTS ARE TO BE LUBRICATED WITH THE PROPER OIL OR GREASE AS NECESSARY.

2. REMOVE OR LOOSEN ALL SHIPPING RETAINERS UNDER MOTOR COMPRESSORS. MAKE SURE HOLD DOWN NUTS ON SPRING-MOUNTED COMPRESSORS ARE NOT TOUCHING THE COMPRESSOR FEET, AND ARE NOT MORE THAN 1/16" ABOVE THE MOUNTING FOOT.

3. CHECK HIGH AND LOW PRESSURE CONTROL CUT- IN AND CUT-OUT POINTS. ADJUST IF NECESSARY.

4. THE CONTRACTOR SHALL ENSURE THAT ANY AIR-COOLED OIL COOLERS ARE FULLY OPERATIONAL, PRIOR TO SYSTEM COMMISSIONING.

5. AFTER THE COMPRESSOR IS STARTED, CONTINUE CHARGING UNTIL SYSTEM HAS SUFFICIENT REFRIGERANT FOR PROPER OPERATION. DO NOT OVER CHARGE. DURING START-UP, NO COMPRESSOR IS TO BE LEFT OPERATING UNATTENDED AND UNWATCHED, UNTIL THE SYSTEM IS PROPERLY CHARGED WITH REFRIGERANT AND OIL.

6. DO NOT ADD REFRIGERATION OIL WHILE THE SYSTEM IS SHORT OF REFRIGERANT UNLESS OIL LEVEL IS DANGEROUSLY LOW. WHERE OIL HAS BEEN ADDED DURING CHARGING, CAREFULLY CHECK THE COMPRESSOR CRANKCASE SIGHT GLASS AFTER REACHING A NORMAL OPERATING CONDITION TO BE SURE THE SYSTEM DOES NOT CONTAIN AN EXCESSIVE AMOUNT OF OIL WHICH CAN CAUSE SLUGGING OR LOSS OF REFRIGERATING CAPACITY.

7. THE TEMPERATURE CONTROLS SHALL BE SET TO MAINTAIN THE TEMPERATURES AS INDICATED IN THE REFRIGERATION LEGENDS.

NO DEVIATION FROM THESE TEMPERATURES WILL BE ALLOWED, CONTRACTOR SHALL BE HELD RESPONSIBLE SHOULD HE ACCEPT INSTRUCTIONS, EITHER VERBALLY OR OTHERWISE FROM ANY SOURCE OTHER THAN IN WRITING FROM OWNER. SHOULD THERE BY ANY QUESTION AS TO THE CAPABILITIES OF A MANUFACTURER'S EQUIPMENT TO PRODUCE TEMPERATURES HEREIN SPECIFIED, CONTRACTOR WILL NOTIFY OWNER IN WRITING OF SAID QUESTIONS, OTHERWISE IT WILL BE CONTRACTOR'S RESPONSIBILITY TO ENSURE SAID EQUIPMENT SHALL PERFORM AS SPECIFIED. THE TEMPERATURES ARE TO BE MAINTAINED WITH FIXTURE LOADED OR UNLOADED.

8 SET THE COMPRESSOR CONTROLS IN ACCORDANCE WITH MANUFACTURER'S APPLICATION DATA FOR INITIAL SYSTEM START-UP. OBSERVE FIXTURE TEMPERATURE PERFORMANCE. CHECK EACH EXPANSION VALVE AND ADJUST AS NEEDED TO EQUALIZE PERFORMANCE BETWEEN EVAPORATORS ON THE SAME COMPRESSOR OR TO OBTAIN REQUIRED SUPERHEAT TEMPERATURE. AFTER EXPANSION VALVE STABILIZATION HAS OCCURRED, ADDITIONAL REFRIGERANT MAY BE REQUIRED TO BRING THE SYSTEM TO FULL CAPACITY. ALL SYSTEMS MUST BE FULLY CHARGED.

9. IT IS THE REFRIGERATION CONTRACTOR'S RESPONSIBILITY TO CHECK ALL REFRIGERATION COMPONENTS, FLARE FITTINGS AND CONTROLS, INCLUDING ALL ELECTRICAL CONNECTIONS AT THE COMPRESSOR, TO ENSURE TIGHT AND OPERATIVE CONNECTIONS.

10. THE REFRIGERATION CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS TO THE CONTROLS DURING THE TIME THAT THE FIXTURES ARE BEING STOCKED.

11. AFTER ALL OF THE REFRIGERATING SYSTEMS HAVE BEEN OPERATIONAL FOR A PERIOD OF SEVEN (7) DAYS, THE REFRIGERATION CONTRACTOR IS REQUIRED TO INVESTIGATE AND LEAK CHECK EACH AND EVERY REFRIGERANT CIRCUIT STARTING AT THE FIXTURE EXPANSION VALVE AND WORKING BACK TO THE COMPRESSOR SYSTEM. ANY SIGN OF A REFRIGERANT LEAK, MUST IMMEDIATELY, PERMANENTLY, AND PROPERLY RECTIFIED. AT THIS TIME, THE CONTRACTOR MUST CHECK EVERY FIELD LOCATED BALL AND SOLENOID VALVE FOR INTEGRITY AND ENSURE THAT THE BALL VALVES ARE FIRMLY CAPPED AND THE CAP TEFLON GASKETS ARE SECURELY IN-PLACE.

