

DRAWING LIST

ALL CONTRACTOR WORK MUST COMPLY WITH THE GOVERNING CODES & REFERENCES: 1. NJIBC 2018, NJIMC 2018, NJIECC 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:

CODE REVIEW

APPLICABLE BUILDING CODE STATED ABOVE.

ALL ROOF MOUNTED EQUIPMENT SHALL BE ABLE TO

STANDARD 07-16 FORCE FACTOR OF 1.9 = 190MPH

CODE SECTION 1609. WIND SPEED: 100MPH TIMES ASCE

PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH THE

WITHSTAND THE FOLLOWING WIND SPEEDS PER THE BUILDING

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
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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

REVIEW [PLANNING BOARD BUILDING DEPT CONSTRUCTION ____ ផ្លី BRIAN D. TANNENHAU NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021 **HVAC COVER SHEET** 09/24/2021 Total

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GENERAL CONDITIONS NOTE:

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M-100.00

GENERAL

VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN COST.

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION." AIA

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

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

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

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,

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:

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

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

7. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND

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

EFFICIENCY OF SPECIFIED PRODUCT.

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.

ALL OTHER INDUSTRY, STATE, NATIONAL AND LOCAL CODES AND AUTHORITIES

HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

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.

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: PROJECT NAME AND LOCATION

2. NAME OF ARCHITECT AND ENGINEER

3. ITEM IDENTIFICATION

4. APPROVAL STAMP OF THE PRIME CONTRACTOR

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.

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: DUCTWORK LAYOUT AND SHEET METAL DESIGNS.

AIR OUTLETS.

AIR BALANCE REPORT

4. AC UNITS AND FANS.

PIPING LAYOUT.

6. INSULATION

VIBRATION ISOLATION.

8. MOTORIZED AND NON-MOTORIZED DAMPERS

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:

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

 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.

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.

PREPARE AND SUBMIT DETAILED SHOP DRAWINGS FOR PIPING WORK AND OTHER ISTRIBUTION SERVICES, INCLUDING LOCATIONS AND SIZES OF ALL OPENINGS IN FLOOR

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. 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

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

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.

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.

INSIDE RADIUS.

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

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.

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.

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

B. REGISTERS AND GRILLES:

1. RETURN AND EXHAUST REGISTERS: STEEL CONSTRUCTION WITH VOLUME

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.

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

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

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

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

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

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 C. FIRMLY BUTT ALL JOINTS.

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

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.

INSULATION - GENERAL REQUIREMENTS

DEMONSTRATED BY THE CONTRACTOR.

ADJUSTED TO MEET DESIGN FLOW CONDITIONS.

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.

A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS

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.

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

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

A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT

DUCTWORK INSULATION

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.

ii.DUCTS IN UNCONDITIONED BASEMENTS, CRAWL SPACES, GARAGES, AND OTHER UNCONDITIONED SPACES

SUPPLY = 6RETURN = 6

RETURN = 8

R - 5:

SUPPLY = 8

2. DUCTS ABOVE THE CEILING SUPPLY = 8

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

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%

3. SHEET METAL DUCTWORK WITH 1.5 PCF 1-1/2" THICK ROTARY* DUCT LINER (R 6.0)

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: CELLULAR GLASS, TYPE I, - 2" THICK (R 8) OWENS CORNING FOAMGLAS OR EQUAL 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.

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.

INTERNAL DUCT LINING A. DUCT LINING SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE LATEST

INSULATION.

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.

EDITION OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARD METAL & FLEXIBLE"

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

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

F. WHEN AIR VELOCITIES ARE 4000 TO 6000 FPM, METAL NOSING SHALL BE APPLIED

TO ALL UPSTREAM TRANSVERSE EDGES TO ADDITIONALLY SECURE THE

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

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

THE CIRCUMFERENTIAL SEAM.

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

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

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.

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.

D. ENDS SHALL BE FIRMLY BUTTED AND SECURED WITH MATCHING BUTT STRIP

FIBER GLASS DUCTWORK

MATERIAL AT EACH JOINT.

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

CENTERS AND SEALED WITH APPROVED CLOSURE SYSTEM.

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 11/2" STAPLE FLAP SHALL BE SECURED WITH OUTWARD-CINCHING STAPLES ON APPROXIMATE 2-INCH

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 SHAL 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.

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

OTHERWISE NOTED.

SERVICE LOW TEMP 40F TO 100F

REFRIGERANT LIQUID SUCTION LINES

INSULATION SCHEDULE - PIPING

TYPE P-1 WITH A VAPORSEAL FINISH. 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.

THICKNESS UP TO 4" PIPE SHALL BE 1-1/2" INSULATION MATERIAL

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 THICKNESS UP TO 4" PIPE SHALL BE 2" INSULATION MATERIAL TYPE

THICKNESS UP TO 2" PIPE SHALL BE 2-1/2" INSULATION MATERIAL

THICKNESS UP TO 4" PIPE SHALL BE 2" INSULATION MATERIAL TYPE VERTICAL PIPING: P-3 WITH A VAPORSEAL FINISH.

THICKNESS GREATER THAN 2" PIPE SHALL BE 3" INSULATION MATERIAL TYPE P-2 WITH AN F-6 FINISH.

P-3 WITH A VAPORSEAL FINISH.

TYPE P-2 WITH AN F-6 FINISH.

12. PIPING, VALVES AND FITTINGS TO BE INSULATED

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

CONDENSER WATER HOT WATER

CONDENSATE DRAINAGE

2. CHILLED WATER

C. FINISH:

D. OUTDOOR PIPING:

COMPLETED AND APPROVED.

TYPE P-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.23 K-FACTOR

AT 75 F MEAN TEMPERATURE WITH FACTORY-APPLIED FIRE-RETARDANT

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 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

FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 ASJ.

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

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

PROVIDE VAPORSEAL ON ALL OUTDOOR PIPES, VALVES AND FITTINGS SUBJECT TO CONDENSATION. E. E.INSTALLATION: BEFORE APPLYING INSULATION ALL PRESSURE AND LEAK TESTS SHALL BE

FOR ALL PIPING, FITTINGS AND VALVES LOCATED OUTDOORS, INCREASE

SCHEDULED INSULATION THICKNESS BY A MINIMUM OF 1 IN. AND PROVIDE F-4 FINISH.

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 MASON INDUSTRIES, INC

b VIBRATION ELIMINATOR CO.

c KORFUND DYNAMICS CORP.

1. PROVIDE SPRING HANGER ROD ISOLATORS. STEEL COMPRESSION SPRING AND

NEOPRENE SOUND PAD WITHIN A STEEL RETAINER BOX. SIMILAR TO MASON TYPE PCHS.

2. RESERVED DEFLECTION. FACTORY-PRELOADED TO 75% OF RATED LOAD.

PROVIDE 5/16 IN.-THICK NEOPRENE ACOUSTICAL BASE PADS OF RIBBED OR

WAFFLE CONSTRUCTION. SIMILAR TO MASON TYPE W. 50 PSI MAXIMUM LOADING.

A. COMPLETE WITH: PIPE, FITTINGS, VALVES, STRAINERS, MOTORIZED VALVE

OPERATORS, STRAINERS, HANGERS, SUPPORTS, GUIDE, SLEEVES, AND

B. ALL ITEMS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI). MANUFACTURERS

C. ALL PRESSURIZED PIPING TO BE TESTED HYDROSTATICALLY TO 150PSI OR 150% OF

PRESSURE ANSI B16.1 BASIS. TEST DURATION TO BE 2 HOURS WITH NO PRESSURE

CHANGE CORRECTED FOR TEMPERATURE CHANGE. REPAIR OR REPLACE LEAKS

OPERATING PRESSURE, WHICHEVER IS GREATER, BUT NEVER EXCEED TEST

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

PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTENTS TO PREVENT SAGGING,

HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS

d. ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, RUNOUTS, AND

a. BASE ELBOW SUPPORT WITH BEARING PLATE ON STRUCTURAL

GUIDES AT EVERY SECOND FLOOR (SPACING NOT TO EXCEED 25

c. TOP SUPPORT HANGER OR SADDLE IN HORIZONTAL CONNECTION

WELDED TO PIPE BEARING ON STRUCTURAL STEEL OR BEARING PLATE

d. INTERMEDIATE STEEL RISER CLAMP SUPPORT BOLTED AND

VIBRATION, OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE

SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT

LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:

1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

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

3. EQUIPMENT OR STRUCTURE CANNOT SUPPORT POINT LOADS.

C. FLOOR MOUNTED EQUIPMENT HAVING INTERNAL ISOLATION:

B. CEILING-HUNG FANS AND EQUIPMENT:

1 IN. MINIMUM STATIC DEFLECTION. 1/2 IN. MINIMUM.

PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE

2. PLATE TO DISTRIBUTE LOAD WHERE REQUIRED.

14. PIPING - GENERAL REQUIREMENTS

STANDARDIZATION SOCIETY OF THE

E. PIPE SUPPORTS:

4. VALVE AND FITTING INDUSTRY (MSS).

OR DEFECTS WITHOUT ADDITIONAL COST.

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

WITH PROVISIONS FOR EXPANSION.

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

AND CAPPED. FITTINGS: WROUGHT COPPER WITH SILVER BRAZING

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

DAMPER WITH SILICONE AND HEATED SEALS.

19. FRACTIONAL HORSEPOWER FAN MOTORS

MOTORIZED DAMPERS.

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

PIPE: COPPER TYPE ACR IN ACCORDANCE WITH ASTM B280, NITROGEN CHANGE

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

A. MAXIMUM DAMPER LEAKAGE FOR NONMOTORIZED SHALL BE 20CFM PER SQUARE

SERVING AN AREA MAINTAINING A TEMPERATURE LESS THAN 50 DEGREES THE

A. MOTORS FOR FANS THAT ARE 1/12 HP OR GREATER AND LESS THAN 1 HP SHALL BE

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

ELECTRONICALLY-COMMUTATED MOTORS OR SHALL HAVE A MINIMUM MOTOR

DAMPER SHALL BE MOTORIZED, HAVE A 0CFM(BUBBLE TIGHT) LEAKAGE INSULATED

FOOT, MOTORIZED SHALL BE 4CFM PER SQUARE FOOT. IF THE DAMPER IS

B. ALL OUTDOOR AIR INTAKE AND EXHAUST SYSTEMS SHALL BE EQUIPPED WITH

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

AT FLOOR.

CONDENSATE DRAIN PIPING

1 IN. IN 4 FT PREFERRED.

1 IN. IN 8 FT MINIMUM.

16. REFRIGERANT PIPING

A. REFRIGERANT PIPING

NOISE CRITERIA

DAMPERS

3. INSULATE ALL REFRIGERANT PIPING.

CONCENTRATED LOADS DUE TO VALVES, ETC.

PROVIDE STEEL BEARING.

2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

1. PROVIDE ISOLATION FOR EQUIPMENT, PIPING AND DUCTWORK.

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

BALANCING OR REMOTE CONTROL. BELTDRIVEN FANS MAY USE SHEAVE

MOTORS IN THE AIRSTREAM WITHIN FAN-COILS AND TERMINAL UNITS THAT

A. UNLESS OTHERWISE NOTED, EACH THERMOSTAT OR TEMPERATURE SENSOR

B. UNLESS OTHERWISE NOTED, EACH ZONE THERMOSTATIC CONTROL FOR BOTH

HEATING AND COOLING SHALL HAVE A DEAD BAND CAPABILITY OF AT LEAST 5

C. CONTROLS SHALL HAVE SETPOINT OVERLAP RESTRICTION TO PREVENT HEATING

SETPOINT FROM EXCEEDING THE COOLING SETPOINT MINUS ANY APPLICABLE

SHALL CONTROL NO MORE THAN 25,000 SQURE FEET OF SPACE AND SHALL BE

OPERATE ONLY WHEN PROVIDING HEATING TO THE SPACE SERVE

LOCATED IN THE ZONE IT IS CONTROLLING.

PREVENT HIGH SPACE HUMIDITY LEVELS.

20. CONTROLS

PROPOTIONAL BAND.

A. AIR-SIDE ECONOMIZER

HEATING, AND COOLING

ADJUSTMENTS FOR AIRFLOW BALANCING IN LIEU OF A VARYING MOTOR SPEED.

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.

F. OPTIMUM START CONTROLS THE CONTROL ALGORITHM SHALL, AS A MINIMUM, BE

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

A FUNCTION OF THE DIFFERENCE BETWEEN SPACE TEMPERATURE AND OCCUPIED

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

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:

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

B. AUTOMATIC MODULATING CONTROL OF OUTDOOR AIR DAMPER

K. DIRECT DIGITAL CONTROL(DDC) SHALL BE CAPABLE OF ALL OF THE FOLLOWING: A. MONITORING ZONE AND SYSTEM DEMAND FOR FAN PRESSURE, PUMP PRESSURE,

F AND SHUT OFF WHEN OUTDOOR AIR TEMPERATURES ARE ABOVE 45 DEGREES F.

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

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

INDICATION TO THE SYSTEM OPERATOR

QUANTITY AS OUTDOOR AIR FOR COOLING.

SETPOINTS FOR SPECIFIC CLIMATE ZONE 5

SINGLE-ZONE SYSTEMS).

RANGE OF 40°F TO 80°F.

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

DDC DISPLAY - THE DDC SYSTEM SHALL BE CAPABLE OF TRENDING AND

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

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

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

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

EXCESS OUTDOOR AIR DURING AIR ECONOMIZER OPERATION TO PREVENT

RELIEF OF EXCESS OUTDOOR AIR. SYSTEMS SHALL PROVIDE A MEANS TO RELIEVE

OVERPRESSURIZING THE BUILDING. THE RELIEF AIR OUTLET SHALL BE LOCATED SO

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 $\pm 5\%$ OVER THE RANGE OF 20% TO

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

M. ZONE THERMOSTATIC CONTROLS SHALL PREVENT

REDUCTION IN SUPPLY AIR TEMPERATURE.

A. REHEATING; B. RECOOLING;

LOADING DOCKS

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

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

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:

O. FAN CONTROL - FANS IN MECHANICAL COOLING SYSTEM SHALL BE MODULTING

LOWER WITHIN FIVE MINUTES OF THE DOOR OPENING AND 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.

1. DISABLE MECHANICAL HEATING OR RESET THE HEATING SETPOINT TO 55°F OR

BUILDING ENTRIES WITH AUTOMATIC CLOSING DEVICES ANY SPACE WITHOUT A THERMOSTAT ALTERATIONS TO EXISTING BUILDINGS

WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AN IMENSIONS, AND/OR CONDITIONS AT THE JOB SITE ARE AS REPRESENTED (HIS DRAWING AND ACCOMPANYING SPECIFICATIONS. IF THERE IS ANY CTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL INFORM THE ENGIN 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 RESU IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!** copyright - BD ENGINEERING

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REVIEW [PLANNING BOARD ____ BUILDING DEPT CONSTRUCTION BRIAN D. TANNENHAUS