-END REFRIGERATION INSTALLATION SPECIFICATIONS-

CYBUL CYBUL WILHELM
ARCHITECTS AIA
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
REFRIGERATION SPECIFICATIONS

scale:

release date:

drawing date: 09/24/2021

drawn by: ZW

approved by: KF

project no.: 2102

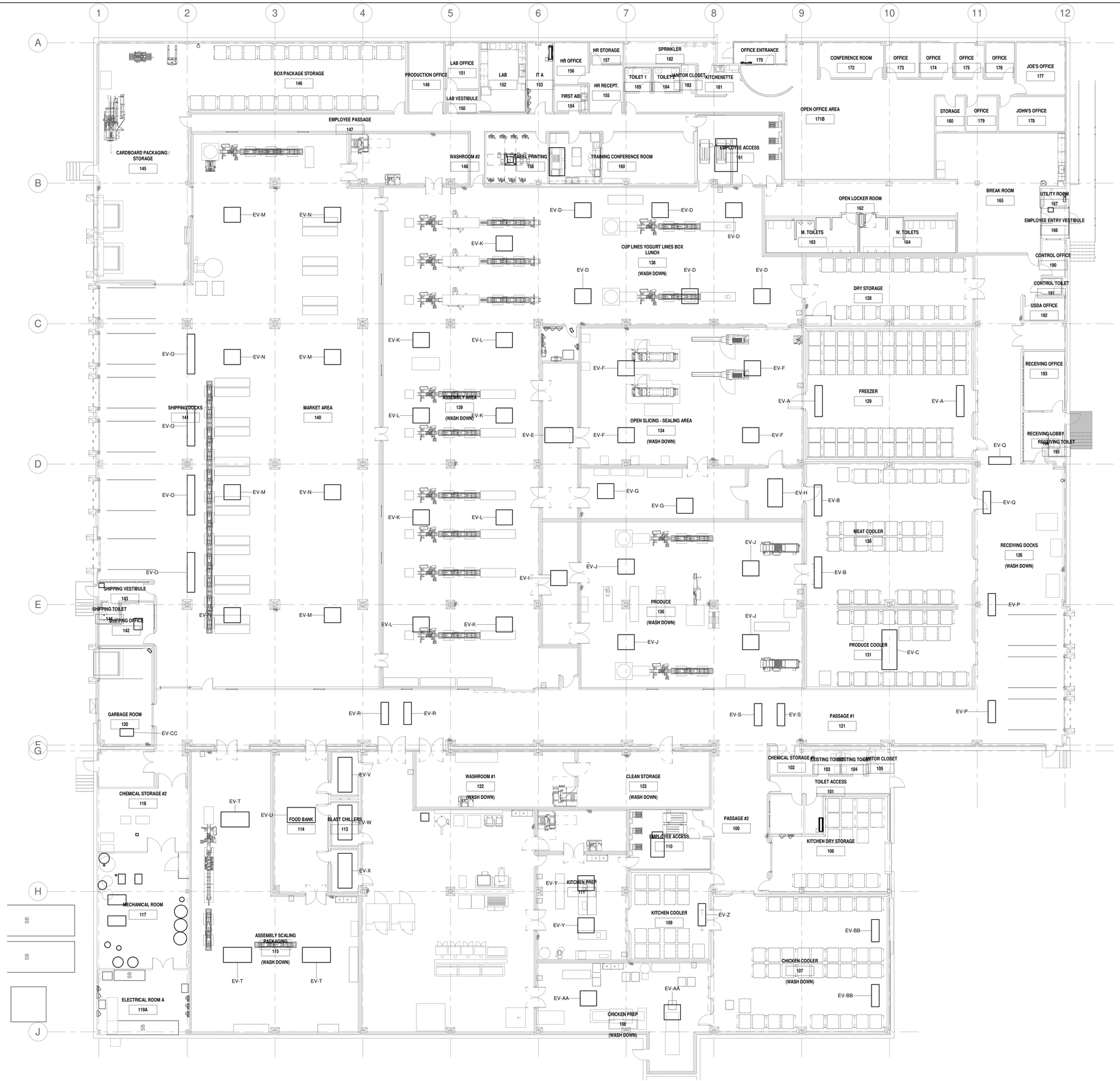
drawing no.: R-101.00

DOB BARCODE:

Total

9/24/2021 3:05:45 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 REFRIGERATION GROUND FLOOR PLAN
3/32" = 1'-0"

REFRIGERATION GENERAL NOTES:

1. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, RECEIVING, STORING, RIGGING AND INSTALLING ALL REFRIGERATION SYSTEM COMPONENTS.

2. ALL ROOFTOP EQUIPMENT MUST BE PROPERLY SECURED TO BUILDING STEEL IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES.

3. REFRIGERATION CONTRACTOR TO REPLACE ALL FILTERS AND DRIERS PRIOR TO TURNOVER.

4. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL REFRIGERATION LINE AND LOW VOLTAGE CONTROLS AND THE COMPLETE WIRING AND CONDUIT FOR CONTROLS AS REQUIRED, INCLUDING FACTORY INSTALLED STEP DOWN TRANSFORMERS FOR CONTROL VOLTAGE IN THE CONDENSING UNIT CONTROL PANEL.

5. REFRIGERATION CONTRACTOR SHALL KEEP ALL HIS WORK CLEAN AND ORGANIZED. CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL WASTE AND PACKING MATERIALS GENERATED BY HIS WORK. COORDINATE DUMPSTER LOCATION WITH THE OWNERS REPRESENTATIVE.

6. ALL CONDENSATE PIPING, HEAT TRACE AND INSULATION TO BE FURNISHED AND INSTALLED BY THE REFRIGERATION CONTRACTOR.

7. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL REFRIGERATION EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.

8. PROVIDE DISCONNECT SWITCHES FOR ALL REFRIGERATION EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.

9. ALL ROOFTOP REFRIGERATION EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS. WHEN MINIMUM REQUIRED DISTANCE CAN NOT BE MAINTAINED, IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL CODE COMPLAINT SAFETY RAILS.

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

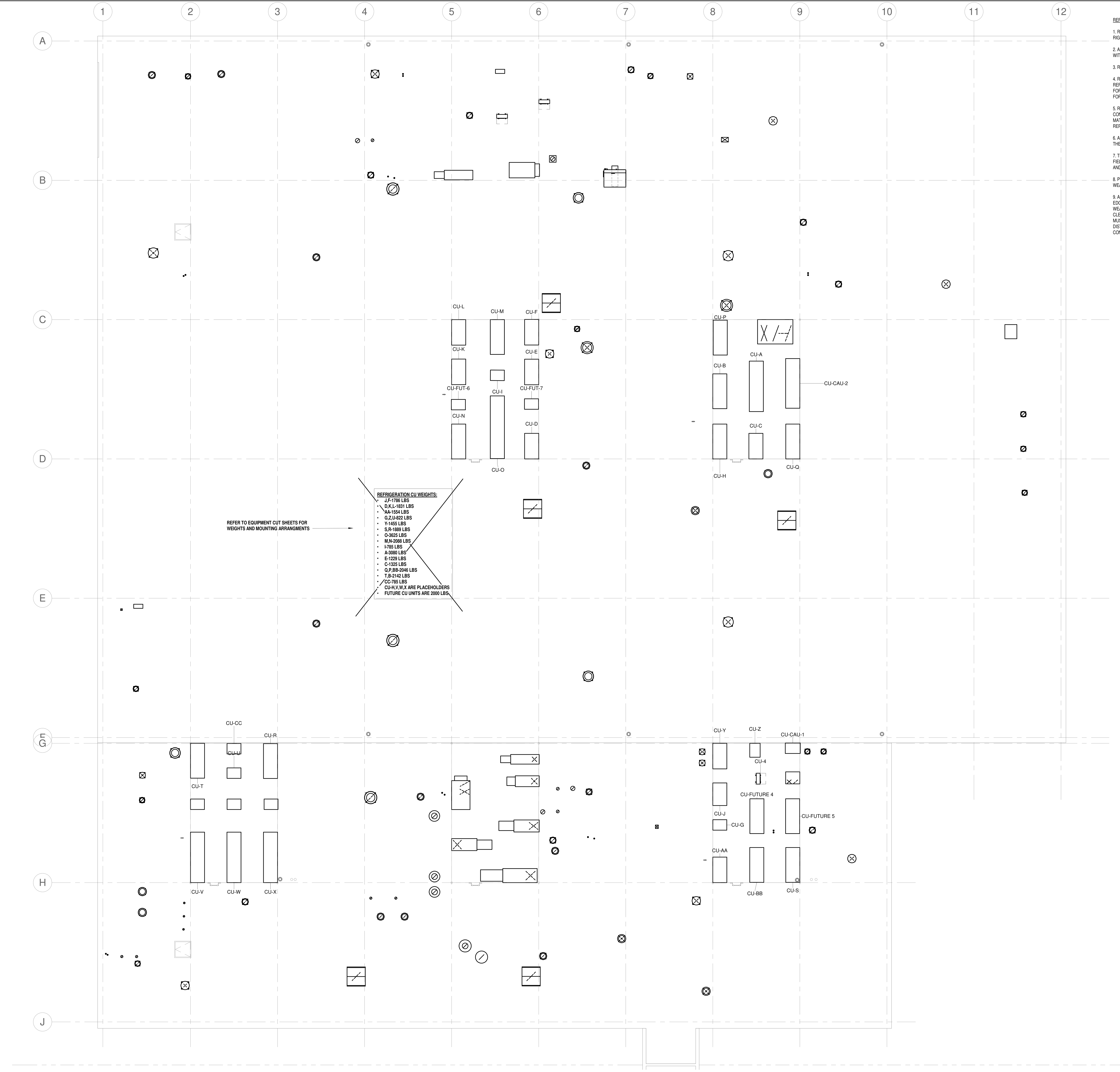
ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: REFRIGERATION GROUND FLOOR
scale:
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: R-200.00
DOB BARCODE:
Total

9/24/2021 3:06:03 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 REFRIGERATION ROOF PLAN
3/32" = 1'-0"

REFRIGERATION GENERAL NOTES:

1. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, RECEIVING, STORING, RIGGING AND INSTALLING ALL REFRIGERATION SYSTEM COMPONENTS.

2. ALL ROOFTOP EQUIPMENT MUST BE PROPERLY SECURED TO BUILDING STEEL IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES.

3. REFRIGERATION CONTRACTOR TO REPLACE ALL FILTERS AND DRIERS PRIOR TO TURNOVER.

4. REFRIGERATION CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL REFRIGERATION LINE AND LOW VOLTAGE CONTROLS AND THE COMPLETE WIRING AND CONDUIT FOR CONTROLS AS REQUIRED, INCLUDING FACTORY INSTALLED STEP DOWN TRANSFORMERS FOR CONTROL VOLTAGE IN THE CONDENSING UNIT CONTROL PANEL.

5. REFRIGERATION CONTRACTOR SHALL KEEP ALL HIS WORK CLEAN AND ORGANIZED. CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL WASTE AND PACKING MATERIALS GENERATED BY HIS WORK. COORDINATE DUMPSTER LOCATION WITH THE OWNERS REPRESENTATIVE.

6. ALL CONDENSATE PIPING, HEAT TRACE AND INSULATION TO BE FURNISHED AND INSTALLED BY THE REFRIGERATION CONTRACTOR.

7. THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL REFRIGERATION EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.

8. PROVIDE DISCONNECT SWITCHES FOR ALL REFRIGERATION EQUIPMENT INCLUDING WEATHERPROOF DISCONNECT AS REQUIRED.

9. ALL ROOFTOP REFRIGERATION EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS. WHEN MINIMUM REQUIRED DISTANCE CAN NOT BE MAINTAINED, IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL CODE COMPLAINT SAFETY RAILS.

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724
BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	REFRIGERATION ROOF PLAN
scale:	
release date:	
drawing date:	09/24/2021
drawn by:	ZW
approved by:	KF
project no.:	2102
drawing no.:	R-201.00
DOB BARCODE:	Total