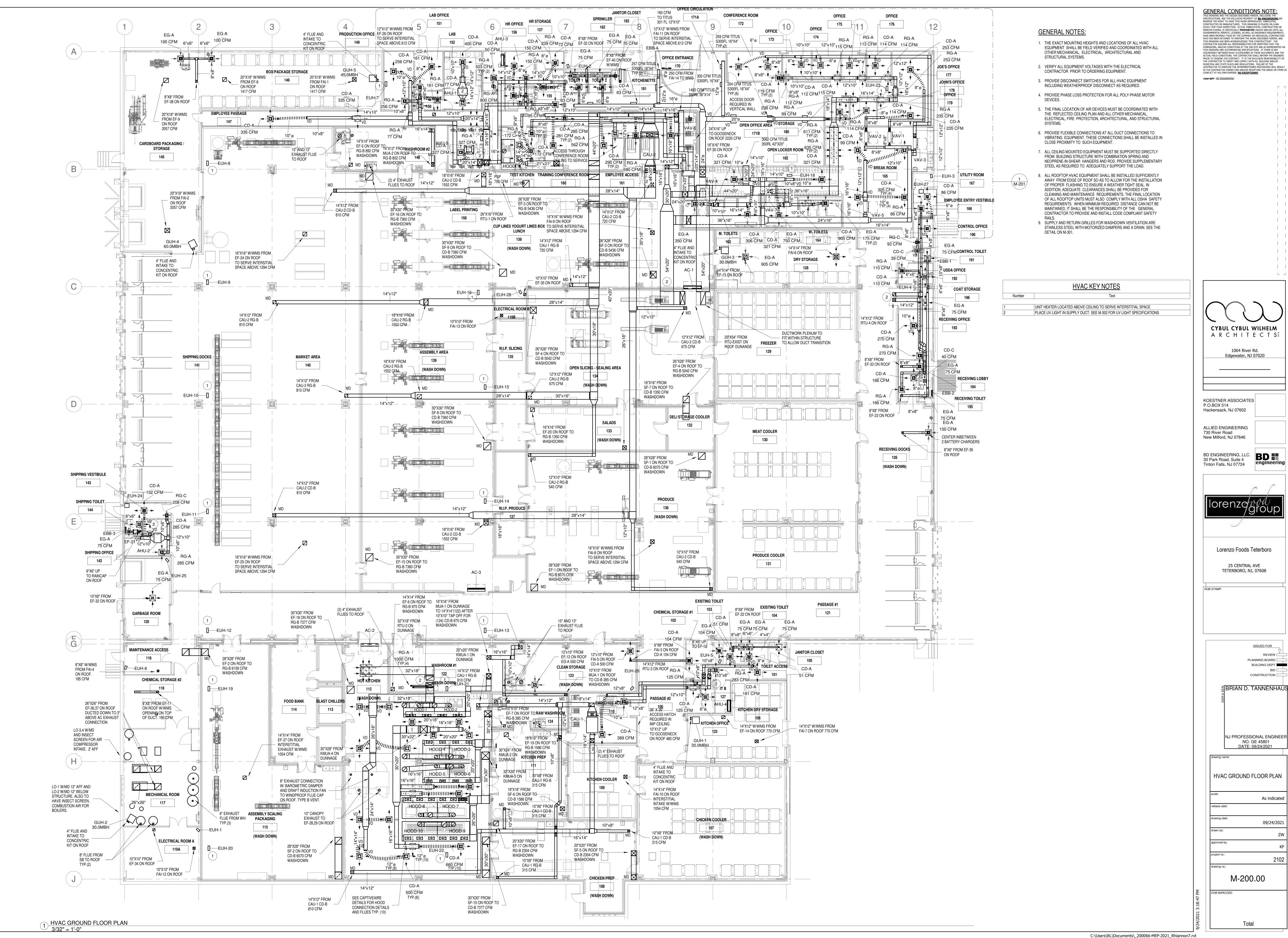
NJ PROFESSIONAL ENGINEER

NO. GE 45801

09/24/2021

M-101.00

DATE: 09/24/2021 **HVAC SPECIFICATIONS**



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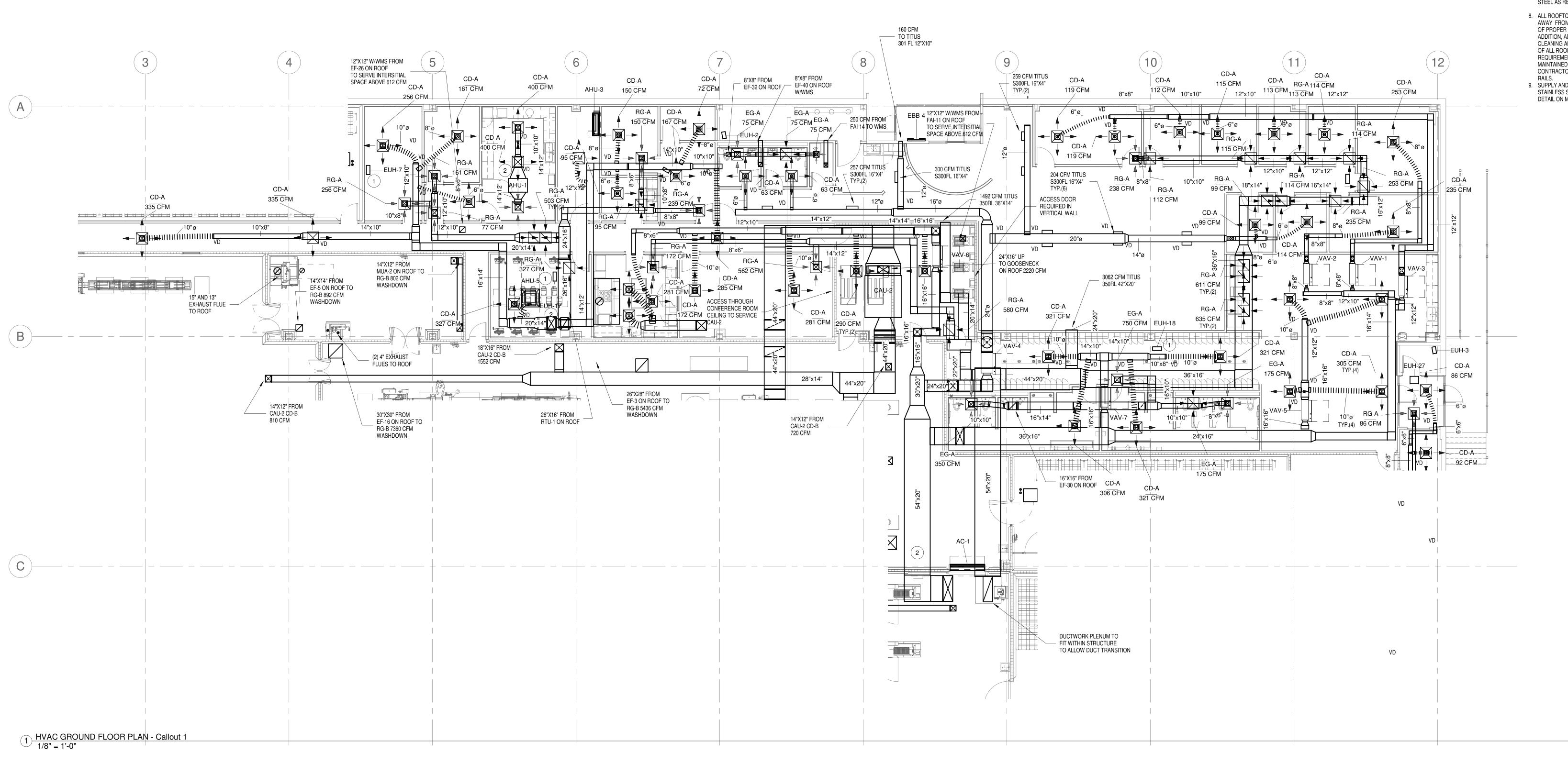
NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021

HVAC GROUND FLOOR PLAN

As indicated 09/24/2021

M-200.00

Total



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
- 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
- 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
- 9. SUPPLY AND RETURN GRILLES FOR WASHDOWN VENTILATION ARE STAINLESS STEEL WITH MOTORIZED DAMPERS AND A DRAIN. SEE THE DETAIL ON M-301.

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PLANNING BOARD BUILDING DEPT BID 🗀 CONSTRUCTION ____ ផ្លី BRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER

NO. GE 45801

DATE: 09/24/2021

HVAC OFFICES As indicated

09/24/2021

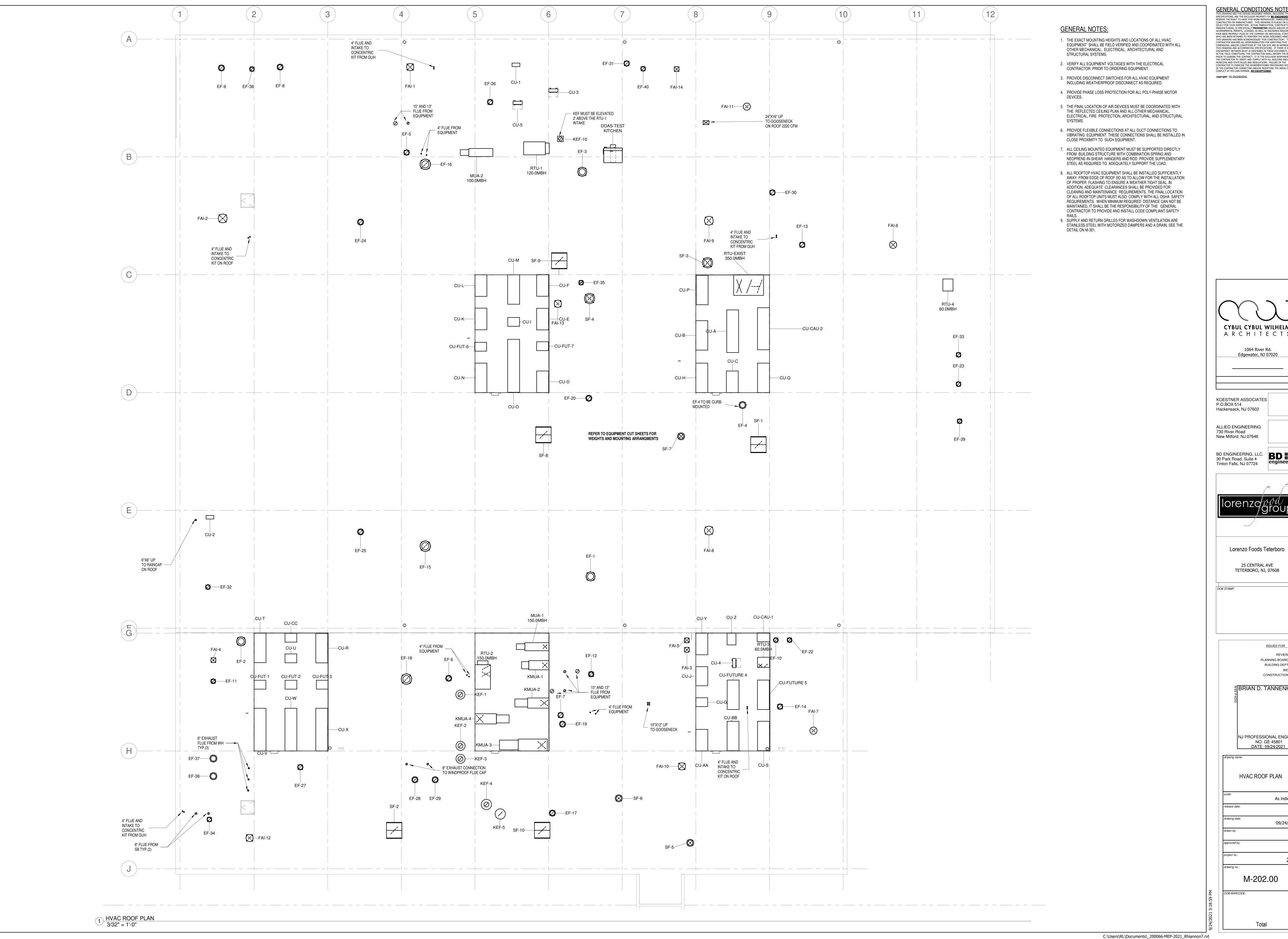
M-201.00

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HVAC KEY NOTES

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

Number



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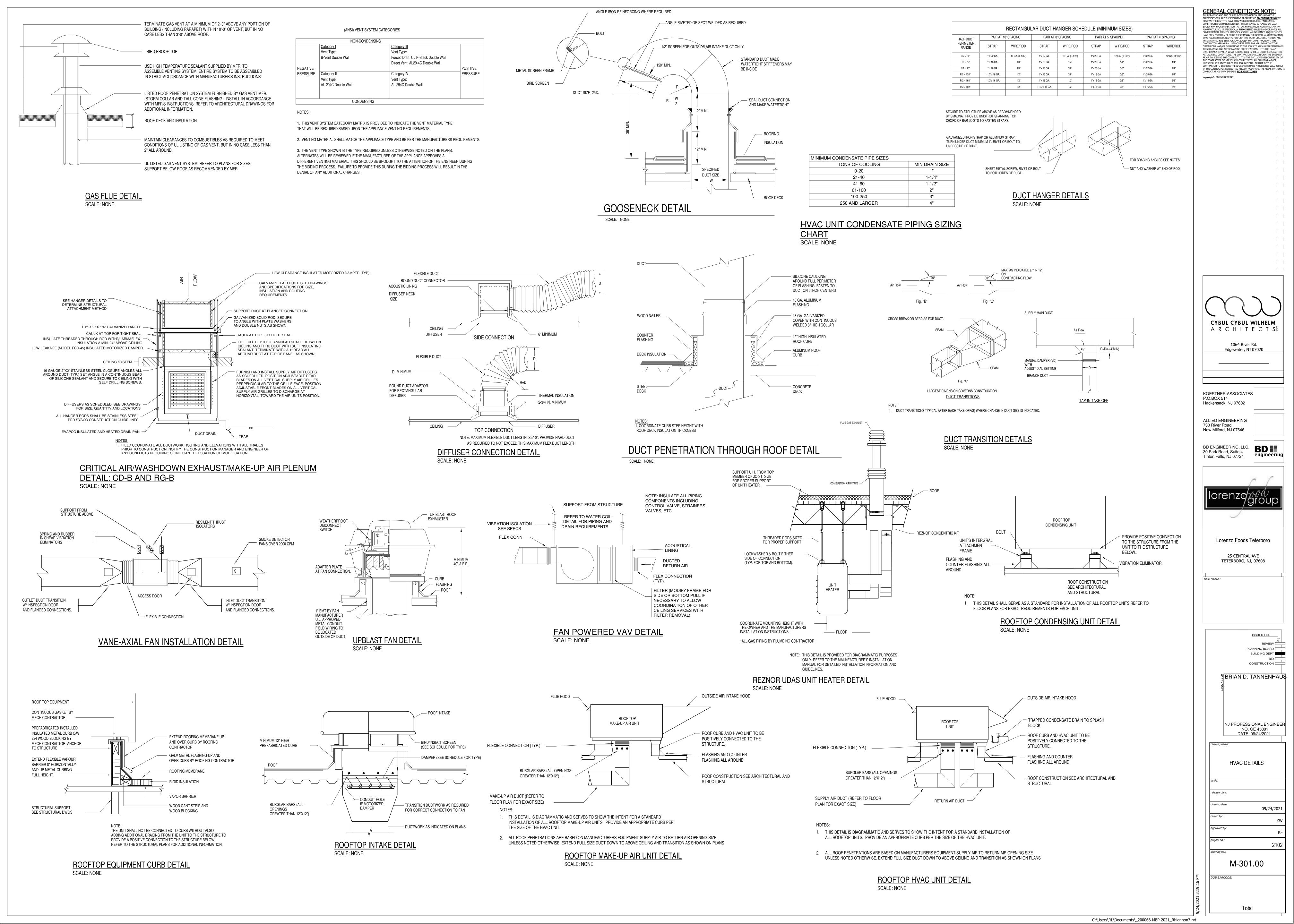
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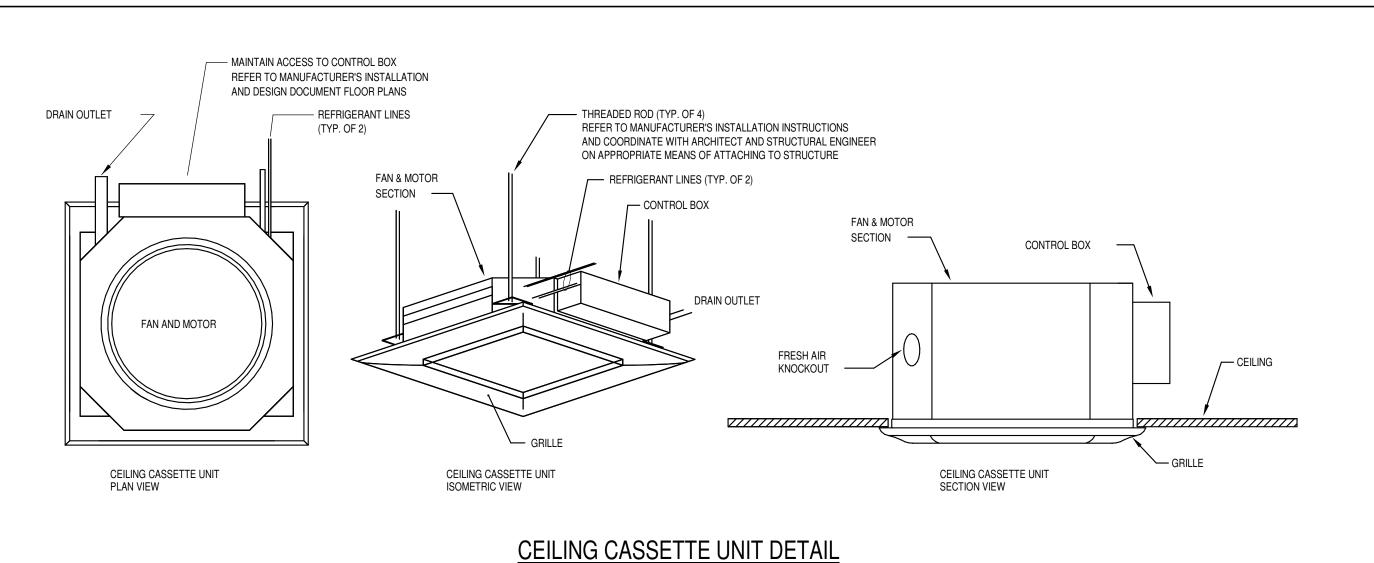
HVAC ROOF PLAN