9/24/2021 3:06:08 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt

REFRIGERATION CONDENSING UNITS

TAG	SERVICE	MANUFACTURER	MODEL	CAPACITY (BTUH)	SUCT TEMP	CONDENSING TEMP	HP	MAX FUSE	MCA	VOLTAGE	PHASE	WEIGHT	NOTES
CU-A	OPEN SLICING - SEALING AREA	CENTURY	NSB40L8A	126	-24	110 °F	40	125.0	89.0	460	3	3080.0 lb	1-8
CU-AA	CHICKEN PREP	CENTURY	NSB08H8A	67	+21	110 °F	8	40.0	29.0	460	3	1554.0 lb	1-8
CU-B	OPEN SLICING - SEALING AREA	CENTURY	NSB15H8A	112	+23	110 °F	15	70.0	46.0	460	3	2142.0 lb	1-8
CU-BB	CHICKEN PREP	CENTURY	NSB12H8A	90	+15	110 °F	12	60.0	39.0	460	3	2046.0 lb	1-8
CU-C	OPEN SLICING - SEALING AREA	CENTURY	NSB09M8A	85	+23	110 °F	9	50.0	31.0	460	3	1325.0 lb	1-8
CU-CC	FOOD BANK	CENTURY	BLU-B030M-8A	90	+15	110 °F	12	15.0	11.0	460	3	785.0 lb	1-8
CU-D	ASSEMBLY	CENTURY	NSB20M8A	134	+23	110 °F	20	80.0	50.2	460	3	1831.0 lb	1-8
CU-E	ASSEMBLY	CENTURY	NSB06M8A	48	+16	110 °F	6	35.0	24.0	460	3	1229.0 lb	1-8
CU-F	ASSEMBLY	CENTURY	NSB15M8A	105	+19	110 °F	15	70.0	44.0	460	3	1786.0 lb	1-8
CU-FUT-1		CENTURY	BLU-B050M-8A	41	+21		5	30.0	18.0	460	3	822.0 lb	
CU-FUT-2		CENTURY	BLU-B050M-8A	41	+21		5	30.0	18.0	460	3	822.0 lb	
CU-FUT-3		CENTURY	BLU-B050M-8A	41	+21		5	30.0	18.0	460	3	822.0 lb	
CU-FUT-6		CENTURY	NSB20M8A	131	+21		20	80.0	50.2	460	3	800.0 lb	
CU-FUT-7		CENTURY	NSB20M8A	131	+21		20	80.0	50.2	460	3	800.0 lb	
CU-FUTURE 4		CENTURY	WAITING FOR SELECTION			110 °F							1-8
CU-FUTURE 5		CENTURY	WAITING FOR SELECTION			110 °F							1-8
CU-G	PRODUCE COOLER	CENTURY	BLU-B050M-8A	41	+21	110 °F	5	30.0	18.0	460	3	822.0 lb	1-8
CU-H	OPEN SLICING - SEALING AREA	CENTURY	BLU-B060M-8A	37.5	+12	110 °F	8	30.0	18.8	460	3	845.0 lb	1-8
CU-I	ASSEMBLY	CENTURY	BLU-B035M-8A	32	+20	110 °F	4	20.0	12.0	460	3	800.0 lb	1-8
CU-J	PRODUCE	CENTURY	NSB15M8A	112	+20	110 °F	15	70.0	44.0	460	3	1786.0 lb	1-8
CU-K	ASSEMBLY	CENTURY	NSB20M8A	131	+21	110 °F	20	80.0	50.2	460	3	1831.0 lb	1-8
CU-L	ASSEMBLY	CENTURY	NSB20M8A	131	+21	110 °F	20	80.0	50.2	460	3	1831.0 lb	1-8
CU-M	ASSEMBLY	CENTURY	NSB22M8A	145	+18	110 °F	22	80.0	53.0	460	3	2088.0 lb	1-8
CU-N	ASSEMBLY	CENTURY	NSB22M8A	145	+18	110 °F	22	80.0	53.0	460	3	2088.0 lb	1-8
CU-O	ASSEMBLY	CENTURY	NSB50H8A	354	+20	110 °F	50	200.0	129.0	460	3	3625.0 lb	1-8
CU-P	OPEN SLICING - SEALING AREA	CENTURY	NSB12H8A	114	+25	110 °F	12	60.0	39.0	460	3	2046.0 lb	1-8
CU-Q	OPEN SLICING - SEALING AREA	CENTURY	NSB12H8A	114	+25	110 °F	12	60.0	39.0	460	3	2046.0 lb	1-8
CU-R	FOOD BANK	CENTURY	NSB10H8A	95	+25	110 °F	10	50.0	34.0	460	3	1889.0 lb	1-8
CU-S	CHICKEN PREP	CENTURY	NSB10H8A	95	+25	110 °F	10	50.0	34.0	460	3	1889.0 lb	1-8
CU-T	FOOD BANK	CENTURY	NSB15H8A	112	+23	110 °F	15	70.0	46.0	460	3	2142.0 lb	1-8
CU-U	FOOD BANK	CENTURY	BLU-B050M-8A	41	+21	110 °F	5	30.0	18.0	460	3	822.0 lb	1-8
CU-V	BLAST CHILLER	CENTURY	NSB15H8A	249	+13	110 °F	40	150.0	102.8	460	3	3217.0 lb	1-8
CU-W	BLAST CHILLER	CENTURY	NSB15H8A	249	+13	110 °F	40	150.0	102.8	460	3	3217.0 lb	1-8
CU-X	BLAST CHILLER	CENTURY	NSB15H8A	249	+13	110 °F	40	150.0	102.8	460	3	3217.0 lb	1-8
CU-Y	CHICKEN PREP	CENTURY	NSB06H8A	57	+21	110 °F	6	35.0	24.5	460	3	1455.0 lb	1-8
CU-Z	CHICKEN PREP	CENTURY	BLU-B050M-8A	41	+21	110 °F	5	30.0	18.0	460	3	822.0 lb	1-8

NOTES:
1. PROVIDE LOW AMBIENT KIT WITH HEATED AND INSULATED RECEIVER WITH TIME DELAY
2. PROVIDE REPLACEABLE CORE LIQUID LINE FILTER
3. PROVIDE REPLACEABLE CORE SUCTION FILTER
4. PROVIDE SUCTION ACCUMULATOR
5. PROVIDE FACTORY INSTALLED INPUT/OUTPUT BOARDS TO INTERFACE WITH THE DDC CONTROL SYSTEM
6. CONDENSING UNITS TO HAVE A SINGLE POINT CONNECTION. EVAPORATOR FANS AND DEFROST TO BE FED FROM THE CONDENSING UNIT CONTROL PANEL. PROVIDE BREAKERS AND CONTACTORS AS REQUIRED
7. REFRIGERANT IS R-448A
8. THE SYSTEM CONTROL IS THERMOSTAT ON THE WALL CONTROLLING THE LIQUID LINE SOLENOID ON THE EVAPS AND PRESSURE CONTROL TO CONTROL THE COMPRESSORS AND PUMP DOWN SEQUENCE FOR THE CONDENSING UNITS.

REFRIGERATION EVAPORATOR SCHEDULE

TAG	SERVICE	MANUFACTURER	MODEL	LOAD (MBH)	DEFROST TYPE	AMPS	VOLTAGE	PHASE	DEFROST	WEIGHT	NOTES
EV-A	FREEZER	CENTURY	A438A-507-E	114.0	EL	2.1	460	3	20.8	455.0 lb	1
EV-AA	CHICKEN PREP	CENTURY	BALV418A-211M-E	66.0	EL	0.7	460	3	9.6	291.0 lb	1
EV-B	MEAT COOLER	CENTURY	A438A-413-E	106.0	EL	3.0	460	3	14.5	396.0 lb	1
EV-BB	CHICKEN COOLER	CENTURY	A428A-338-E	87.6	EL	1.4	460	3	14	322.0 lb	1
EV-C	PRODUCE COOLER	CENTURY	BALV438A-523M-A	75.0	OT	2.0	460	3	0	646.0 lb	1
EV-CC	GARBAGE ROOM	CENTURY	A518A-185-A	28.0	OT	0.7	460	3	0	170.0 lb	1
EV-D	CUPLINES	CENTURY	BALV518A-197M-A	139.0	OT	0.7	460	3	0	273.0 lb	1
EV-E	HALLWAY	CENTURY	BALV528A-393M-E	48.0	EL	1.3	460	3	13	451.0 lb	1
EV-F	OPEN SLICING - SEALING AREA	CENTURY	BALV418A-175M-E	100.0	EL	0.7	460	3	6.8	267.0 lb	1
EV-G	HALLWAY	CENTURY	BALV418A-175M-E	41.0	EL	0.7	460	3	6.8	267.0 lb	1
EV-H	HALLWAY	CENTURY	BALV428A-349M-E	40.0	EL	1.3	460	3	13	451.0 lb	1
EV-I	HALLWAY	CENTURY	BALV518A-197M-E	30.0	EL	0.7	460	3	6.8	273.0 lb	1
EV-J	PRODUCE	CENTURY	BALV418A-175M-A	106.0	OT	0.7	460	3	0	267.0 lb	1
EV-K	ASSEMBLY	CENTURY	BALV418A-175M-A	123.0	OT	0.7	460	3	0	267.0 lb	1
EV-L	ASSEMBLY	CENTURY	BALV418A-175M-A	123.0	OT	0.7	460	3	0	267.0 lb	1
EV-M	MARKET AREA	CENTURY	BALV418A-211M-E	136.0	EL	0.7	460	3	9.6	291.0 lb	1
EV-N	MARKET AREA	CENTURY	BALV418A-211M-E	136.0	EL	0.7	460	3	9.6	291.0 lb	1
EV-O	SHIPPING DOCKS	CENTURY	A448A-679-E	350.0	EL	2.8	460	3	26.6	589.0 lb	1
EV-P	RECEIVING DOCKS	CENTURY	A528A-371-A	111.0	OT	1.4	460	3	0	334.0 lb	1
EV-Q	RECEIVING DOCKS	CENTURY	A528A-371-A	111.0	OT	1.4	460	3	0	334.0 lb	1
EV-R	PASSAGE #1	CENTURY	A428A-338-A	95.0	OT	1.4	460	3	0	322.0 lb	1
EV-S	PASSAGE #1	CENTURY	A428A-338-A	95.0	OT	1.4	460	3	0	322.0 lb	1
EV-T	ASSEMBLY SCALING PACKAGING	CENTURY	BALV428A-349M-A	114.0	OT	1.3	460	3	0	451.0 lb	1
EV-U	FOOD BANK	CENTURY	BALV428A-349M-E	40.0	EL	1.3	460	3	13	451.0 lb	1
EV-V	FOOD BANK	CENTURY	A428A-338-A	95.0	OT	1.4	460	3	0	24520.0 lb	1
EV-W	FOOD BANK	CENTURY	A428A-338-A	95.0	OT	1.4	460	3	0	24520.0 lb	1
EV-X	FOOD BANK	CENTURY	A428A-338-A	95.0	OT	1.4	460	3	0	2452.0 lb	1
EV-Y	KITCHEN PREP	CENTURY	BALV518A-197M-E	55.0	EL	0.7	460	3	6.8	273.0 lb	1
EV-Z	KITCHEN COOLER	CENTURY	A428A-338-E	41.0	EL	1.4	460	3	14	322.0 lb	1

NOTES:
1. LIQUID LINE SOLENOID TO BE CONTROLLED BY BMS FOR WASHDOWN SEQUENCE.

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARRANGEMENTS AND CONCEPTS SHOWN THEREON, ARE **RESTRICTED**. WE RESERVE THE RIGHT TO HAVE THIS WORK REPRODUCED, FABRICATED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL PAYMENTS HAVE BEEN PROPERLY ISSUED BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE EQUIPMENT SPECIFIED AND SHOWN ON THIS DRAWING CAN BE INSTALLED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