As indicated 09/24/2021

M-202.00

HVAC ROOFTOP UNIT SCHEDULE	HVAC LOUVER SCHEDULE FREE AREA	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
FAN SECTION HEATING SECTION COOLING DATA ELECTRICAL SECTION MISCELLANEOUS SECTION SECTION SECTION SECTION EFFICIENCY	TAG MANUFACTURER MODEL SERVICE AIR FLOW Dimensions VELOCITY Free Area NOTES	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
TAG SERVICE MANUFACTURER MANUFACTURER MODEL SUPPLY FAN HP/QTY SUPPLY FAN HP/QTY FUEL STAGES INPUT MBH OUTPUT MBH OUTPUT MBH COOLING CAPACITY MBH ENTERING AIR DEPRATURE DB COMPRESSOR CAPACITY MBH VOLTAGE PHASE MINIMUM CIRCUIT DPROTECTION MAX FUSE WEIGHT SEER/EER/HSPF/C QP/AFUE% 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 1 1291.0 Ib R410A 14.5/12.6 1-6,8-21		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
RTU-2 HOT KITCHEN TRANE YHC120F4RLA**H000C1A000A00 400 CFM 1 499 CFM 2.75/1 NAT GAS 2 150.0 120.0 4.5"-14" 114.0 94.0 80.0 °F 1 460 3 22.0 25.0 150.0 120.0 4.5"-14" 23.0 101,103,104,105,110,125 TRANE 4YCC4024A1060A 800 CFM 4.5"-14" 23.0 1 19.1 208 1 19.	1. MOTORIZED DAMPER 2. PROVIDE END SWITCHES	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!! COPYRIGHT - BD ENGINEERING
RTU-EXIST OFFICES TRANE YSD210G3RHA0X0000A1000000 8400 CFM 1 770 CFM NAT GAS 350.0 284.0 2.5"-14" 210.0 1-10,12-21 1. SELECTION IS BASED ON PACKAGED ROOFTOP UNIT WITH DX COOLING 12. MOTOR/BLOWER VIBRATION ISOLATION 12. MOTOR/BLOWER VIBRATION ISOLATION 13. MOTOR/BLOWER VIBRATION ISOLATION 14. MOTOR/BLOWER VIBRATION ISOLATION 14. MOTOR/BLOWER VIBRATION ISOLATION 14. MOTOR/BLOWER VIBRATION ISOLATION 15.	3. PROVIDE BELIMO AF120-S-US 120-VOLT DAMPER ACTUATOR, KH-AF CRANKARM AND ZG-108 MOUNTING BRACKET. HVAC DIFFUSER SCHEDULE	copyright - BD ENGINEERING
2. 30% FILTERS 3. WEATHERPROOF DISCONNECT SWITCH 4. ULTRA HIGH EFFICIENCY BLOWER MOTOR 5. HIGH CAPACITY DX COIL 13. AIR FLOW PROVING SWITCH 14. TIMED-FREEZE PROTECTION 15. STEP-DOWN TRANSFORMER 16. RAINHOOD W/ INSECT SCREEN	DESCRIPTION DIFFUSER SIZE MANUFACTURER NOTES	
6. 1" DEFLECTION SPRINGS FOR SUPPLY AIR BLOWER ASSEMBLY 7. MOUNT ON DUNNAGE 7. MOUNT ON DUNNAGE 8. ALUMINIZED STEEL GAS HEAT EXCHANGER 9. DROWIDE A SMOKE DUCT DETECTOR FAN FOR SHUTDOWN, COORDINATE WITH THE FIRE ALARM CONTRACTOR 17. DOWNWARD DISCHARGE 18. UV LIGHTS IN SUPPLY DUCT 18. UV LIGHTS IN SUPPLY DUCT 19. DISCHARGE SENSOR TIED TO DDC SYSTEM 19. DIAL ENTHAL BY ECONOMIZED 19. DUAL ENTHAL BY ECONOMIZED	M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER 12"X12" TITUS OMNI-AA 1-6 TED FACE DIFFUSER, 3/16" HOLES, OPPOSED BLADE DAMPER SEE DWG TITUS PAR-AA 1-6	
10. COLD START UP KIT 21. PROVIDE A CURB AND POSITIVELY ATTACH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL 11. PROVIDE A CURB AND UNIT SHALL WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET 21. PROVIDE CONDENSATE PIPING WITH TRAP TO DISCHARGE ONTO SPLASH BACK RG-A RETURN ALUMINUM RG-WIDTES: RETURN ALUMINUM ALUMINUM ACCORDINATE PIPING WITH TRAP TO DISCHARGE ONTO SPLASH BACK RG-A RETURN ALUMINUM ALUMINUM ACCORDINATE PIPING WITH TRAP TO DISCHARGE ONTO SPLASH BACK RG-A RETURN ALUMINUM ALUMINUM ACCORDINATE PIPING WITH TRAP TO DISCHARGE ONTO SPLASH BACK	M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER M SQUARE PLAQUE DIFFUSER, FIXED DISCHARGE, OPPOSED BLADE DAMPER MITH CEILING, DUCT OR WALL TYPE TABLE 1-ROUND NECK SIZE SCHEDULE TITUS OMNI-AA 1-6 TITUS PAR-AA 1-6	
2. COORDINATE DIFFUSER FINISH WITH OWN 3. ORIENT DIFFUSER TO DIRECT AIRFLOW AT DIRECTLY ON OCCUPANTS.	TO 150 OFM OF DIAMETER	
FAN SECTION FERTING SECTION FERTING SECTION FINAL COOLING OUTDOOR AIR TAG SERVICE MANUFACTURER MODEL SUPPLY CFM'S FAN SECTION FAN SECTION HEATING SECTION HEATING SECTION HEATING SECTION FELECTRICAL SECTION MAXIMUM NOISE CRITERION RATING <20 MAXIMUM NOISE CRITERION RATING COLOR	DINATED WITH CEILING CONSTRUCTION TYPE D IN TABLE 1 501 TO 700 CFM - 14" DIAMETER 701 TO 900 CFM - 16" DIAMETER	
AHU-1 152 TRANE TPEADA0121AA70A 494 66 CFM .1 12.0 ELEC 18.0 208 1 1 58.0 lb R410A 21.1/13 1-5 Mark SERVICE	HVAC FAI SCHEDULE MANUFACTURER MODEL AIR FLOW VELOCITY(FT/MIN) WEIGHT CONTROL NOTES	
AHU-3 IT ROOM TRANE TPKA0A0241KA70A 775 0 CFM 24.0 ELEC N/A 0.0 208 1 AHU-4 IT ROOM TRANE TPKA0A0241KA70A 775 0 CFM 24.0 ELEC N/A 0.0 208 1 AHU-5 LABEL PRINTING TRANE TPLA0A0121EA70A 530 0 CFM 12.0 ELEC N/A 0.0 208 1	GREENHECK GRSI-16 1417 CFM 977 21.0 lb TSTAT, INTERLOCK W/ EF-8 1-3,6 GREENHECK GRSI-20 2057 CFM 914 29.0 lb TSTAT, INTERLOCK W/ EF-9 1-3,6	
FAI-3 CHEMICAL STORAGE 1 INTAKE 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 FAI-5 VENTUATION DRY CTORAGE VENTUATION DRY CTORAGE VENTUATION DRY CTORAGE		
5. PROVIDE LOW AMBIENT WIND BAFFLE WB-PA5 HVAC MAKE-UP AIR UNIT SCHEDULE FAI-6 VENTILATION DRY STORAGE FAI-7 VENTILATION KITCHEN DRY STORAGE 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 FAI-9 INTERSTITIAL MIDDLE ZONE FAI-10 INTERSTITIAL BOTTOM ZONE FAI-10 INTERSTITIAL TOP ZONE FAI-11 INTERSTITIAL TOP ZONE FAI-12 FLEC POOM A FAI-12 FLEC POOM A	GREENHECK GRSI-18 1294 CFM 707 24.0 lb TSTAT, INTERLOCK W/ EF-24,25 1-3,6 GREENHECK GRSI-16 1054 CFM 727 21.0 lb TSTAT, INTERLOCK W/ EF-27 1-3,6 GREENHECK GRSI-12 612 CFM 746 15.0 lb TSTAT, INTERLOCK W/ EF-26 1-3,6 GREENHECK GRSI-16 400 CFM 276 21.0 lb TIMECLOCK 1.3.6	
KMUA-1 HOODS CAPTIVE AIRE SEE CAPTIVE AIRE DETAILS FAI-13 ELEC ROOM B FAI-14 SPRINKLER ROOM 1 INSECT SCREENS	GREENHECK GRSI-16 400 CFM 276 21.0 lb TIMECLOCK 1-3,6 GREENHECK GRSI-16 400 CFM 276 21.0 lb TIMECLOCK 1-3,6 GREENHECK GRSI-8 250 CFM 676 7.0 lb TIMECLOCK 1-3,6	
KMUA-3 HOODS CAPTIVE AIRE SEE CAPTIVE AIRE DETAILS KMUA-4 SPACE BALANCE CAPTIVE AIRE SEE CAPTIVE AIRE DETAILS 3. PROVIDE REQUIRED SLEEVE TO ACCOMMOD	MPER ACTUATOR, KH-AF CRANKARM AND ZG-108 MOUNTING BRACKET. INTERLOCK ASSOCIATED EXHAUST FAN WITH END-SWITCH TO START BE FULLY OPEN VIA END-SWITCH IDATE MOTORIZED DAMPER INSTALLATION RALLEL BLADE DAMPER AT EACH LOUVER SIZED TO FIT EACH LOUVER'S CONFIGURATION.	
MUA-2 WASHROOM #2 TRANE GRCA10PFGF0 820 CFM .4/1 NAT GAS 100.0 80.0 7"-14" 1. WEATHERPROOF DISCONNECT SWITCH 8. UV LIGHTS IN SUPPLY DUCT 8. UV LIGHTS IN SUPPLY DUCT	RIZED DAMPER, INTERLOCK ASSOCIATED EXHAUST FAN WITH END-SWITCH TO START FAN ONCE DAMPER IS PROVED TO BE FULLY OPEN VIA END-SWITCH THE UNIT TO THE STRUCTURE BELOW. COORDINATE WITH THE ARCHITECT AND/OR STRUCTURAL STAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET.	CYBUL CYBUL WILHELM
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 12. DOWNWARD DISCHARGE 13. IN HOOD W/ INSECT SCREEN 14. IN HOOD W/ INSECT SCREEN 15. DOWNWARD DISCHARGE 16. DOWNWARD DISCHARGE	HVAC ELECTRIC HEATER SCHEDULE ELECTRICAL SECTION	A R C H I T E C T S
WITHSTAND THE WIND LOAD AS SHOWN IN THE CODE REVIEW SECTION ON THE HVAC COVERSHEET. 13. ALUMINIZED STEEL GAS HEAT EXCHANGER 6. PROVIDE A SMOKE DUCT DETECTOR FOR FAN SHUTDOWN. COORDINATE WITH THE FIRE ALARM CONTRACTOR. 7. MOTOR/BLOWER VIBRATION ISOLATION BATHROOM Q-MARK	K 2512W 0.4 0.1 3.3 120 1 TSTAT 1	1064 River Rd. Edgewater, NJ 07020
HVAC GAS FIRED UNIT HEATER SCHEDULE EBB-3 BATHROOM Q-MARK EBB-4 OFFICE ENTRANCE Q-MARK FLECTRICAL SECTION MISC SECTION FLECTRICAL SECTION MISC SECTION		
EUH-1 ELECTRICAL ROOM Q-MARK- EUH-1 ELECTRICAL SECTION EUH-1 ELECTRICAL ROOM Q-MARK- EUH-2 SPRINKLER ROOM Q-MARK- EUH-2 SPRINKLER ROOM Q-MARK- EUH-3 UTILITY ROOM Q-MARK- EUH-4 COAT STORAGE Q-MARK- EUH-1 ELECTRICAL ROOM Q-MARK- EUH-1 ELECTRICAL SECTION MISC. SECTION MISC. SECTION EUH-1 ELECTRICAL ROOM Q-MARK- EUH-2 SPRINKLER ROOM Q-MARK- EUH-2 SPRINKLER ROOM Q-MARK- EUH-3 UTILITY ROOM Q-MARK- EUH-3 UTILITY ROOM Q-MARK- EUH-3 UTILITY ROOM Q-MARK- EUH-4 COAT STORAGE Q-MARK- EUH-1 ELECTRICAL SECTION EUH-2 SPRINKLER ROOM Q-MARK- EUH-2 SPRINKLER ROOM	K MUH03-41 3 10.2 3.6 480 3 TSTAT 1	VOEOTAIED 100000
CHEMICAL STORAGE CHEMICAL ST	K MUH03-41 3 10.2 3.6 480 3 TSTAT 1 K MUH03-41 3 10.2 3.6 480 3 TSTAT 1	KOESTNER ASSOCIATES P.O.BOX 514 Hackensack, NJ 07602
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 63.0 Ib CONCENTRIC 1-6 EUH-9 INTERSTITIAL SPACE Q-MARK GUH-9 INTERSTITIAL SPACE Q-MARK GUH-10 INTERSTITIAL SPACE Q-M	MK MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1 KK MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1	ALLIED ENGINEERING 730 River Road
1. ELECTRONIC IGNITION AND ENCLOSED MOTOR 2. 4-POINT SUSPENSION KIT 3. SINGLE STAGE COMBINATION GAS VALVE AND SEPARATED COMBUSTION EUH-13 INTERSTITIAL SPACE Q-MARKED COMBUSTION UNITERSTITIAL SPACE Q-MARKED COMBUSTION EUH-13 INTERSTITIAL EUH-13 INTERSTITIAL EUH-13 INTERSTITIAL EUH-13 INTERSTITIAL E	KK MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1 KK MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1	New Milford, NJ 07646
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	K MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1 K MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1	BD ENGINEERING, LLC. 30 Park Road, Suite 4 Tinton Falls, NJ 07724 BD III engineering
8. ATTACH AXIOM NEUTRALIZATION CAPSULE NC-1 9. SUPPLY WITH CONDENSATE PUMP, LITTLE GIANT VCMA-15 OR EQUAL PIPED TO NEAREST DRAIN OR STANDPIPE EUH-19 INTERSTITIAL SPACE Q-MARK	MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1 KK MUH07-4 7.5 25.6 9.0 480 3 TSTAT 1	
HVAC EXHAUST FAN SCHEDULE EUH-20 INTERSTITIAL SPACE Q-MARK EUH-21 INTERSTITIAL SPACE Q-MARK EUH-22 INTERSTITIAL SPACE Q-MARK EUH-22 INTERSTITIAL SPACE Q-MARK EUH-22 INTERSTITIAL SPACE Q-MARK EUH-23 INTERSTITIAL SPACE Q-MARK EUH-23 INTERSTITIAL SPACE Q-MARK EUH-23 INTERSTITIAL SPACE Q-MARK EUH-23 INTERSTITIAL SPACE Q-MARK EUH-24 INTERSTITIAL SPACE Q-MARK EUH-25 INTERSTITIAL SPACE Q-MARK EUH-26 INTERSTITIAL SPACE Q-MARK EUH-27 INTERSTITIAL SPACE Q-MARK EUH-28 INTERSTITIAL SPACE Q-MARK EUH-29 INTERSTITIAL SPACE Q-MARK EUH-20 INTERS		Jorenzarod
TAG SERVICE MANUFACTURER MODEL AIR FLOW E.S.P. (W.C) RPM DRIVE HP VOLTAGE PHASE AMPS CONTROL WEIGHT NOTES FUH-23 INTERSTITIAL SPACE Q-MARK FUH-23 INTERSTITIAL SPACE Q-MARK FUH-24 SHIPPING VESTIBULE Q-MARK FUH-25 GARBAGE ROOM Q-MARK FUH-26 GLEAN STORAGE Q-MARK GUE-200-B GREENHECK CUE-200-B GREEN	K EFF1500 1.5 5.1 12.5 120 1 TSTAT 1 K MUH05-41 3 17.0 6.0 480 3 TSTAT 1	loreriz group
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 Ib 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 Ib 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 Ib 1-6	17.0 0.0 400 3 151A1 1 1 1 1 1 1 1 1 1	
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	AC AIR CURTAIN HEATER SCHEDULE	Lorenzo Foods Teterboro
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 1-6 EF-11 CHEMICAL STORAGE 2 EXHAUST GREENHECK CUE-060-VG 185 CFM .1 1725 DIRECT 0.07 115 1 1.3 TIMECLOCK 55.0 lb 1-6	ELECTRICAL SECTION KW CFM AMPS VOLTAGE PHASE CONTROL AFC RATING NOTES	25 CENTRAL AVE TETERBORO, NJ, 07608
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 Ib 1-6 EF-13 VENTILATION DRY STORAGE GREENHECK CUE-095-D 905 CFM .1 1550 DIRECT 0.13 115 1 50 DIRECT 0.13 115 1 50 DIRECT 0.14 TSTAT, INTERLOCK W/ FAI-6 73.0 Ib 1-6 EF-14 VENTILATION KITCHEN DRY STORAGE GREENHECK CUE-090-D 770 CFM .1 1550 DIRECT 0.07 115 1 50 DIRECT 0.07 115 D	1800.0 2.6 115 1 DOOR SWITCH 1,2 1800.0 2.6 115 1 DOOR SWITCH 1,2 1800.0 2.6 115 1 DOOR SWITCH 1,2	DOB STAMP:
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	HVAC CAU SCHEDULE HEATCRAFT WORLDWIDE REFRIGERATION QUOTE # Stone Mountain Operations	
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 BATHBOOM 144 GREENHECK CSP-B110 75 CFM 15 950 DIRECT 1.10 lb 1.34	BB071421MDA Phone: 800-537-7775 E Mail: HRPAHAE@heatcraftrpd.com DATE: 7/14/2021 to: GARY LA FATA	
EF-22 BAHTROOMS 103,104,105 GREENHECK CUE-060-VG 200 CFM .1 1725 DIRECT 0.07 115 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	Notes from: DANIEL ALMEIDA subject: Air Handler Quote ABCO - Lorenzo Foods Teterboro NJ	ISSUED FOR
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	TAG UNIT SIZE We are pleased to quote you on the items described below. CAU-1 CAU-2 HCS14FC	REVIEW PLANNING BOARD BUILDING DEPT
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	1 1, 2, 3, 4, 5 ESP 0.75 1.00 TSP 1.56 1.88 MOTOR 460/3/60 1 HP ODP 5 HP ODP	CONSTRUCTION
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 0.0 TIMECLOCK 56.0 lb 1-5 EF-34 FLEC POOM A CREENHECK CUE-070-G 225 CFM .15 1300 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-34 FLEC POOM A CREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-34 FLEC POOM A CREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-35 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-36 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-36 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-37 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-38 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-39 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-39 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 225 CFM .1 1705 DIRECT 0.02 115 1 0.0 TIMECLOCK 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 23.0 lb 1-5 EF-30 CONTROL AND RECIEVING GREENHECK CUE-070-G 23.0 lb 1-5 EF-30 CO	1 1, 2, 3, 4, 5 FLA/MCA/MOPD 1.6 / 2.0 / 15 6.2 / 7.8 / 15 DRIVE 120% ADJUSTABLE 120% ADJUSTABLE ISOLATION INTERNAL SPRING INTERNAL SPRING	BRIAN D. TANNENHAUS
EF-34 ELEC ROOM A GREENHECK CUE-070-VG 400 CFM .1 1725 DIRECT 0.06 115 1 TIMECLOCK 33.0 lb 1-5 VAV-3 1 VCEF (Electric Heating) 8" (203mm) 693 208 208 8.54 2.5 120/1	1 1, 2, 3, 4, 5 COOLING COIL 6 ROW / 10 FPI 6 ROW / 10 FPI ONE CIRCUIT WITH ASC ONE CIRCUIT WITH ASC (HOT GAS TEE) (HOT GAS TEE) CAPACITY 50.97 MBH 245.57 MBH ENTERING AIR TEMP. 55 67° / 59.8% RH	
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	1 1, 2, 3, 4, 5 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 1 1 2 3 4 5	NJ PROFESSIONAL ENGINEER
EF-40 SPRINKLER ROOM GREENHECK CUE-070-G 250 CFM .1 1300 DIRECT 0.03 115 1 15.37 4.5 480/3 15.47 10" (254mm) 10" (254mm) 10" (254mm) 10" (254mm) 10" (254mm) 1313 394	CONSTRUCTION DOUBLE WALL / INSULATED DOUBLE WALL / INSULATED ELECTRIC HEATER SCR ELECTRIC SCR ELECTRIC	NO. GE 45801 DATE: 09/24/2021
No.	1 1, 2, 3, 4, 5 CAPACITY / CFM 3.5 KW - 480CFM 15 KW - 2220CFM VOLTAGE 460V - 3Φ - 60 Hz 460V - 3Φ - 60 Hz 18.83 ENTERING AIR 14° 14° LEAVING AIR 36.9° 35.2°	drawing name:
2. ROOF CURB 3. BACKDRAFT DAMPER 4. PROVIDE VFD FOR CONTROL NOTES:	FILTER SECTION FLAT FLAT PRE-FILTERS 2" - 35% EFFICIENT 2" - 35% EFFICIENT	HVAC SCHEDULES
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 Provide unit-mounted control power transformer, disconnect, and power fuse.	CONTRACTOR TO PROVIDE CAU-1,2 VFD AND INDICATED MOTORIZED DAMPERS. INTERGRATE INTO BMS SYSTEM. ECONOMIZER WITH DAMPERS (ALL CONTROLS & (ALL CONTROLS & ACTUATORS BY OTHERS) ACTUATORS BY OTHERS) COIL AND BLOWER COIL AND BLOWER	scale: 12" = 1'-0" release date:
HVAC SUDDLY FAN SCHEDULE	UNIT SPLIT SHIP SECTION SHIPPED SECTION SHIPPED SEPARATE	drawing date: 09/24/2021
ELECTRICAL SECTION MISCELLANEOUS SECTION SECTI	MISCELLANEOUS SECTION WEIGHT NOTES ALL CONTROLS BY OTHERS; Motor VFD Compatible - VFD & CONTROLLER BY OTHERS	drawn by: ZW approved by:
TAG SERVICE MANUFACTURER MODEL CAPACITY MBH	No valves are included; unless called out in unit description or added as an option.	project no.:
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-1	170.0 lb 1-3 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 with insulation sandwiched between pan and bottom panel.	drawing no.: M-300.00
CU-5 LABEL PRINTING TRANE TRUYA0121KA70 12.0 0.0 28.0 1 11.0 28.0 0.5 92.0 lb R410A 27/16.4 1-4	97.0 lb 1-3 All panels and drain pan are 16 gauge galvanized steel. 91.0 lb 1-3 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.	IVI-300.00 DOB BARCODE:
CU-CAU-2	384.0 lb 1-3 Sections are shipped with required gasketing and hardware. 984.0 lb 1-3 Published Lead time*, subject to change upon receipt of an order. All orders	
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. 1. WEATHER PROOF DISCONNECT AND ROOF CURB 2. PROVIDE EQUIPMENT RAILS LONG ENOUGH TO SPAN THE REQUIRED # OF EXISTING ROOF JOUSTS AS DETERMINED BY THE ARCHTECT AND STRUCTURAL ENGINEER. 2. PROVIDE WITH ACTUATOR AND ENDSWITCH. INTERLOCK WITH ASSOCIATED SUPPLY FAN WITH END SWITCH TO START ONCEDAMPER IS PROVEN TO BE FULLY OPEN. 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.	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.	Total
	C:\Users\RL\Documents_200066-MEP-2021_Rhiannon7.rvt	