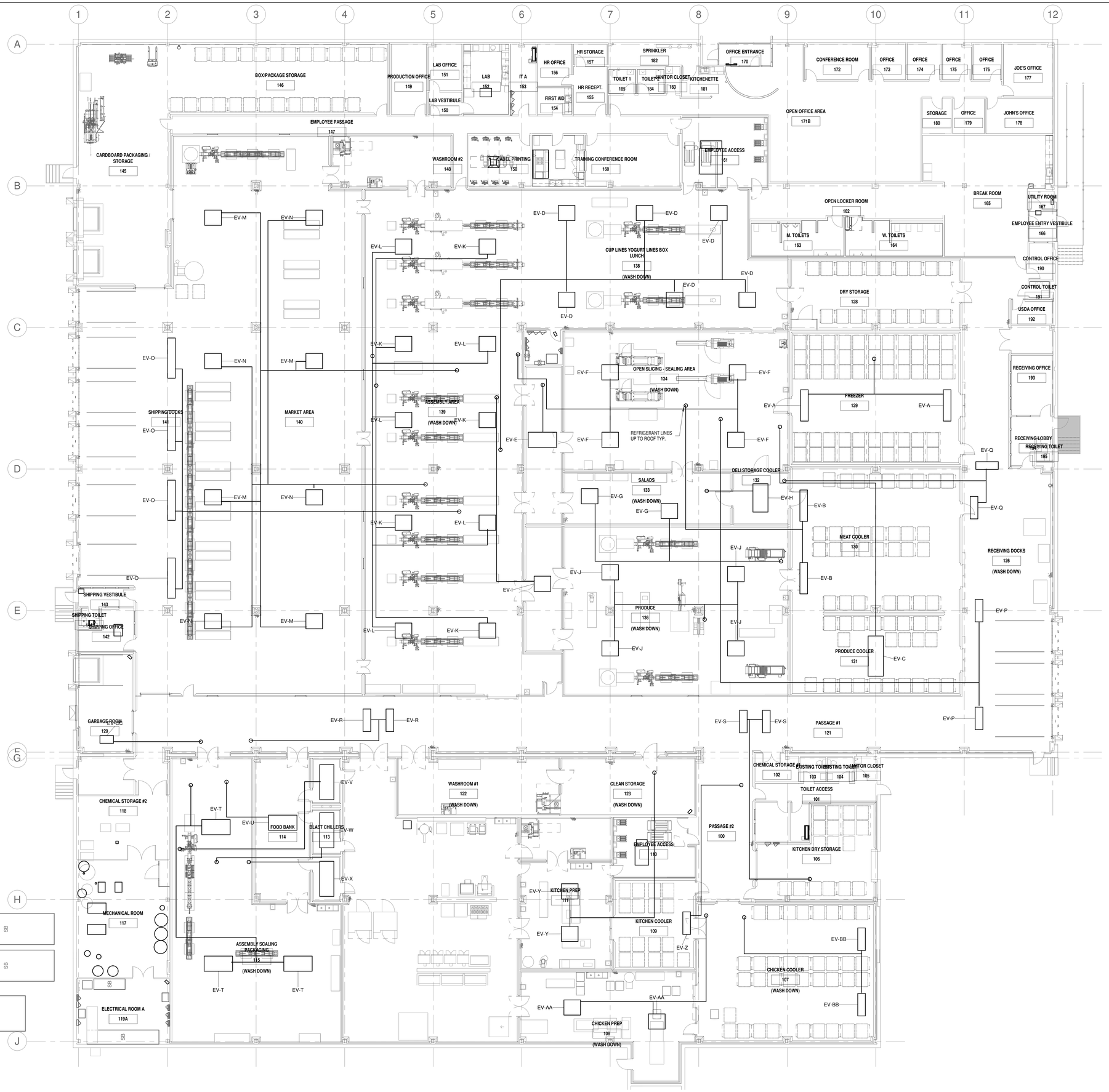
ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: REFRIGERATION SCHEDULES AND DETAILS
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: ZW
approved by: KF
project no.: 2102
drawing no.: R-300.00
DOB BARCODE:
Total

9/24/2021 3:06:12 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



1 REFRIGERATION GROUND FLOOR PIPING PLAN
3/32" = 1'-0"

REFRIGERATION PIPING NOTES:

1. TRAPS ON SUCTION RISERS MUST BE AS SHORT AS POSSIBLE. USE OF PREFABRICATED TRAPS OR SHORT RADIUS ELBOWS IS ALLOWED.

2. ALL 90 DEGREE ELBOWS EXCEPT FOR RISER TRAPS SHALL BE LONG RADIUS.

3. LIQUID LINES AND HOT GAS LINES SHALL BE SECURELY FASTENED TO HANGERS TO PREVENT VIBRATION AND LIQUID SHOCK. USE OF VIBRA MOUNTS OR CUSHION CLAMPS ON THIS PIPING IS REQUIRED.

4. SUCTION LINES SHALL BE INSTALLED TO PITCH A MINIMUM OF 1/8" PER FOOT IN THE DIRECTION OF FLOW.

5. THERMOLATORS (SUCTION LIQUID HEAT EXCHANGERS) SHALL BE INSULATED WITH A MINIMUM OF 1" ARMAFLEX.

6. THERMOLATORS SHALL BE INSTALLED ON THE ROOF WHERE PIPING PROJECTS THROUGH THE ROOF.

7. ALL LIQUID AND HOT GAS PIPING SHALL BE AS SHORT AND SYMETRICAL AS POSSIBLE TO ASSURE EQUAL PRESSURE DROP AND FLOW TO DUAL AIR UNITS.

8. ALL PIPING SHALL BE DEHYDRATED ACR TYPE L TUBING.

9. ALL AIR UNITS WITH HOT GAS DEFROST WILL HAVE HOT GAS HEATED DRAIN PANS. DO NOT UNDERSIZE THE HOT GAS LINE TO THE AIR UNITS.

10. ALL REFRIGERANT PIPING SHALL BE PURGED WITH NITROGEN WHEN SILVER SOLDERING TO PREVENT SCALE AND OXIDATION INSIDE THE COPPER TUBING.

11. PROVIDE ONE SPARE SCHRADER VALVE IN EACH AIR UNIT SUCTION LINE FOR TESTING AND ADJUSTING SUCTION SUPERHEAT.

12. ALL EXTERIOR PIPING TO HAVE PVC UV PROTECTION.

13. CONTRACTOR TO PROVIDE ALL PIPING CURBS AND SEAL ALL PENETRATIONS AS REQUIRED.

14. REFRIGERATION LINES RUN ABOVE THE COOLER/FREEZER CEILING AND DROP INTO THE BOX AT THE EVAPORATOR CONNECTION POINT.

REFRIGERATION LINESIZING

SYSTEM	EQUIV RUN	HORIZ SUCTION	VERT SUCTION	LIQUID
A	100'	2-5/8"	2-5/8"	7/8"
B	104'	2-1/8"	2-1/8"	7/8"
C	132'	1-5/8"	1-5/8"	7/8"
D	155'	2-1/8"	2-1/8"	7/8"
E	41'	1-1/8"	1-1/8"	1/2"
F	75'	1-5/8"	1-5/8"	7/8"
G	109'	1-1/8"	1-1/8"	1/2"
H	29'	1-1/8"	1-1/8"	1/2"
I	98'	1-1/8"	1-1/8"	1/2"
J	63'	1-5/8"	1-5/8"	7/8"
K	105'	2-1/8"	2-1/8"	7/8"
L	115'	2-1/8"	2-1/8"	7/8"
M	150'	2-1/8"	2-1/8"	7/8"
N	150'	2-1/8"	2-1/8"	7/8"
O	155'	3-1/8"	3-1/8"	1-3/8"
P	178'	2-1/8"	1-5/8"	7/8"
Q	104'	1-5/8"	1-5/8"	7/8"
R	81'	1-5/8"	1-5/8"	7/8"
S	81'	1-5/8"	1-5/8"	7/8"
T	121'	2-1/8"	1-5/8"	7/8"
U	46'	1-1/8"	1-1/8"	1/2"
V	92'	2-5/8"	2-5/8"	1-1/8"
W	63'	2-5/8"	2-5/8"	1-1/8"
X	40'	2-5/8"	2-5/8"	1-1/8"
Y	104'	1-3/8"	1-3/8"	5/8"
Z	75'	1-1/8"	1-1/8"	1/2"
AA	98'	1-1/8"	1-1/8"	5/8"
BB	92'	1-5/8"	1-5/8"	7/8"
CC	52'	1-5/8"	1-5/8"	7/8"