RODS TO STRUCTURE — VIBRATION ISOLATORS FOUR 1/4" DIA. SEISMIC CABLE (AT 45[^]) CABLE CONNECTION OR BLOWER COIL UNIT TO CEILING DECK REQUIRED TOP & BOTTOM FLEXIBLE DUCT CONNECTION ON DISCHARGE

LINKAGE

FRAME WALL

** SET POINTS SHALL BE FIELD COORDINATED WITH

SET THE SPACE TEMPERATURES TO THE FOLLOWING:

** 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

** EQUIPMENT WITH MOTORIZED DAMPERS SUCH AS SUPPLY AND

EXHAUST FANS SHALL NOT ENERGIZE THE FAN UNTIL THE DAMPER

THE OWNER BUT FOR INITIAL SETUP PURPOSES

AS INDICATED ON THE ARCHITECTS PLANS

NON REFRIGERATED AREAS:

COOLING - 70 DEGREES F

HEATING - 72 DEGREES F

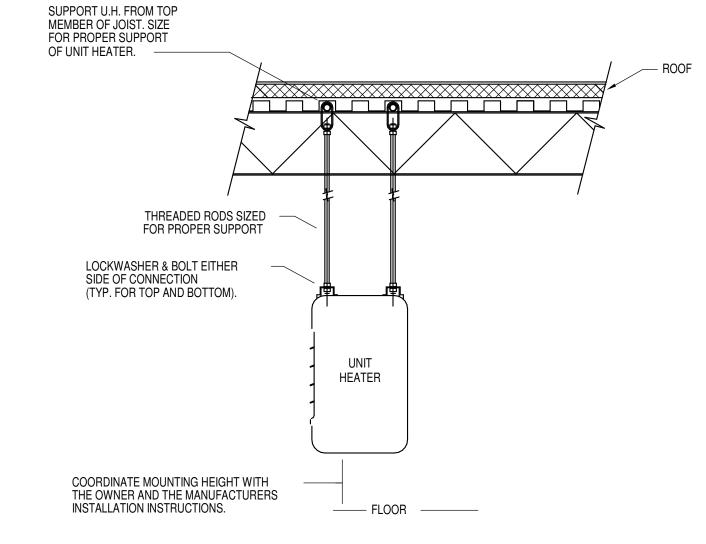
IS IN NEED OF MAINTENANCE.

END SWITCH IS ACTIVATED.

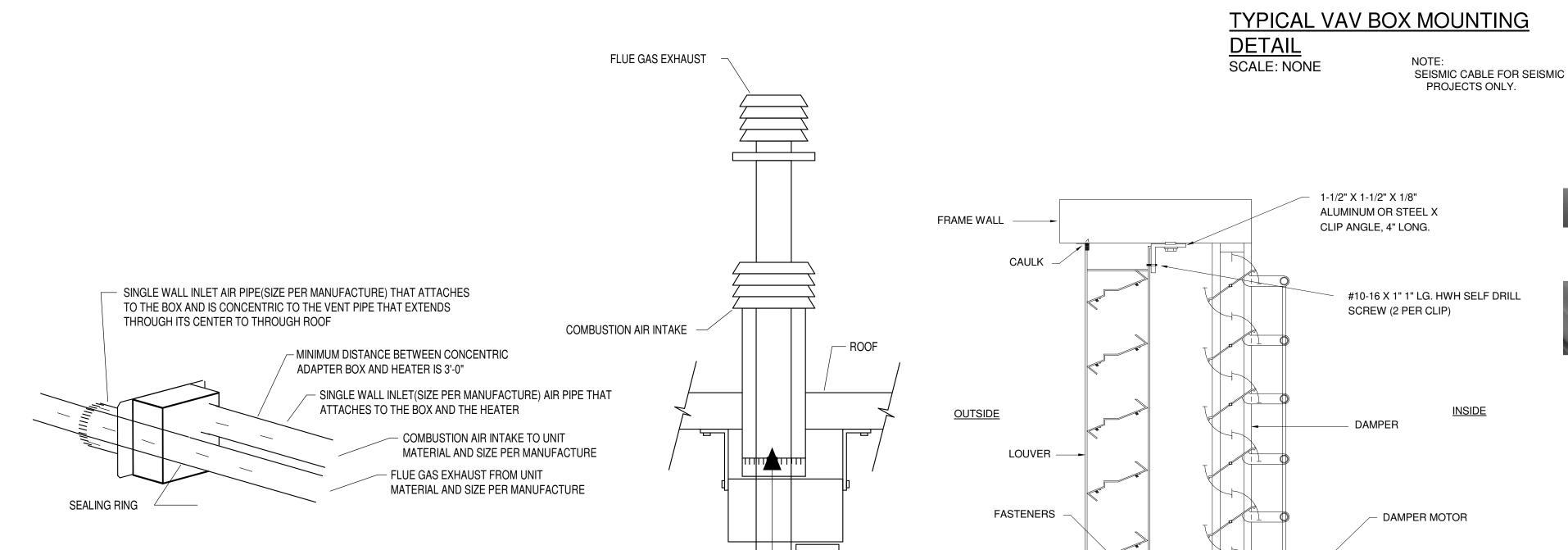
REFRIGERATED AREAS:

- FOUR 3/8 DIA. SUPPORT

PROVIDE 2" DEEP GAL. SHEET METAL OVERFLOW PAN. PAN SHALL EXTEND MIN. 2" BEYOND EDGE OF UNIT. PROVIDE PAN W/ LEAK DETECTION TO SEND ALARM TO BLDG



ELECTRIC UNIT HEATER DETAIL



Air Flow Through Box Detail

шш

REZNOR OPTION CC2 CONCENTRIC COMBUSTION AIR/GAS FLUE DETAILS SCALE: NONE

FRESH AIR LOUVER & DAMPER DETAIL

LUMALIER 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.

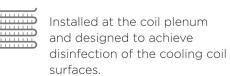
Our ADPL Series UVC Fixtures are engineered for residential and light commercial applications in split system air handlers (AHUs). These In-AHU and In-Duct UVC fixtures provide solutions for disinfection throughout homes and can also be used in some light commercial applications. Benefits include:

- Reduces odors
- Reduces HVAC maintenance
- Reduces pathogens that cause sickness and disease
- Improves occupant performance Increases energy savings

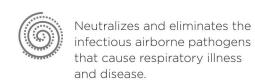
Fahrenheit.

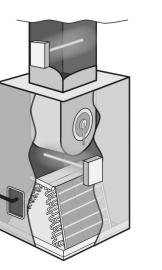
The ADPL is available in three lamp sizes (35W, 60W, 95W), and single and double lamp configurations, to provide options for various duct sizes. All lamps are non-proprietary Philips lamps that are chill corrected down to 40 degrees

Works invisibly within existing HVAC systems to create a safe, comfortable, germ-free indoor environment.



Works 24/7 to keep air free and clear of airborne contaminants.

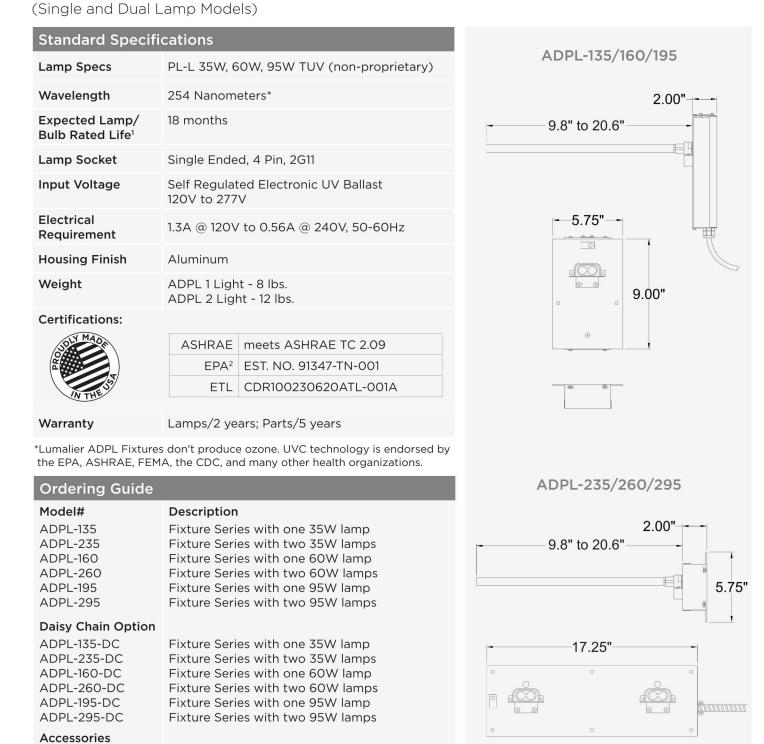




THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

ADPL Series IN AHU AND IN DUCT UVC FIXTURES

ADPL UV Air Fixture Product Specifications



ELUMALIER www.lumalier.com 1931 Thomas Road | Memphis TN 38134 | 901-800-1709 or 1-888-610-1709

Photocatalytic Oxidation Grid 60 Watt Lamp

Due to continuing research, Lumalier reserves the

Photocatalytic Oxidation Grid 95 Watt Lamp right to change specifications without notice.

UV LIGHT SELECTIONS ARE SHOWN BELOW BASED OFF CUTSHEET ABOVE:

PCO-35

PCO-60

PCO-95

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 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

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.

VAV AIRFLOWS

IF SUPPLY IS FOR INTERSTITIAL SPACE, TURNS ON

SUPPLY FAN/FAI SEQUENCE OF OPERATIONS BASED ON SET THERMOSTAT TEMP(ADJ), TIED TO MATCHING EXHAUST FANS IF SUPPLY IS FOR PROCESSING ROOM, TURNS ON

BASED ON SET POINT(ADJ) THERMOSTAT WILL ACTIVATE CONDENSING UNIT

BASED ON A WALL SWITCH, TIED TO MATCHING EXHAUST UNIT TO START SYSTEM. IF SUPPLY IS FOR AIR COMPRESSORS, UNITS TIED TO AIR COMPRESSORS AND TURN ON WHEN CALLED TO HVAC CONDENSING UNIT SEQUENCE OF OPERATIONS THERMOSTAT TO CONTROL CONDENSING UNIT AND AHU

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

AND AHU TO PROVIDE HEATING OR COOLING AS REQUIRED

ELECTRIC BASEBOARD HEATER SEQUENCE OF OPERATIONS 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 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 TO A SENSOR HITS SET HIGHPOINT.

COOLING MODE AND CALLS FOR CU TO TURN ON

• DISCHARGE AIR TEMPERATURE TO BE MAINTAINED TO SPACE TEMPERATURE.

CAULK_

EXTENDED SILL ——

BLAST CHILLER SEQUENCE OF OPERATIONS UPON START REQUEST FROM MANUAL SWITCH SEND SIGNAL TO CONDENSING 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 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 www.lumalier.com 1931 Thomas Road | Memphis TN 38134 | 901-800-1709 or 1-888-610-1709

• 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)

Photocatalytic Oxidation Grid 35 Watt Lamp

Lorenzo Foods Teterboro 25 CENTRAL AVE TETERBORO, NJ, 07608 DOB STAMP REVIEW 🗀 PLANNING BOARD NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021 **HVAC DETAILS AND** SEQUENCE OF OPERATIONS

WHO HAS BEEN RETAINED TO PERFORM THE WORK DESCRIBED HEREIN, AND THIS DRAWING HAS BEEN ACKNOWLEDGED "FOR CONSTRUCTION". THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR VERLIFYING 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. FALLURE 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

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

ALLIED ENGINEERING 730 River Road New Milford, NJ 07646

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BUILDING DEPT BID ____ CONSTRUCTION ____ នី BRIAN D. TANNENHAUS

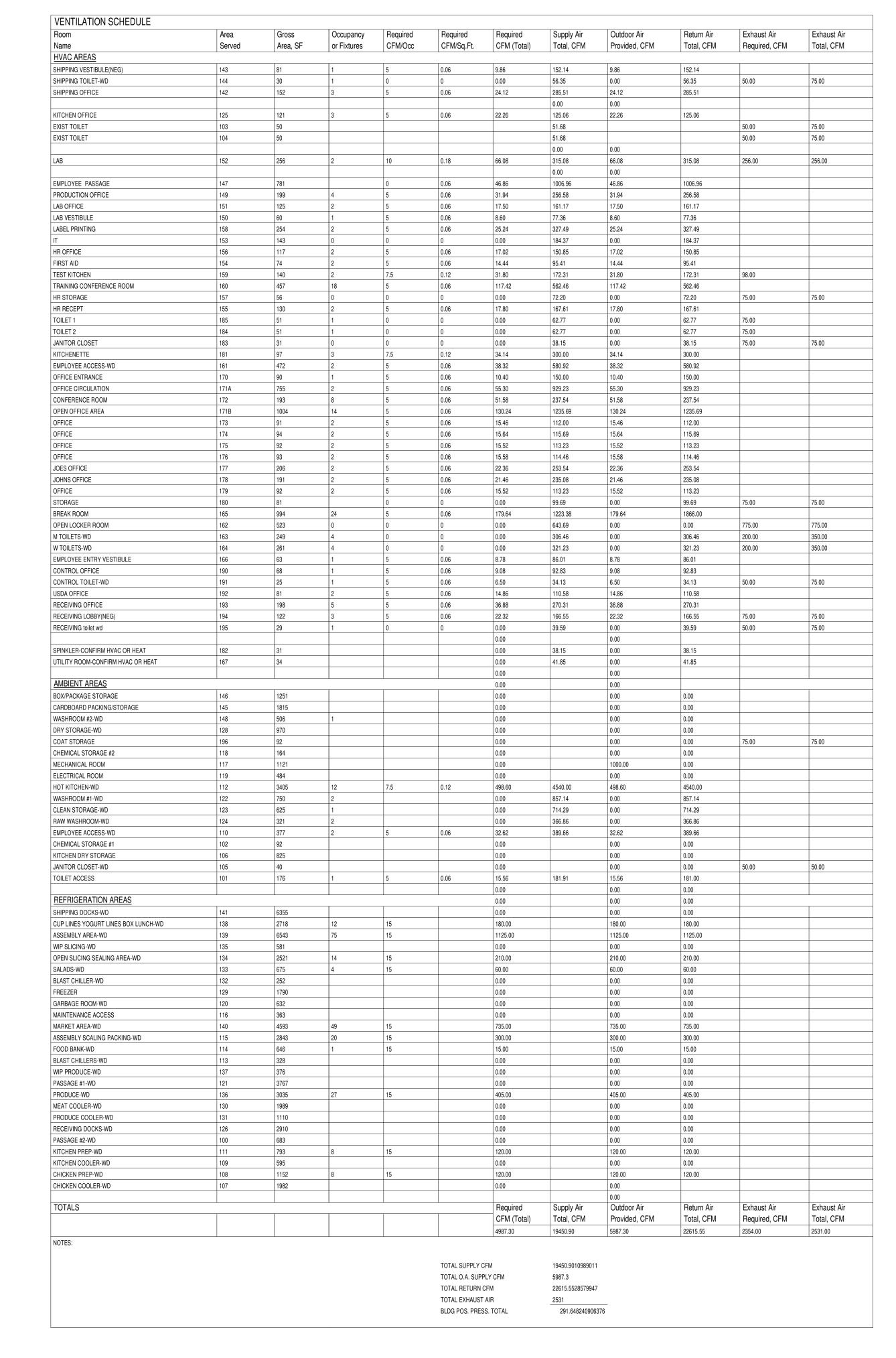
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Total

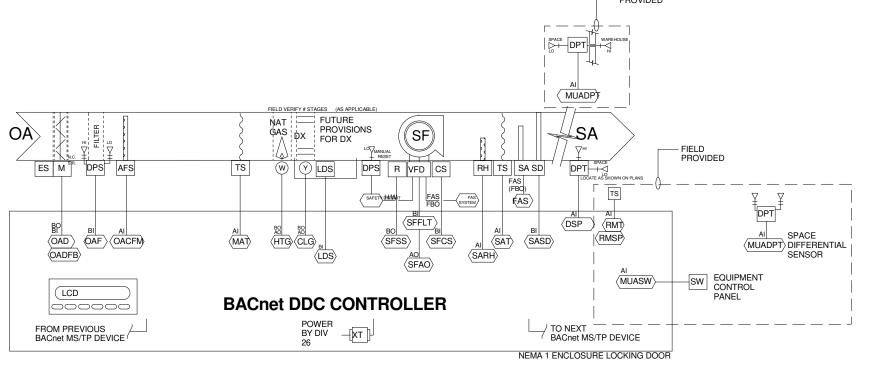
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HVAC VENTILATION INDEX

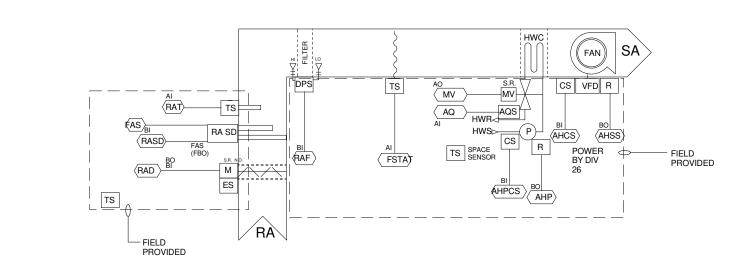
09/24/2021

FIRE ALARM SYSTEM

BMS CONTROL POINT LEGEND CONTROL POINT DESCRIPTION

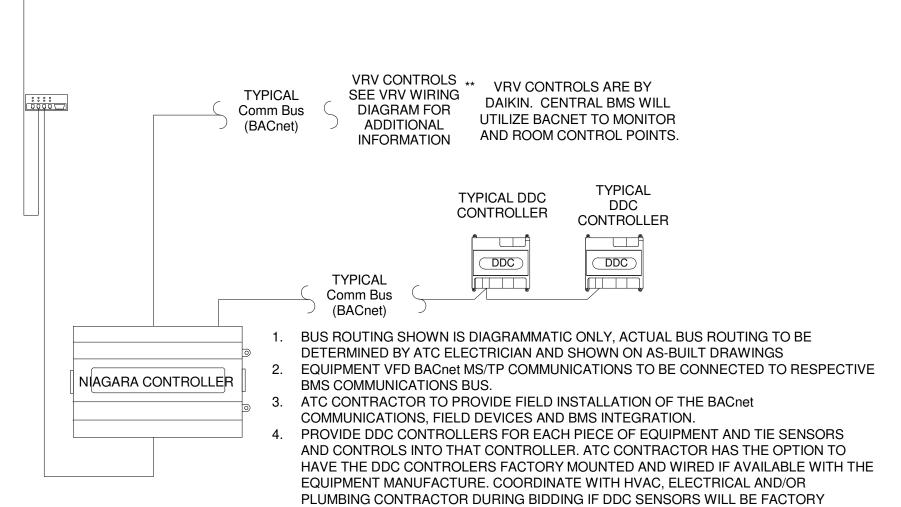


MUA - use with equipment not a cooking hood

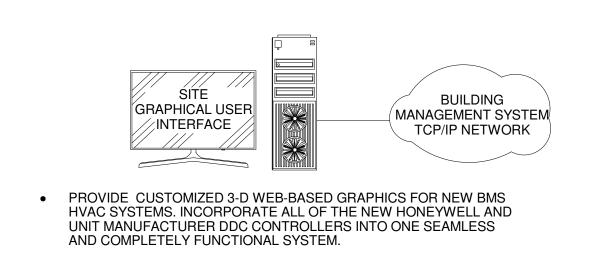


ROOFTOP AIR HANDLER NOT TO SCALE

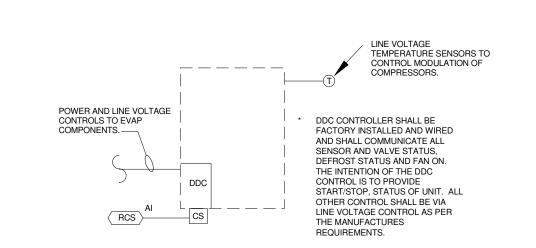




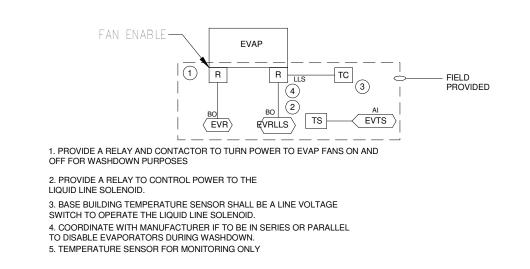
MOUNTED OR PROVIDED IN FIELD. BMS NETWORK ARCHITECTURE



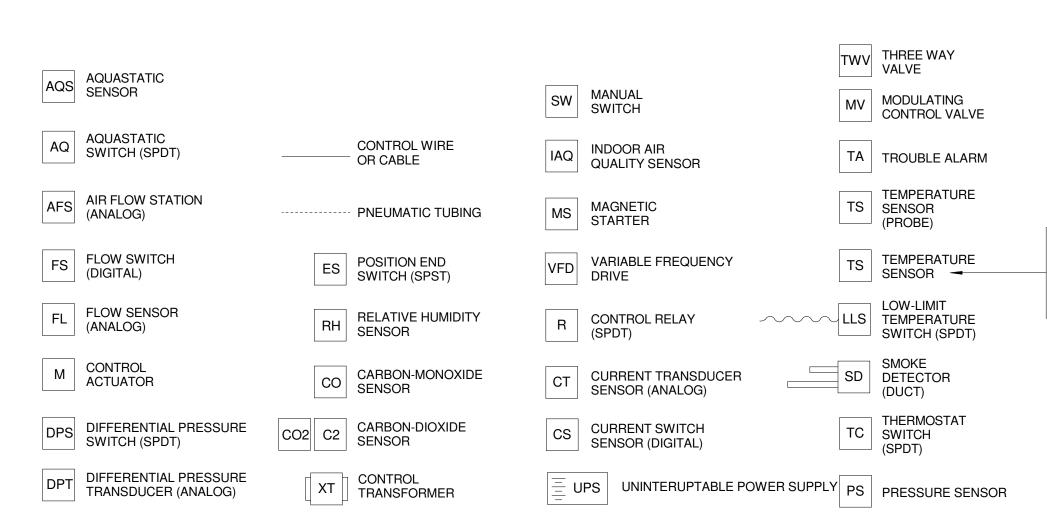
BMS WEB-BASED GRAPHIC USER INTERFACE NOT TO SCALE



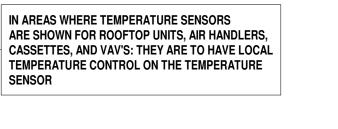
REFRIGERATION CONDENSING UNIT

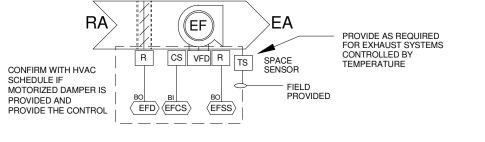


REFRIGERATION POSSIBLY DDC CONTROLLED NOT TO SCALE

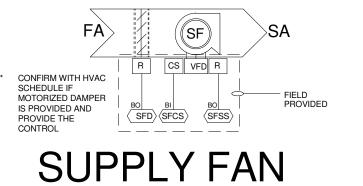


BMS DEVICE LEGEND

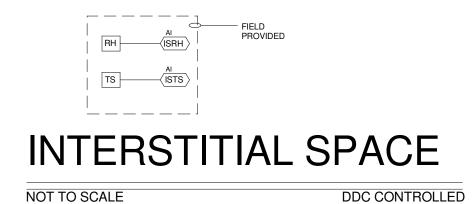


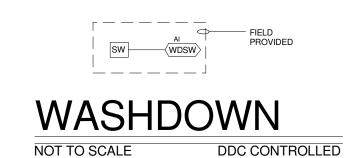


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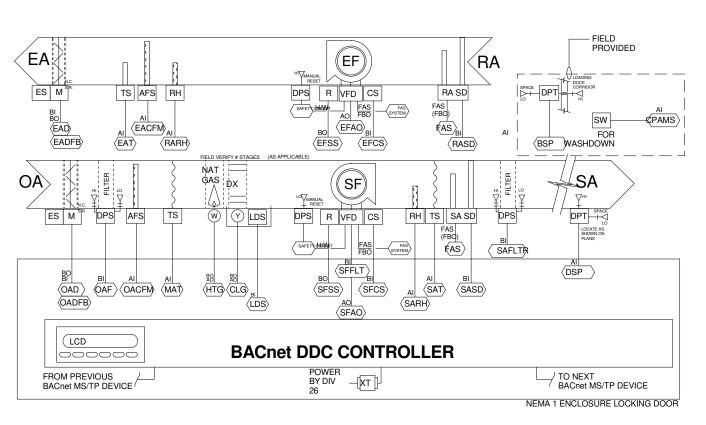


DDC CONTROLLED

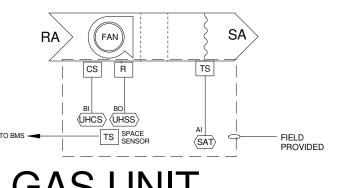




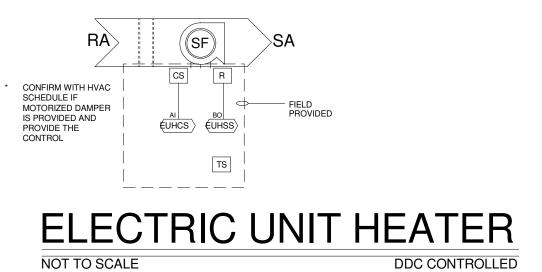
NOT TO SCALE CONTROL DEVICE SYMBOLS

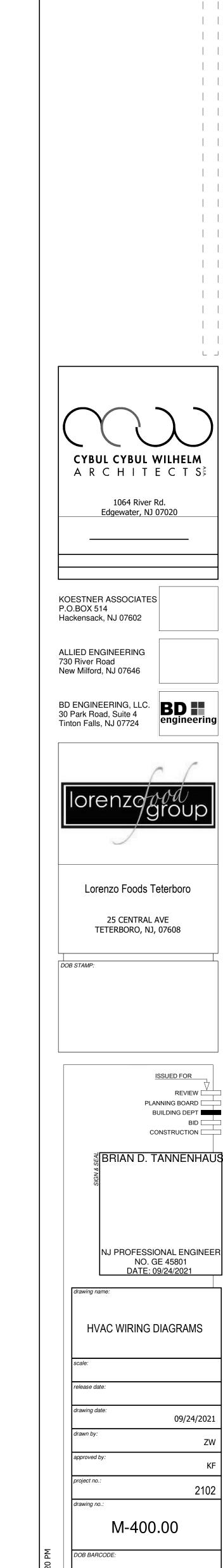


CRITICAL PROCESS AIR UNIT(CAU) MAKE UP AIR - NG HEAT -DX COOLING





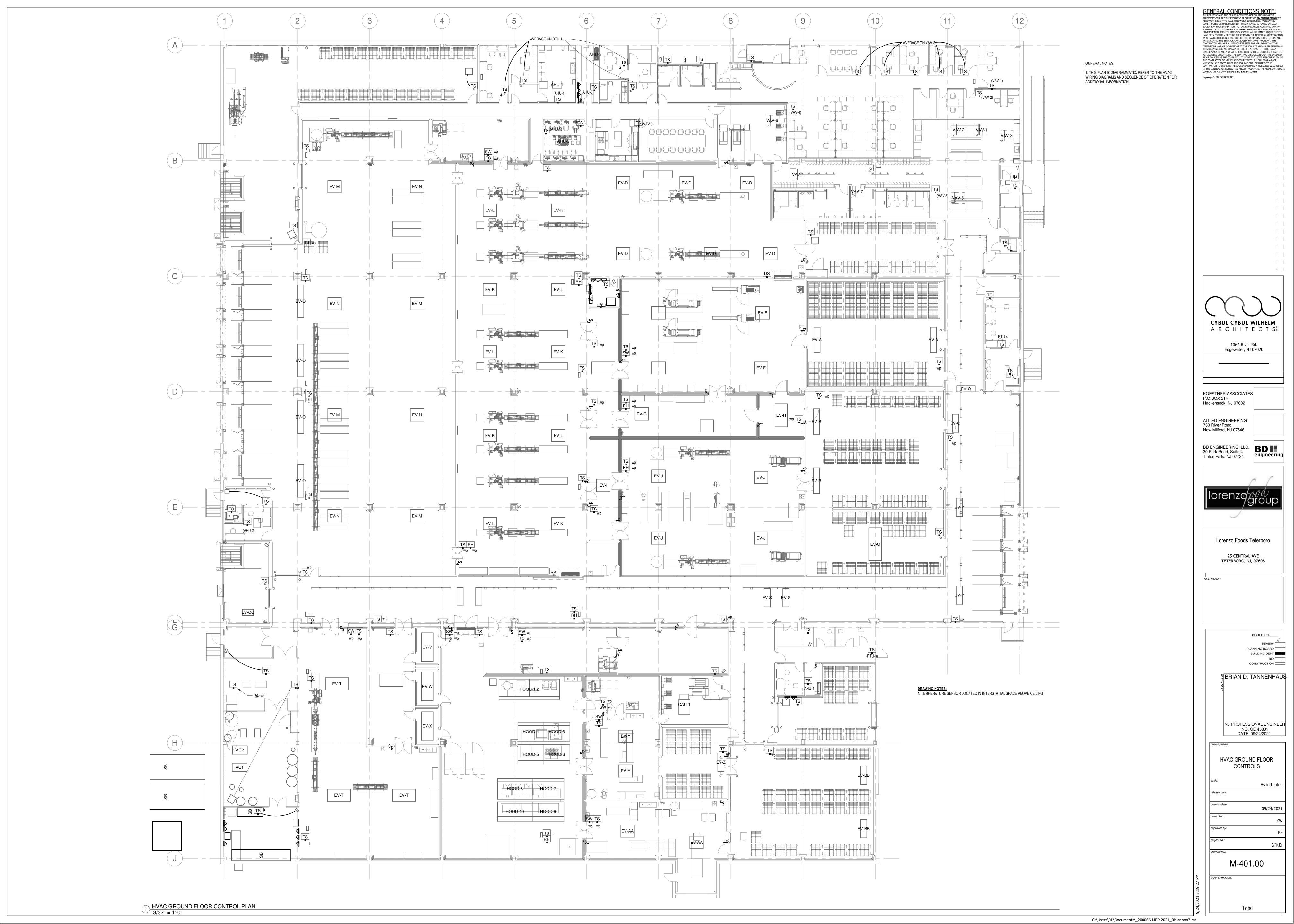


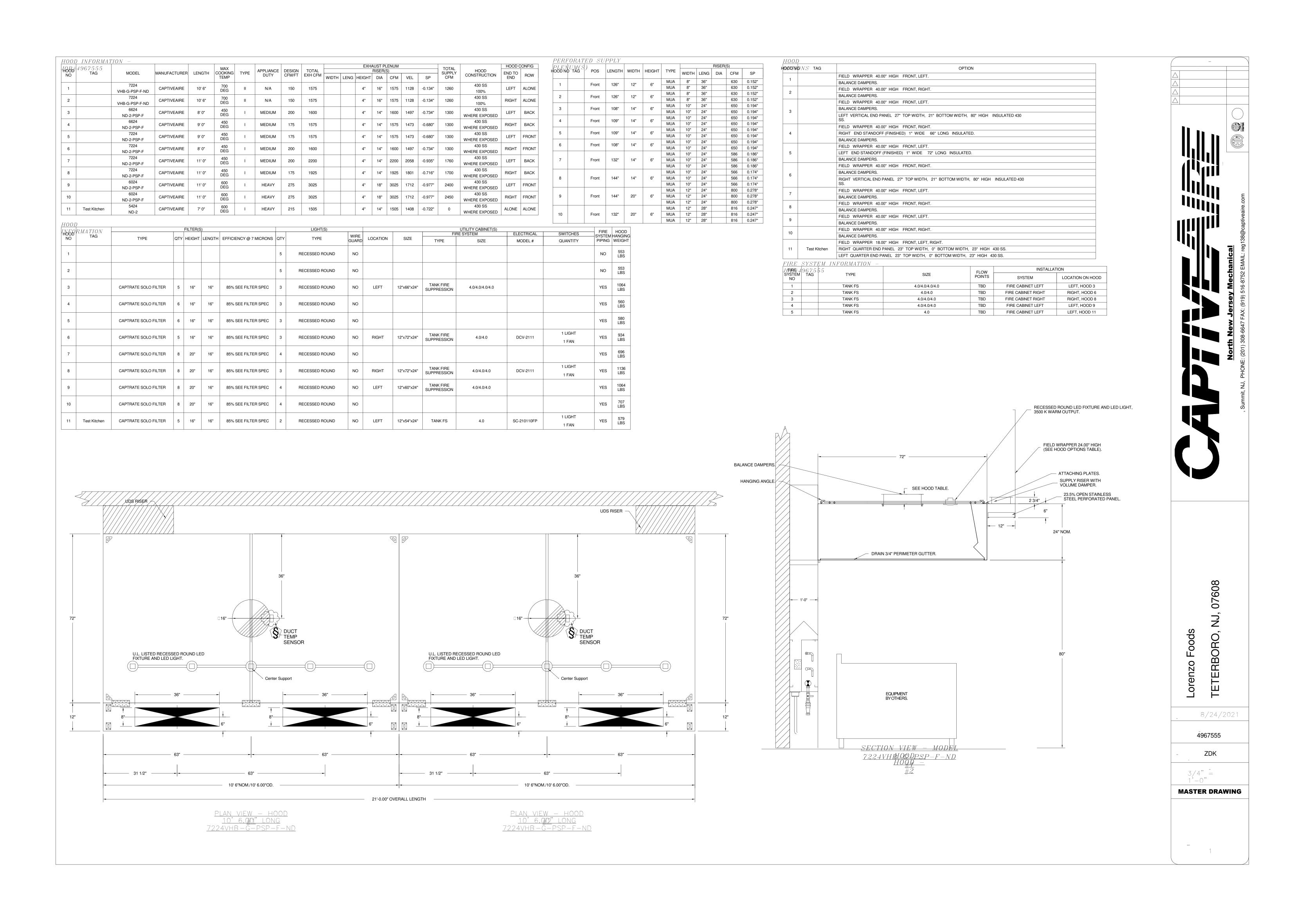


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IN THE CONTRACTOR CORRECTING AND/OR MODIFYING THE AREAS OR ITEMS IN CONFLICT AT HIS OWN EXPENSE. **NO EXCEPTIONS!!**

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Tinton Falls, NJ 07724

Engineering

Lorenzo Foods Teterboro

PLANNING BOARD BUILDING DEPT BID CONSTRUCTION BRIAN D. TANNENHAUS

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

25 CENTRAL AVE TETERBORO, NJ, 07608

drawing name:

HVAC CAPTIVE AIRE DETAILS

scale:

As indicated

release date:

drawing date:

09/24/2021

zwn by:

ZW

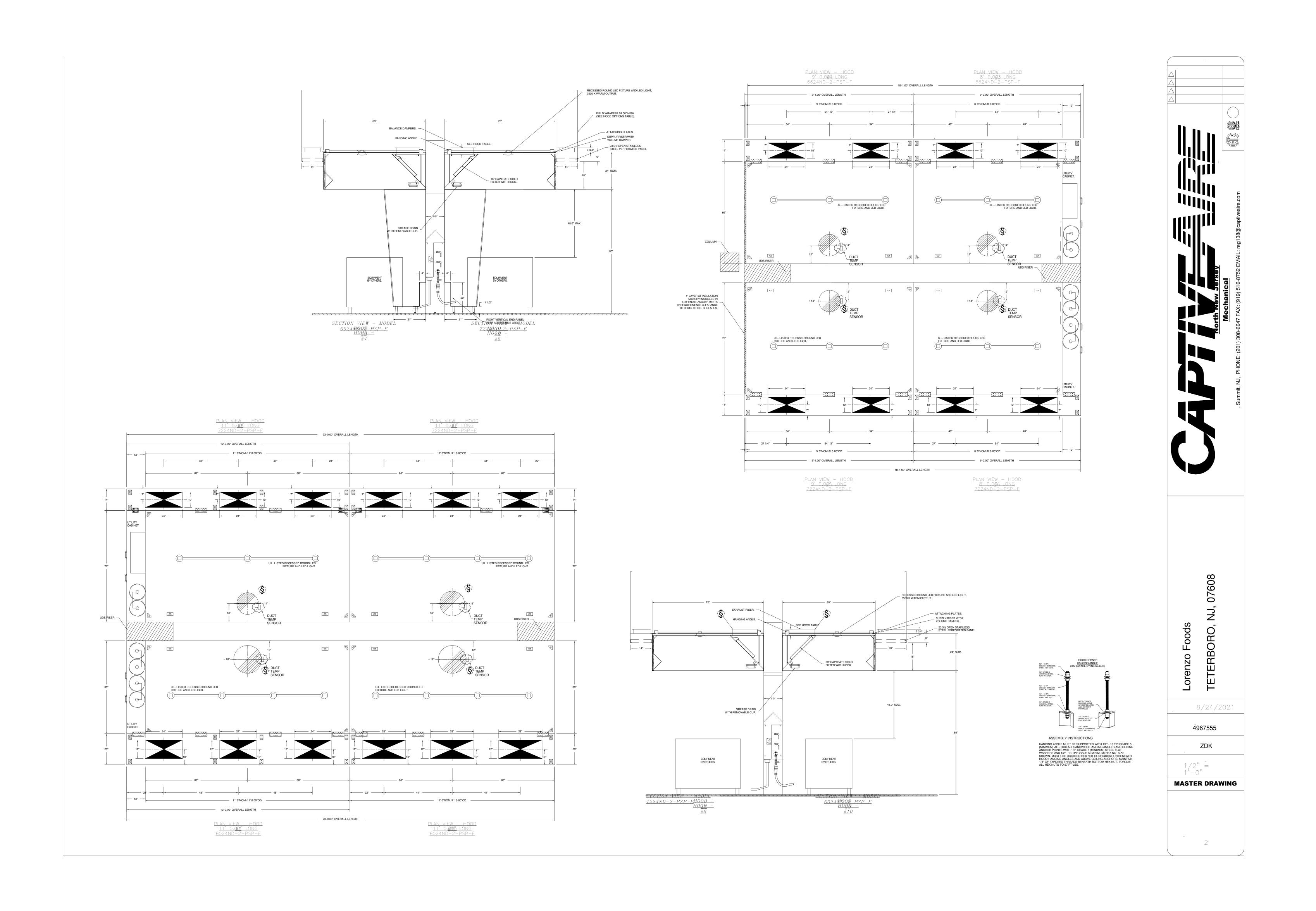
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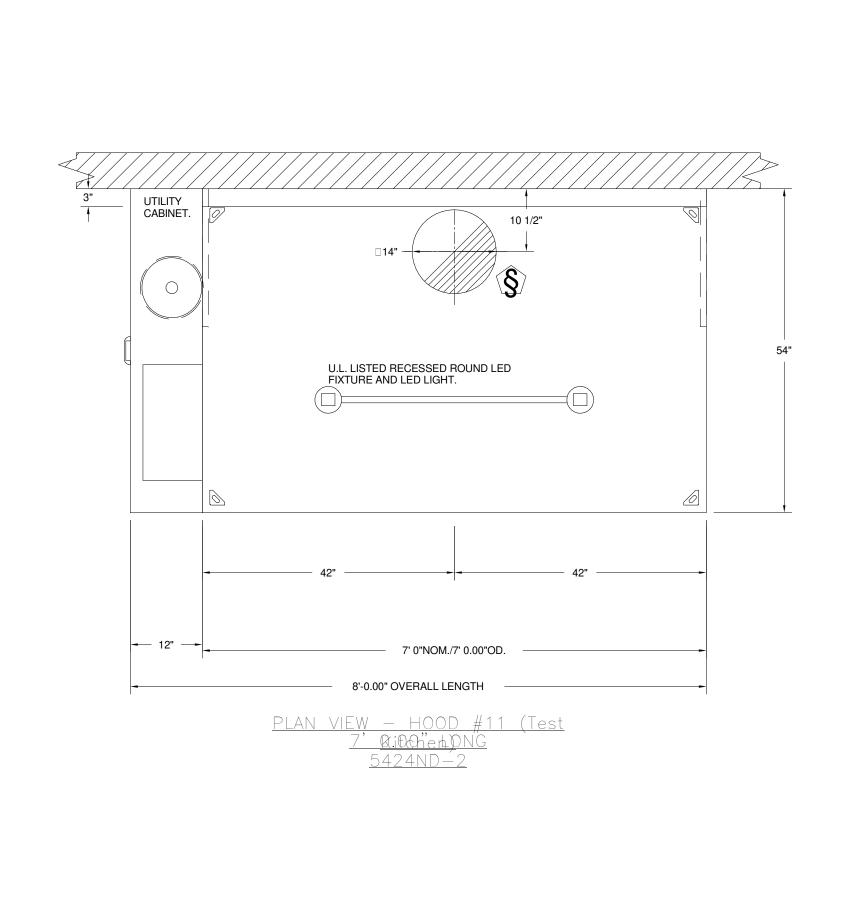
REVIEW ___ PLANNING BOARD BUILDING DEPT BID ____ CONSTRUCTION ____ ্লু BRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021

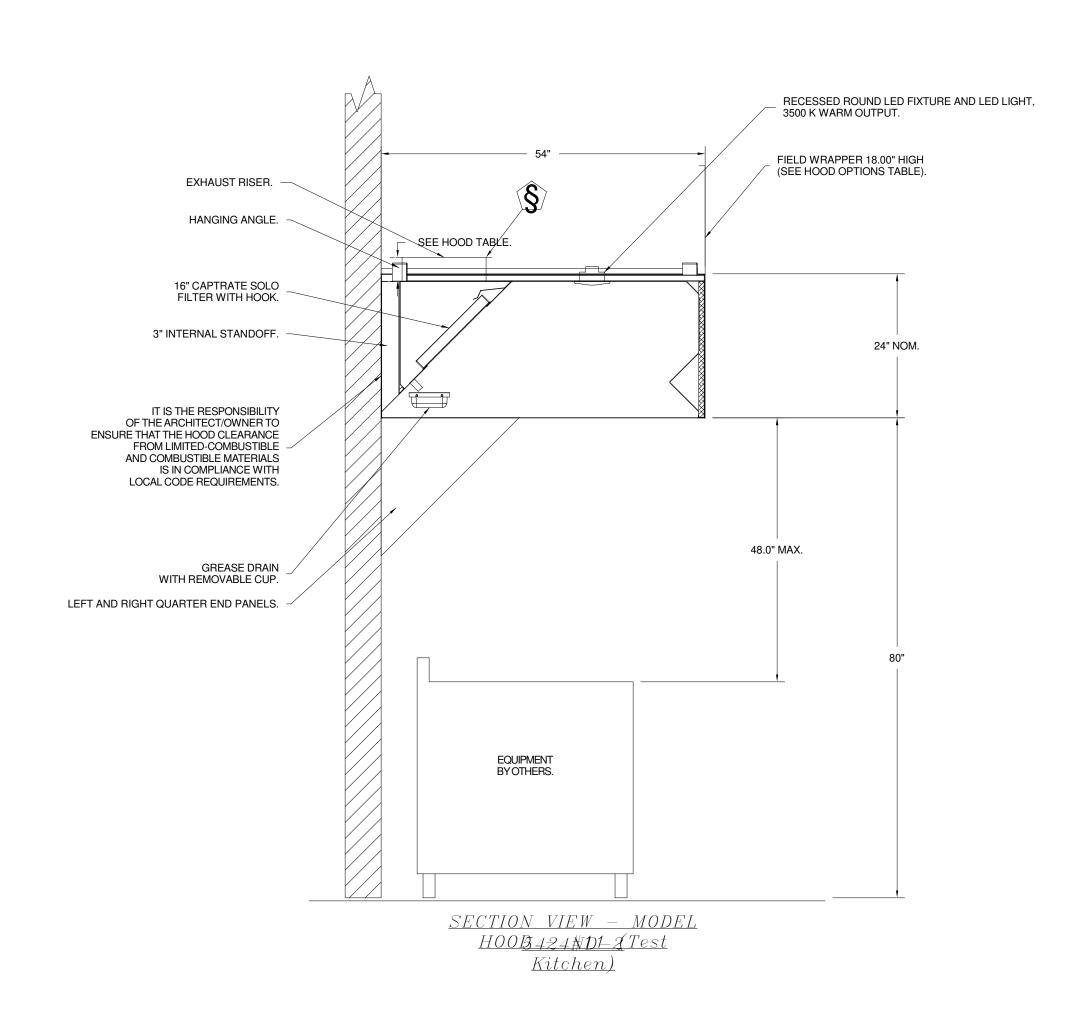
HVAC CAPTIVE AIRE DETAILS

As indicated 09/24/2021

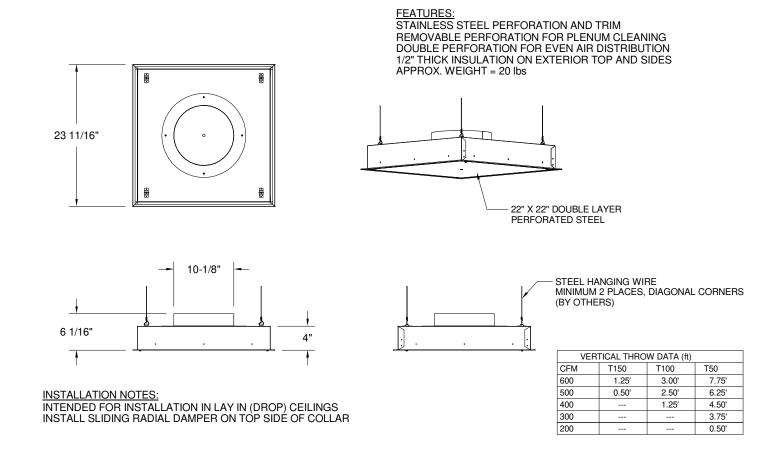
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Total





QTY 3-DROP-IN PERFORATED SUPPLY PLENUM DIFFUSER (DI-PSP)



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07608 S, Lorenzo Foods TETERBORO,

8/24/2021 4967555 ZDK

MASTER DRAWING

09/24/2021

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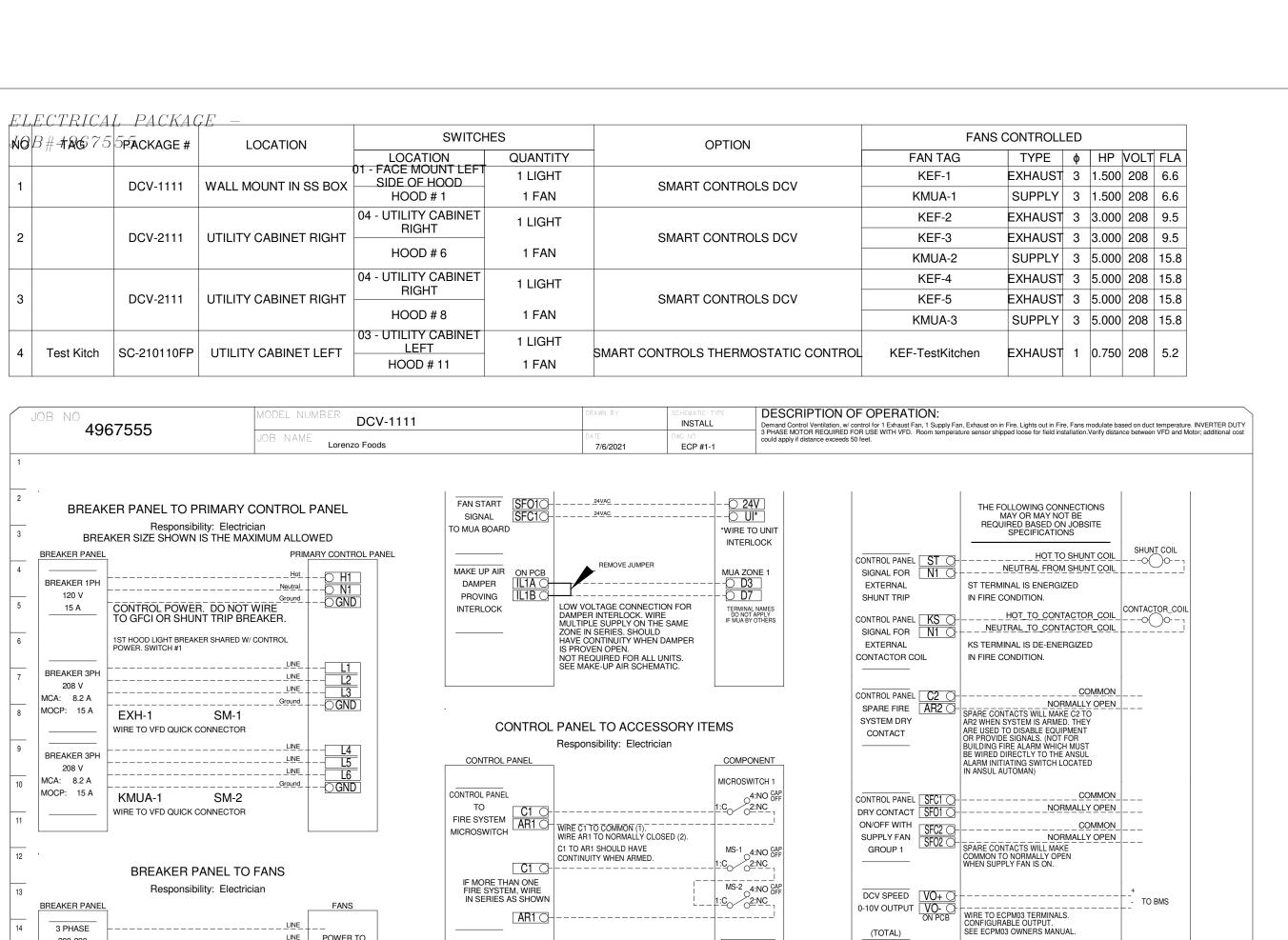
្តីBRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021

HVAC CAPTIVE AIRE DETAILS

As indicated

M-502.00

Total



BREAKER PANE AR1 C 3 PHASE 208-230 WIRE DIRECTLY TO CONTROL BOARD CAT-5 CONNECTION 30 Amps PLACE END OF LINE PLUG IN EMPTY JACK. PN: EOL120A MOUNTED EOL120A [2 SWITCHES CONTROL PANEL TO FANS WIRE TO J-BOX ON TOP OF HOOD 1400 W MAX Load Wiring SM-1 WIRE TO TO TIB O WIRE TO CONTROL BOARD. INSTALL LOAD LEG 3 ____GROUND ____ VFD QUICK GND O KITCHEN TEMP SENSOR IN ROOM AWAY FROM HEAT CONNECTOR SOURCES. DO NOT INSTALL SENSOR MUST HAVE ITS OWN CONDUIT ON THE CEILING GRID, SEE MANUAL. TO T2B WIRE TO CONTROL BOARD. ___LOAD_LEG2 _____ BLACK VOLT: 208 V DUCT SENSOR SENSOR MOUNTED IN EXHAUST DUCT LOADLEG3 BLACK OO W2 LOAD LEG3 BLACK OO HI OO NED OO CONTROL PANEL T3A O TO T3B O WIRE TO CONTROL BOARD. HOOD 2
RISER 1 VFD QUICK CONNECTOR N1 - 120V NEUTRAL WHITE N1
GND - GROUND GREEN MUST HAVE ITS OWN CONDUIT DO NOT SHARE CONDUIT! 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.

VFD ANALOG 30

IN VFD WIRE TO VFD TERMINAL STRIP.
PROPORTIONAL TO FREQUENCY.
SEE VFD OWNERS MANUAL.

SIGNAL SWITCH THROUGH BMS
WILL ACTIVATE ZONE1 FANS AND
LIGHTS

0-10V OUTPUT

EXTERNAL

TO BMS

BMS SWITCH

POWER TO ELECTRIC APPLIANCE MANUAL ACTUATION DEVICE(S) MANUAL ACTUATION DEVICE COVER REMOTE FIRESTAT SENSOR(S) FIRE ALARM CONTACT CORE INTERLOCK(S) TROUBLE CONTACT CORE COMMUNICATIONS CABLE E ALARM CONTACT
WIRES WIRED TO NORMALLY
PEN CONTACTS (CLOSES IN
IRE CONDITION)
-CANDAID ALA
AND ALA
-CANDAID ALA
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-CANDAID ALA
-CANDAID ALA ROOM THERMISTOR

SENSOR MOUNTED IN ROOM AWAY FROM HEAT SOURCES. SEE MANUAL <u>Cabinel</u> MAX AIR LIGHTS FANS

FS-2: MASTER N/A

N/A

N/A

MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED

WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23

WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23

HIGH TEMP (842°F) #CW04427 (WHT) & #CW04427 B (BLK)WIRE OR SIMILAR ONLY IF RAN OVER TOP

OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1

FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE

CORE ELECTRICAL CONTROL PANEL N/A BLACK AND WHITE AL1, AL2 ILA, ILB, ILC ILA, ILB, ILC TBC, TBL, TOK WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION CORE INTERLOCK
2 WIRES + SHIELD
USE BELDEN#88760 OR SIMILAR WIRE
SEE FIGURE 3 EXHAUST HOOD MANUAL ACTUATION DEVICE WIRES

-4 WIRES, 24VDC WIRE (TERMINAL 1)
BETWEEN 102 AND 103

-WIRE (TERMINAL 2) BETWEEN 101 AND 104
-ADDITIONAL PULL STATIONS WIRED IN
SUPERVISED 1 OOP EN #6320UL OR SIMILAR WIRE MANUAL ACTUATION DEVICE
PART #STI-SS2431
PROTECTIVE COVER MUST BE INSTALLED LEVEL TO CENTER OF PUSH 0 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 8/24/202

TANK PROTECTION ELECTRICAL DETAIL 02/10/2021 Rev. 2 LEGINICIAN:
WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
WIRE ALL FANS PER INCLUDED SCHEMATIC
VIRE SHUNT TRIP BREAKER (OPTIONAL)
"IRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
RE GAS VALVE FS-2: MASTER ELECTRICAL CONTRACTOR REQUIREMENT CONNECTION IN PANEL CONNECTION IN DEVICE VOLTAGE ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL SHUNT TRIP BREAKER (OPTIONAL) ST & N1 120 VAC < 4 AMPS CONTROL PANEL POWER H1 & N1 + GROUND CIRCUIT BREAKER 120 VAC CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER UDS APPLIANCE KILL SWITCH (OPTIONAL) KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL) 120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL AU1, AU2 SOLENOID 120 VAC < 6 AMPS RED/RED/GREEN < 1.0 AMPS F-----SHUNT TRIP BREAKER (OPTIONAL)
-2 WIRES, 120VAC
-ST TO A1 ON SHUNT BREAKER
-NEUTRAL TO A2 ON SHUNT TRIP EXHAUST HOOD ELECTRIC NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS DESCRIPTION OF OPERATION: INSTALL Fire System #2 TANK Fire Suppression - 4.0/4.0. Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel. Lorenzo Foods ECP #2-4 02/10/2021 Rev. 2 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

> 4967555 ZDK 3/4" = **MASTER DRAWING**

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

L __

P.O.BOX 514 Hackensack, NJ 07602 ALLIED ENGINEERING 730 River Road New Milford, NJ 07646

KOESTNER ASSOCIATES

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



25 CENTRAL AVE TETERBORO, NJ, 07608

PLANNING BOARD ន្ធ BRIAN D. TANNENHAU

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

HVAC CAPTIVE AIRE DETAILS As indicated 09/24/2021

M-503.00

Total

EXH.	AUST FAN IN	VFORM.	TATION –													
J FAN UNIT NO	49675 <u>5</u> 5 TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	ВНР	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	N 1	DU85HFA	CAPTIVEAIRE	1505	1.000	1275	TEAO-ECM	0.750	0.3760	1	208	5.2	476 FPM	88	11.2

\overline{A}	FAN	INFO.	RMATION	_
N #	1967	55		

$M \cup A$	I' AIV	INTOINMATION																
JFAA UNIT NO	49675 TAG	555 QTY FAN UNIT MODEL#	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	ВНР	PHASE	VOLT	FLA	MCA	МОСР	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

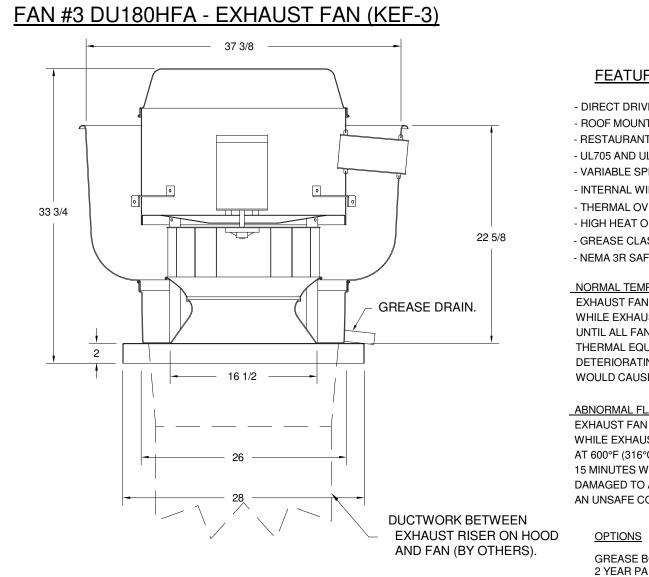
GAS FIRED MAKE-UP AIR

UFANT UNIT NO	(S)	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	
'		<u> </u>	<u> </u>					
AN FANT	ONS _T							
UNIT NO	ATA D	AG	QTY			DESCRIPTION		
1	V.	 EF-1	1 1	2 YEAR PARTS W	ADDANITY			
1	N	<u> 1</u>		GREASE BOX.	ANNAINI T.			
2	KE	F-2		2 YEAR PARTS W	ARRANTY			
				GREASE BOX.	ALLI DALVI I .			
3	KE	F-3		2 YEAR PARTS WA	ARRANTY			
			- '	GREASE BOX.				
4	K	F-4		2 YEAR PARTS WA	ARRANTY.			
				GREASE BOX.				
5	KE	F-5	1	2 YEAR PARTS W	ARRANTY.			
			1	INLET PRESSURE	GAUGE, 0-35".			
					SURE GAUGE, -5 TO 15" WC.			
					(DRAFT DAMPER FOR A2-D HOUSING	G. MEETS AMCA CLA	ASS 1A RATING.	
					TORING FOR MUA UNITS.	2 :3. ; 32		
				CURB DUCT HANG				
6	KM	UA-1		SEPARATE 120V V	VIRING PACKAGE (REQUIRED AND US	SED ONLY FOR DCV	OR PREWIRE WI	TH
				VFD) - THREE PHA ONLY.	SE			
			1	SIZE 2 DIRECT FIF	RED HEATER LOW CFM PROFILE PAC	KAGE. USED ON HE	EATERS UNDER 25	500
				CFM.				
					AS PRESSURE REGULATOR.			
				2 YEAR PARTS W				
				INLET PRESSURE	,			
			1	MANIFOLD PRESS	SURE GAUGE, -5 TO 15" WC.			
			1	MOTORIZED BACK	CDRAFT DAMPER FOR A3-D HOUSING	B. MEETS AMCA CLA	SS 1A RATING.	
			1	TOTAL CFM MONI	TORING FOR MUA UNITS.			
7	KM	UA-2		CURB DUCT HANG	GER. VIRING PACKAGE (REQUIRED AND US	SED ONLY FOR DOV	OR PREWIRE WII	TU
				VFD) - THREE PHA		SED ONET TOTEDOV	OR THEWHIL WI	111
				ONLY.	AS PRESSURE REGULATOR.			
				2 YEAR PARTS W				
					SURE GAUGE, -5 TO 15" WC.			
					ORE GAUGE, -5 TO 15 W.C. (DRAFT DAMPER FOR A4-D HOUSING	MEETS AMOA OLA	ISS 1A DATING	
					TORING FOR MUA UNITS.	A. IVIEE IS AIVICA GLA	NOO TA NATING.	
				CURB DUCT HANG				
8	KM	UA-3			JEK. VIRING PACKAGE (REQUIRED AND US	SED ONLY FOR DCV	OR PREWIRE WI	TH
			1	VFD) - THREE PHA ONLY.				
				<u>ONLY.</u> INLET PRESSURE	GAUGE, 0-15#.			
				2 YEAR PARTS WA				
				INLET PRESSURE				
					SURE GAUGE, -5 TO 15" WC.			
					(DRAFT DAMPER FOR A3-D HOUSING	G. MEETS AMCA CLA	ASS 1A RATING.	
					TORING FOR MUA UNITS.			
					OKE DETECTOR/ALARM INTERLOCK	(SUPPLIED BY OTH	ERS).	
9	KM	UA-K		CURB DUCT HANG		(- 2: : =:== 2 : 0 : : : :	·-,-	
					MANUAL/DDC CONTROL (571 VFD IN	CLUDED).		
					OUNTED AND WIRED IN COMMERCIAL	·	ILE FOR TEMPER	ED SUPPLY
				FAN.	STATE OF THE PROPERTY OF THE P	SOME VEOLIDO		
			1	1", 10 PSI HIGH GA	AS PRESSURE REGULATOR.			
			1	2 YEAR PARTS WA	ARRANTY.			
			1	GREASE BOX.				
10	KEF-TES	TKITCHEN	1	ECM WIRING PAC	KAGE - PWM SIGNAL FROM ECPMO3	PREWIRE (TELCO N	MOTOR), CCW RO	TATION.
			1	2 YEAR PARTS W	ADD ANTV	· · · · · · · · · · · · · · · · · · ·		

CUR	B				
ASS	EMMBL FAN	IES 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.

FAN #1 DU180HFA - EXHAUST FAN (KEF-1) FAN #2 DU180HFA - EXHAUST FAN (KEF-2)



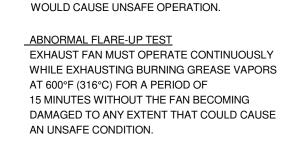
FAN #4 (KEF-4) - DU240HFA EXHAUST FAN

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



GREASE BOX. 2 YEAR PARTS WARRANTY.

FEATURES:

- ROOF MOUNTED FANS. - RESTAURANT MODEL.

- INTERNAL WIRING.

30 5/8

- GREASE DRAIN.

- UL705 AND UL762 AND ULC-S645 - VARIABLE SPEED CONTROL.

- HIGH HEAT OPERATION 300°F (149°C).

- NEMA 3R SAFETY DISCONNECT SWITCH.

WHILE EXHAUSTING AIR AT 300°F (149°C)

THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH

EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS

DAMAGED TO ANY EXTENT THAT COULD CAUSE

UNTIL ALL FAN PARTS HAVE REACHED

WOULD CAUSE UNSAFE OPERATION.

AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING

2 YEAR PARTS WARRANTY.

EXHAUST FAN MUST OPERATE CONTINUOUSLY

- GREASE CLASSIFICATION TESTING.

NORMAL TEMPERATURE TEST

ABNORMAL FLARE-UP TEST

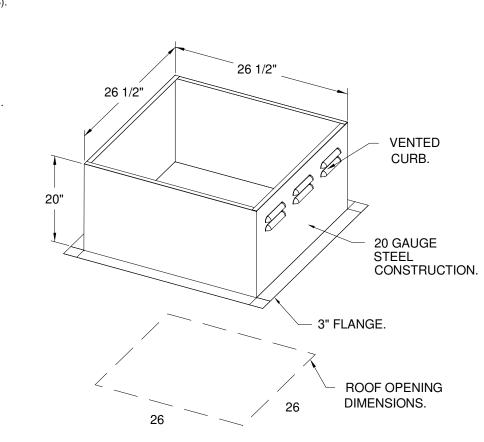
AN UNSAFE CONDITION.

GREASE BOX.

<u>OPTIONS</u>

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).

- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).



31 1/2"

STEEL CONSTRUCTION.

VENTED CURB.

20 GAUGE STEEL CONSTRUCTION.

 ROOF OPENING DIMENSIONS.

07

ETERBORO,

8/24/2021

4967555

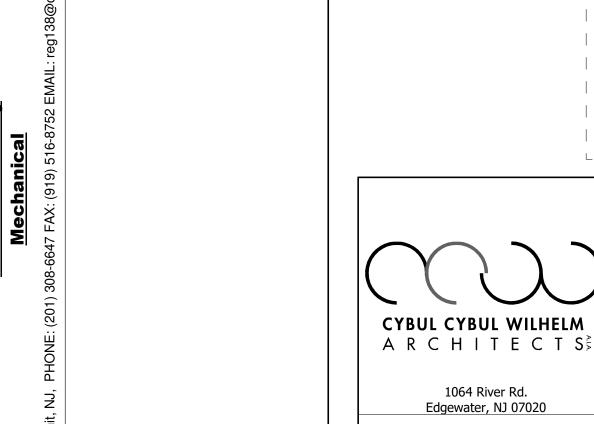
ZDK

MASTER DRAWING

3/4" = 1'-0"

120

- 3" FLANGE.



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 30 Park Road, Suite 4 Tinton Falls, NJ 07724

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Lorenzo Foods Teterboro 25 CENTRAL AVE TETERBORO, NJ, 07608

DOB STAMP:

REVIEW ___ PLANNING BOARD BUILDING DEPT BID ____ CONSTRUCTION ____ ផ្លី BRIAN D. TANNENHAUS

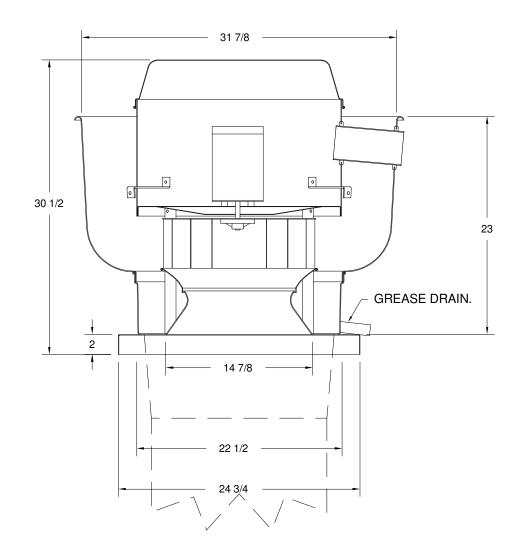
NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021

HVAC CAPTIVE AIRE DETAILS

M-504.00

23 7/8

FAN #10 DU85HFA - EXHAUST FAN (KEF-TESTKITCHEN)



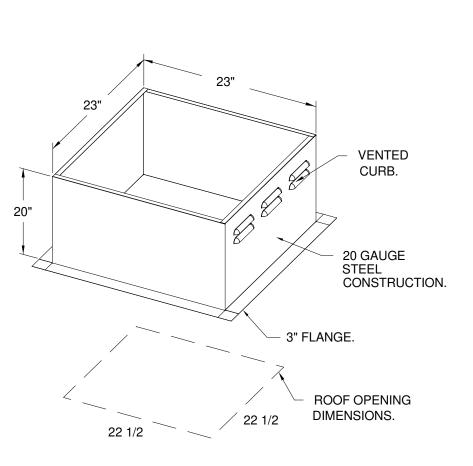
FEATURES: - DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS). - ROOF MOUNTED FANS.

- 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.

> <u>OPTIONS</u> GREASE BOX. ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION. 2 YEAR PARTS WARRANTY.

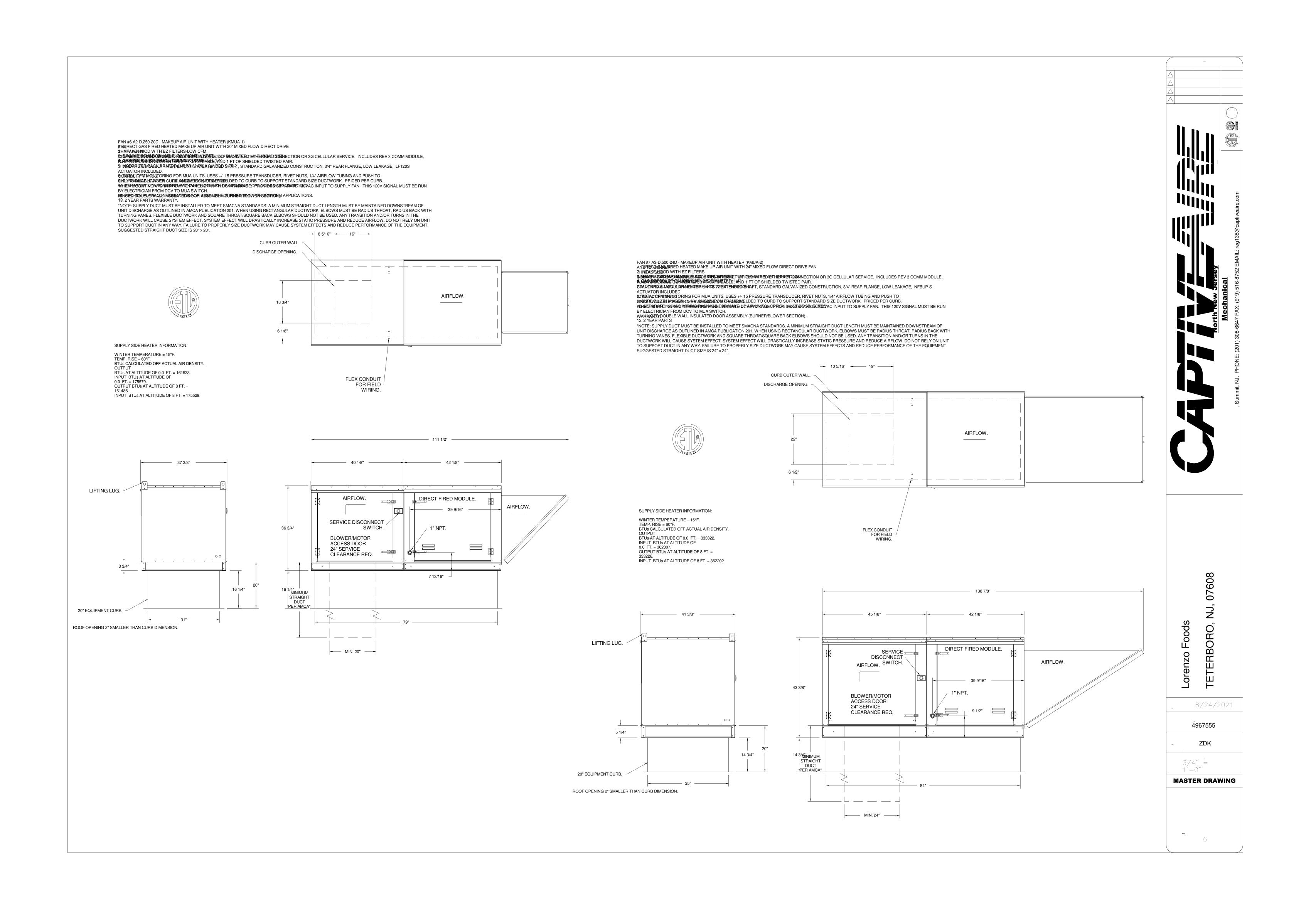


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Total

As indicated

09/24/2021



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Lorenzo Foods Teterboro

25 CENTRAL AVE TETERBORO, NJ, 07608

REVIEW 🗀 PLANNING BOARD BUILDING DEPT

BID 🗀 CONSTRUCTION ____ ផ្លី BRIAN D. TANNENHAUS

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

HVAC CAPTIVE AIRE DETAILS

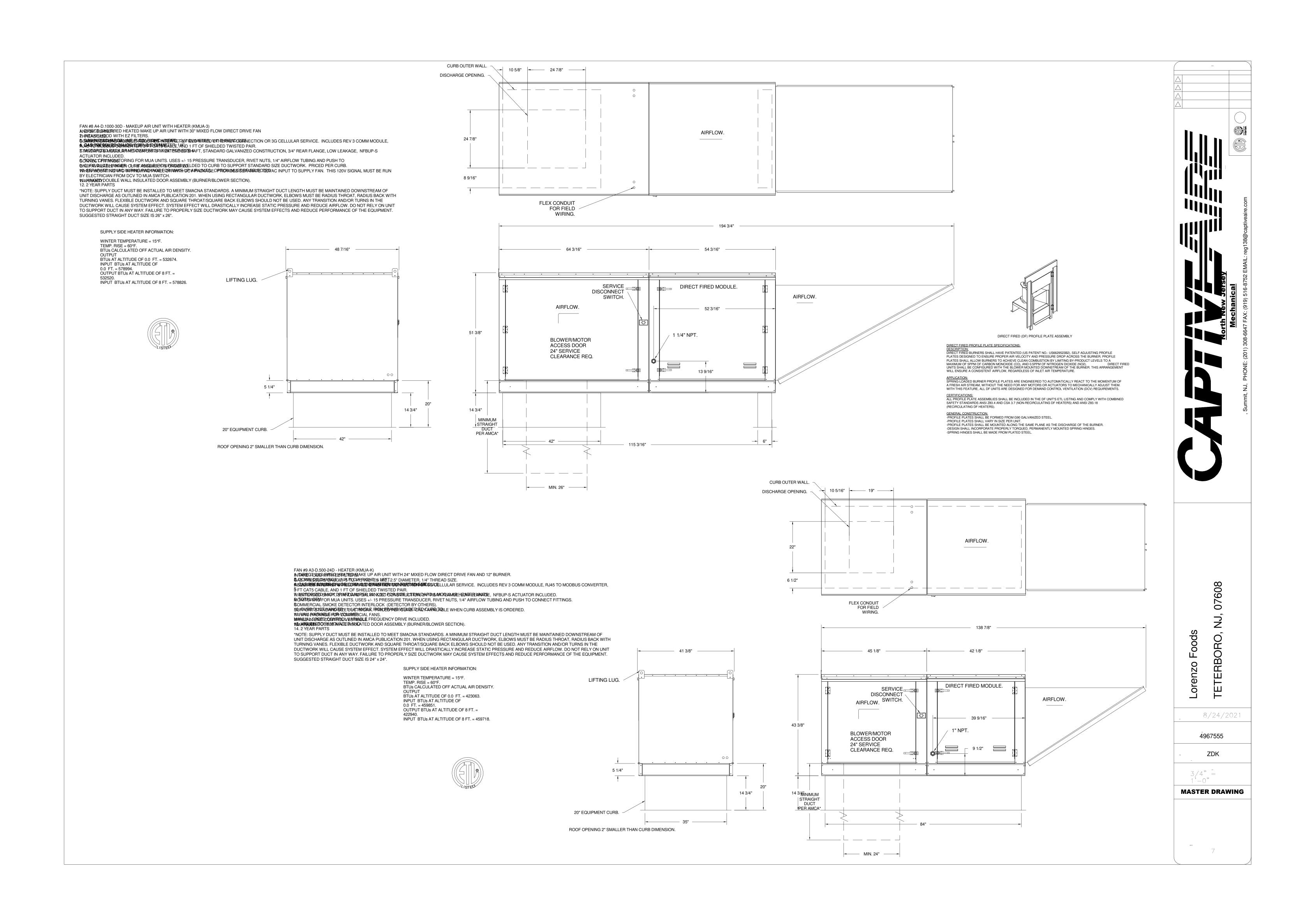
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ដ្ឋBRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER

> NO. GE 45801 DATE: 09/24/2021

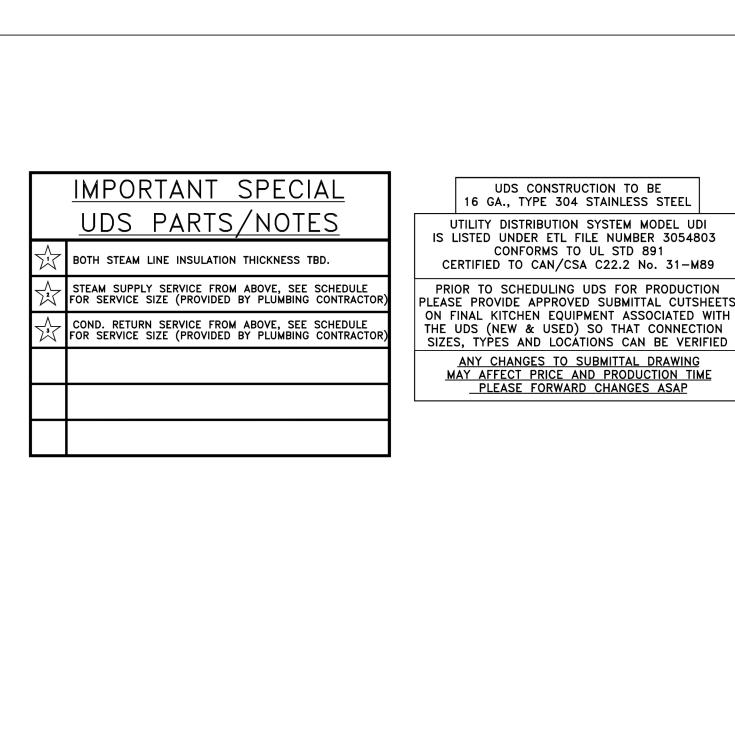
HVAC CAPTIVE AIRE DETAILS

As indicated

09/24/2021

M-506.00

Total



ITEM #103 80 GAL. KETTLE

99999 8

1′-0′-

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	

---NOTE----

TIEM #177
40 GAL KETTLE

WALL VIEW — WALL UDS — UDW

ELEVATION - WALL UDS - UDW

ELECTRICAL FIELD JOINT

1-1/4" GAS SPARE ---

NEC REQUIRES 36"

OF FIELD CLEARANCE

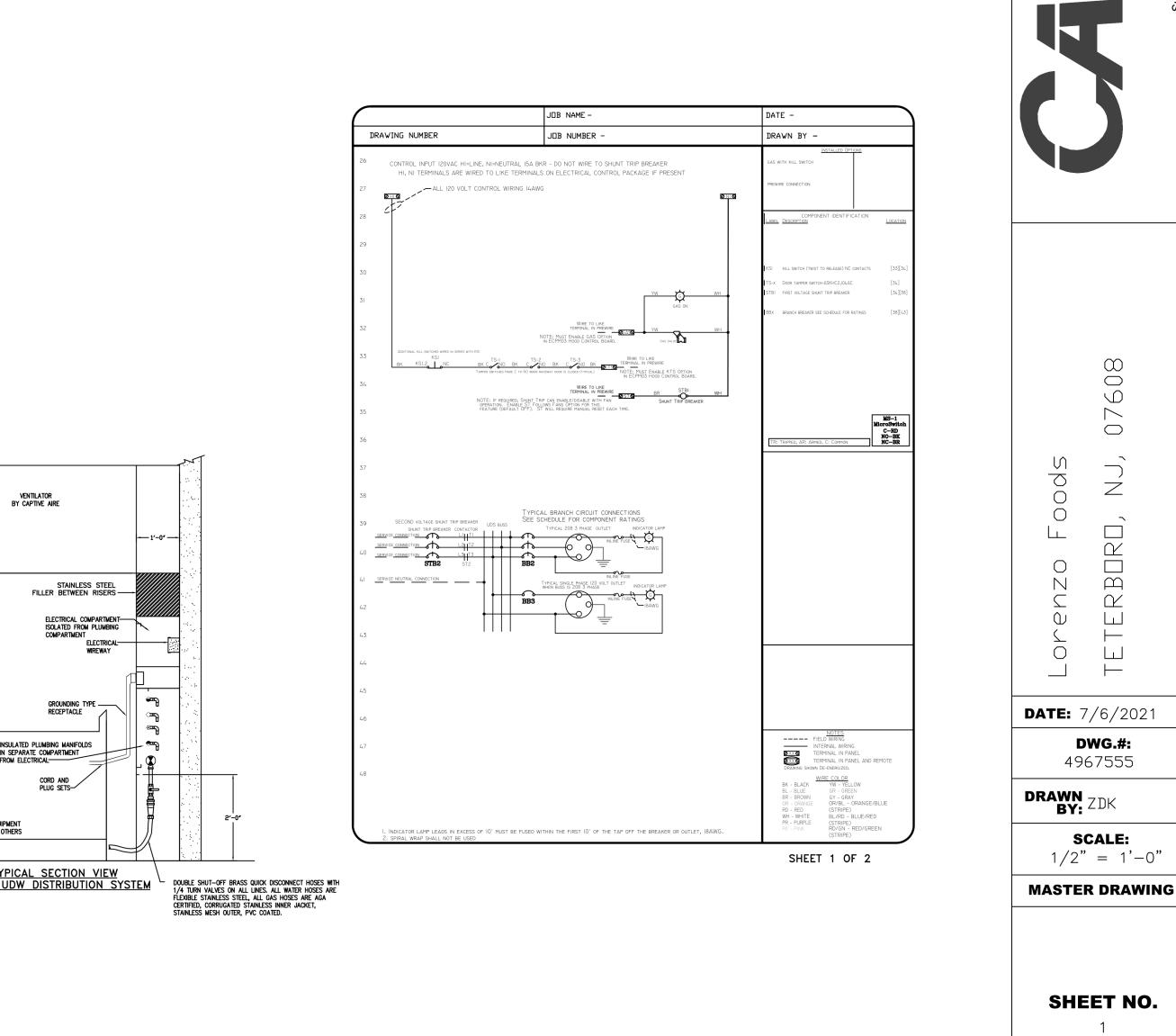
IN FRONT OF CIRCUIT

BREAKERS FOR ACCESS

SCHEDULE	STANDARD FLAG NOTES
ER	ELECTRICAL SERVICE FROM ABOVE, S
R	BY ELECTICAL CONTRACTOR.
WATER	2 120V/1PH/15A DEDICATED ELECTRICAL FOR FUEL/SHUNT CONTROL, (PROVIDE
GAS	3 > 3-WIRE ELECTRICAL CIRCUIT FROM H
	UDS LIKE TERMINALS 'GAS, ST & KTS
1 PHASE	BY ELECTRICAL CONTRACTOR), SEE SO
1 PHASE	GAS SERVICE FROM ABOVE, SEE SCH CONTRACTOR)
3 PHASE	5 COLD WATER SERVICE FROM ABOVE,
3 PHASE	
PPLY	6 HOT WATER SERVICE FROM ABOVE, S CONTRACTOR)
ndensate return	7 SERVICE MAIN BREAKER W/SHUNT TR
	STATUS INDICATED LIGHTS

					UTILI	ΓΥ	DIS	ΓRΙ	BU	TIO	N SY	STEM	EQUI	PM	ENT	S	CHE	EDL	JLE			
STANDARD FLAG NOTES			EC	QUIPMENT			EL	ECTRIC	AL		CIRCUIT	BREAKER	RECEPTACLE	G,	AS	WAT	ER		STEAM		CONNECTION	1
ELECTRICAL SERVICE FROM ABOVE, SEE SCHEDULE FOR DETAILS. PROVIDED BY ELECTICAL CONTRACTOR.	CONN.#	ITEM 103		MANUFACTURER	MODEL#	KW.	AMPS	НР	VOLT	PH	AMPS	POLES	PART#	SIZE	MBH H	ют с	-	UPPLY 3/4"	COLD RETURN	LBS/HR	TYPE QUICK DISCONNECT	LENGTH 5'
2 120V/1PH/15A DEDICATED ELECTRICAL CIRCUIT INTO UDS TERMINALS "H1, N1" FOR FUEL/SHUNT CONTROL. (PROVIDED BY ELECTRICAL CONTRACTOR) SEE SCHEMATIC BELOW.	1R	103	80 GAL. KETTLE		DL-80	-	-	-	-	-	-	-	-	-	-	-	-	-	3/4"		QUICK DISCONNECT	5'
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	1C	103	80 GAL. KETTLE		DL-80	-	-	-	-	-	-	-	-	-	-	- 1	./2"	-	-	-	QUICK DISCONNECT	5'
BY ELECTRICAL CONTRACTOR), SEE SCHEMATIC BELOW.	1H	103	80 GAL. KETTLE	GROEN	DL-80	-	-	-	-	-	-	-	-	-	- 1	./2"	-	-	-	-	QUICK DISCONNECT	5'
GAS SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE AND STYLE (PROVIDED BY PLUMBING CONTRACTOR)	2E	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	-
5 COLD WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)	2G	177	40 GAL. KETTLE		KGL-40-T	-	-	-	-	-	-	-	-	3/4"	140	-	-	-	-	-	QUICK DISCONNECT	5'
6 HOT WATER SERVICE FROM ABOVE, SEE SCHEDULE FOR SERVICE SIZE (PROVIDED BY PLUMBING CONTRACTOR)	2C	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	-	- 1	./2"	-	-	-	QUICK DISCONNECT	5'
SERVICE MAIN BREAKER W/SHUNT TRIP AND RESET HANDLE, SEE SCHEDULE FOR DETAILS.	2H	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	-	- 1	./2"	-	-	-	-	QUICK DISCONNECT	5'
8 STATUS INDICATOR LIGHTS.	3E	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	1.2	10.0	-	120	1	20	1	DR20	-	-	-	-	-	-	-	SUPPLIED	- /
9 EMERGENCY KILL SWITCH.	3G	177		CLEVELAND	KGL-40-T	-	-	-	-	-	-	-	-	3/4"	140	-	-	-	-	-	QUICK DISCONNECT	5' -
10 DCD RECEPTACLE W/ BREAKER & WEATHERPROOF COVER.	3C	177				+-	_	 _	_	1.		_	_	<u> </u>	_	_ 1	./2"	_	_		QUICK DISCONNECT	5' .
11 ELECTRICAL LOAD CENTER WITH INDIVIDUAL CIRCUIT BREAKERS.	-		40 GAL. KETTLE	CLEVELAND	KGL-40-T											-	., 2		_		<u> </u>	
12 ELECTRICAL WIRING TO APPLIANCES. 13 ELECTRICAL CONNECTION W/WEATHERPROOF COVER AS SPECIFIED ON THE	3H	177	40 GAL. KETTLE	CLEVELAND	KGL-40-T	<u> </u>	-	<u> </u>	-	-	-	-	-	-	- 1	./2"	-	-	-		QUICK DISCONNECT	5'
EQUIPMENT SCHEDULE, SEE THIS SHEET. 14 > PLUMBING CONNECTION AS SPECIFIED ON THE EQUIPMENT SCHEDULE, SEE THIS SHEET.	4E	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	1.5	4.2	-	208	3	15	3	L15-20R	-	-	-	-	-	-	-	CORD & PLUG	6'
15 MANUAL SHUT OFF VALVE.	45	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	-		QUICK DISCONNECT	5'
16 120V ELECTRICAL GAS VALVE.	4S1	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	3/4"	^_^_	-	QUICK DISCONNECT	5'
17 REMOVABLE ACCESS DOORS.	4R	146	PASTA COOKER	NILMA	DOUGH-O-MAT C40/2	-	-	-	-	-	-	-	-	-	-	-	-	-		-	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	3/4"	-	-	-	-	QUICK DISCONNECT	5'
	D1		DUPLEX OUTLET	-	-	-	-	-	120	1	20	1	DR20	-	-	-	-	-	-	-	FACTORY	- '
	D2		DUPLEX OUTLET	-	-	-	-	<u> </u>	120	1	20	1	DR20	-		-	-	-	-		FACTORY	- (
			CTED LOAD:	DACITY.	3.9	KW.				KW.	0.0	AMP	280	M		H.W		S	STEAM SUPPLY		MBH = BTU P	EGEND PER HOUR (1000S
		L AVAIL	ABLE LOAD CAI	PACITY:	10.5	KW.	29.1		0.0	KW.	0.0	AMP	270	M		1"			3"			HT BLADE PLUGS T LOCK PLUGS

YSTEM CAPACITY:



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

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REVISIONS DESCRIPTION DATE:

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> > KOESTNER ASSOCIATES

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Tinton Falls. NJ 07724

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engineering Tinton Falls, NJ 07724



Lorenzo Foods Teterboro 25 CENTRAL AVE

TETERBORO, NJ, 07608

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REVIEW ___ PLANNING BOARD BUILDING DEPT BID ____ CONSTRUCTION ____

ផ្លី BRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER NO. GE 45801

DATE: 09/24/2021

HVAC CAPTIVE AIRE DETAILS

12" = 1'-0"

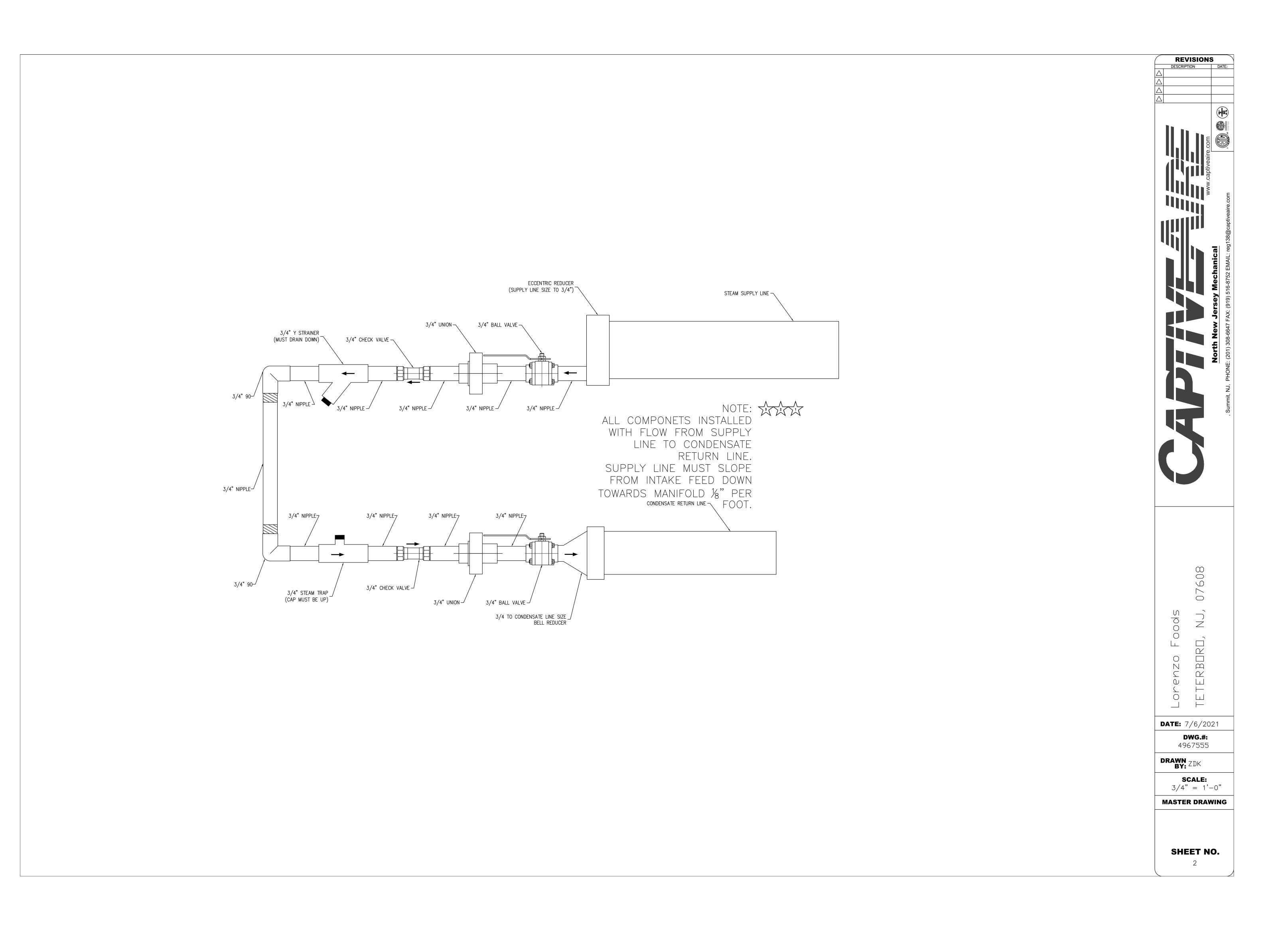
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ARCHITECTS

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REVIEW

PLANNING BOARD

BUILDING DEPT

CONSTRUCTION CONST

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

awing name:

HVAC CAPTIVE AIRE DETAILS

nale:
12" = 1'-0"

lease date:

09/24/2021

rawn by:

ZW

oproved by:

KF