GENERAL CONDITIONS NOTE:

THIS DRAWING AND THE DESIGN DESCRIBED HEREIN, INCLUDING THE ARCHITECTURAL WORKS, ARE AND SHALL REMAIN THE PROPERTY OF **CYBUL CYBUL WILHELM ARCHITECTS** AND ARE RESERVED THE RIGHT TO THE PROPER PROTECTION. THEY ARE NOT TO BE USED, REPRODUCED, PUBLISHED, CONSTRUCTED OR MANUFACTURED. THIS DRAWING IS PLACED ON LOAN SOLELY FOR YOUR INSPECTION. ACTUAL FABRICATION, CONSTRUCTION OR MANUFACTURING, IS SPECIFICALLY **PROHIBITED** UNLESS AND/OR UNTIL ALL CONTRACTUAL AGREEMENTS HAVE BEEN EXECUTED AND ALL FEES HAVE BEEN PROPERLY PAID BY THE COMPANY OR INDIVIDUAL (CONTRACTOR) WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERIFYING THAT THE CONSTRUCTION DOCUMENTS ARE COMPLETE AND ACCURATE BASED ON THIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY DISCREPANCY BETWEEN WHAT IS DESCRIBED IN THESE DOCUMENTS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGINEER PRIOR TO SIGNING THE CONTRACT. IT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL APPLICABLE CODES AND/OR MUNICIPAL AND STATE RULES AND REGULATIONS. FAILURE OF THE CONTRACTOR TO EXERCISE THE AFOREMENTIONED PROCEDURES WILL RESULT IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

copyright - BD ENGINEERING

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

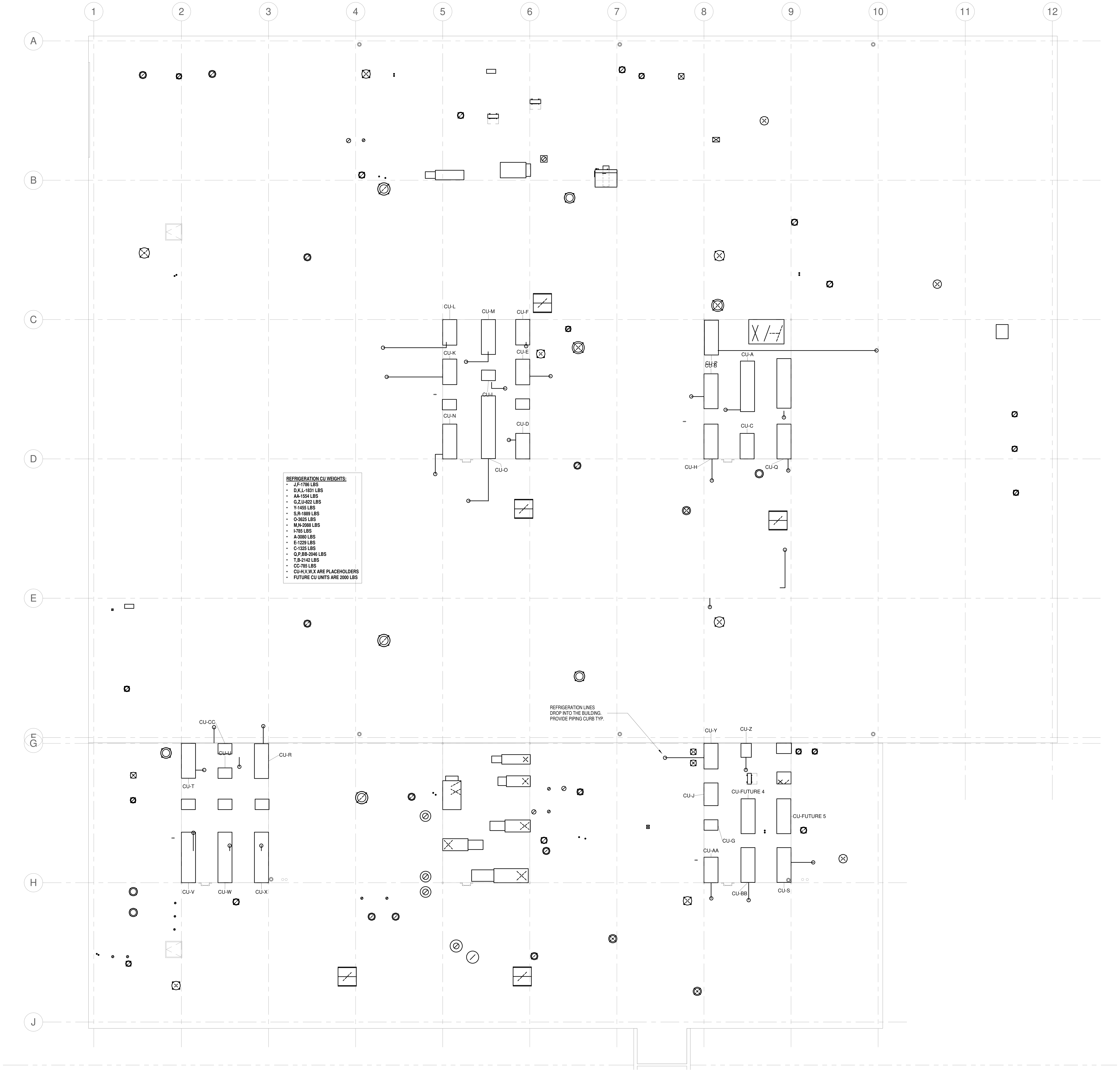
ISSUED FOR
- REVIEW
- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	REFRIGERATION GROUND FLOOR PIPING
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	Author
approved by:	Approver
project no.:	2102
drawing no.:	R-400.00
DOB BARCODE:	Total

9/24/2021 3:06:29 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt



REFRIGERATION CU WEIGHTS:

- J,F-1786 LBS
- D,K,L-1831 LBS
- AA-1554 LBS
- G,Z,U-822 LBS
- Y-1455 LBS
- S,R-1889 LBS
- O-3625 LBS
- M,N-2088 LBS
- I-785 LBS
- A-3080 LBS
- E-1229 LBS
- C-1325 LBS
- Q,P,BB-2046 LBS
- T,B-2142 LBS
- CC-785 LBS
- CU-H,V,W,X ARE PLACEHOLDERS
- FUTURE CU UNITS ARE 2000 LBS

1 REFRIGERATION ROOF PIPING PLAN
3/32" = 1'-0"

REFRIGERATION PIPING NOTES:

1. TRAPS ON SUCTION RISERS MUST BE AS SHORT AS POSSIBLE. USE OF PREFABRICATED TRAPS OR SHORT RADIUS ELBOWS IS ALLOWED.

2. ALL 90 DEGREE ELBOWS EXCEPT FOR RISER TRAPS SHALL BE LONG RADIUS.

3. LIQUID LINES AND HOT GAS LINES SHALL BE SECURELY FASTENED TO HANGERS TO PREVENT VIBRATION AND LIQUID SHOCK. USE OF VIBRA MOUNTS OR CUSHION CLAMPS ON THIS PIPING IS REQUIRED.

4. SUCTION LINES SHALL BE INSTALLED TO PITCH A MINIMUM OF 1/8" PER FOOT IN THE DIRECTION OF FLOW.

5. THERMOLATORS (SUCTION LIQUID HEAT EXCHANGERS) SHALL BE INSULATED WITH A MINIMUM OF 1" ARMAFLEX.

6. THERMOLATORS SHALL BE INSTALLED ON THE ROOF WHERE PIPING PROJECTS THROUGH THE ROOF.

7. ALL LIGUID AND HOT GAS PIPING SHALL BE AS SHORT AND SYMETRICAL AS POSSIBLE TO ASSURE EQUAL PRESSURE DROP AND FLOW TO DUAL AIR UNITS.

8. ALL PIPING SHALL BE DEHYDRATED ACR TYPE L TUBING.

9. ALL AIR UNITS WITH HOT GAS DEFROST WILL HAVE HOT GAS HEATED DRAIN PANS. DO NOT UNDERSIZE THE HOT GAS LINE TO THE AIR UNITS.

10. ALL REFRIGERANT PIPING SHALL BE PURGED WITH NITROGEN WHEN SILVER SOLDERING TO PREVENT SCALE AND OXIDATION INSIDE THE COPPER TUBING.

11. PROVIDE ONE SPARE SCHRADER VALVE IN EACH AIR UNIT SUCTION LINE FOR TESTING AND ADJUSTING SUCTION SUPERHEAT.

12. ALL EXTERIOR PIPING TO HAVE PVC UV PROTECTION.

13. CONTRACTOR TO PROVIDE ALL PIPING CURBS AND SEAL ALL PENETRATIONS AS REQUIRED.

14. REFRIGERATION LINES RUN ABOVE THE COOLER/FREEZER CEILING AND DROP INTO THE BOX AT THE EVAPORATOR CONNECTION POINT.

REFRIGERATION LINESIZING				
SYSTEM	EQUIV RUN	HORIZ SUCTION	VERT SUCTION	LIQUID
A	100'	2-5/8"	2-5/8"	7/8"
B	104'	2-1/8"	2-1/8"	7/8"
C	132'	1-5/8"	1-5/8"	7/8"
D	155'	2-1/8"	2-1/8"	7/8"
E	41'	1-1/8"	1-1/8"	1/2"
F	75'	1-5/8"	1-5/8"	7/8"
G	109'	1-1/8"	1-1/8"	1/2"
H	29'	1-1/8"	1-1/8"	1/2"
I	98'	1-1/8"	1-1/8"	1/2"
J	63'	1-5/8"	1-5/8"	7/8"
K	105'	2-1/8"	2-1/8"	7/8"
L	115'	2-1/8"	2-1/8"	7/8"
M	150'	2-1/8"	2-1/8"	7/8"
N	150'	2-1/8"	2-1/8"	7/8"
O	155'	3-1/8"	3-1/8"	1-3/8"
P	178'	2-1/8"	1-5/8"	7/8"
Q	104'	1--5/8"	1-5/8"	7/8"
R	81'	1-5/8"	1-5/8"	7/8"
S	81'	1-5/8"	1-5/8"	7/8"
T	121'	2-1/8"	1-5/8"	7/8"
U	46'	1-1/8"	1-1/8"	1/2"
V	92'	2-5/8"	2-5/8"	1-1/8"
W	63'	2-5/8"	2-5/8"	1-1/8"
X	40'	2-5/8"	2-5/8"	1-1/8"
Y	104'	1-3/8"	1-3/8"	5/8"
Z	75'	1-1/8"	1-1/8"	1/2"
AA	98'	1-1/8"	1-1/8"	5/8"
BB	92'	1-5/8"	1-5/8"	7/8"
CC	52'	1-5/8"	1-5/8"	7/8"

CYBUL CYBUL WILHELM ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
Hackensack, NJ 07602

ALLIED ENGINEERING
730 River Road
New Milford, NJ 07646

BD ENGINEERING, LLC.
30 Park Road, Suite 4
Tinton Falls, NJ 07724

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW
PLANNING BOARD
BUILDING DEPT
BID
CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	REFRIGERATION ROOF PIPING PLAN
scale:	3/32" = 1'-0"
release date:	
drawing date:	09/24/2021
drawn by:	EH
approved by:	KF
project no.:	2102
drawing no.:	R-401.00
DOB BARCODE:	Total

9/24/2021 3:06:34 PM

C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt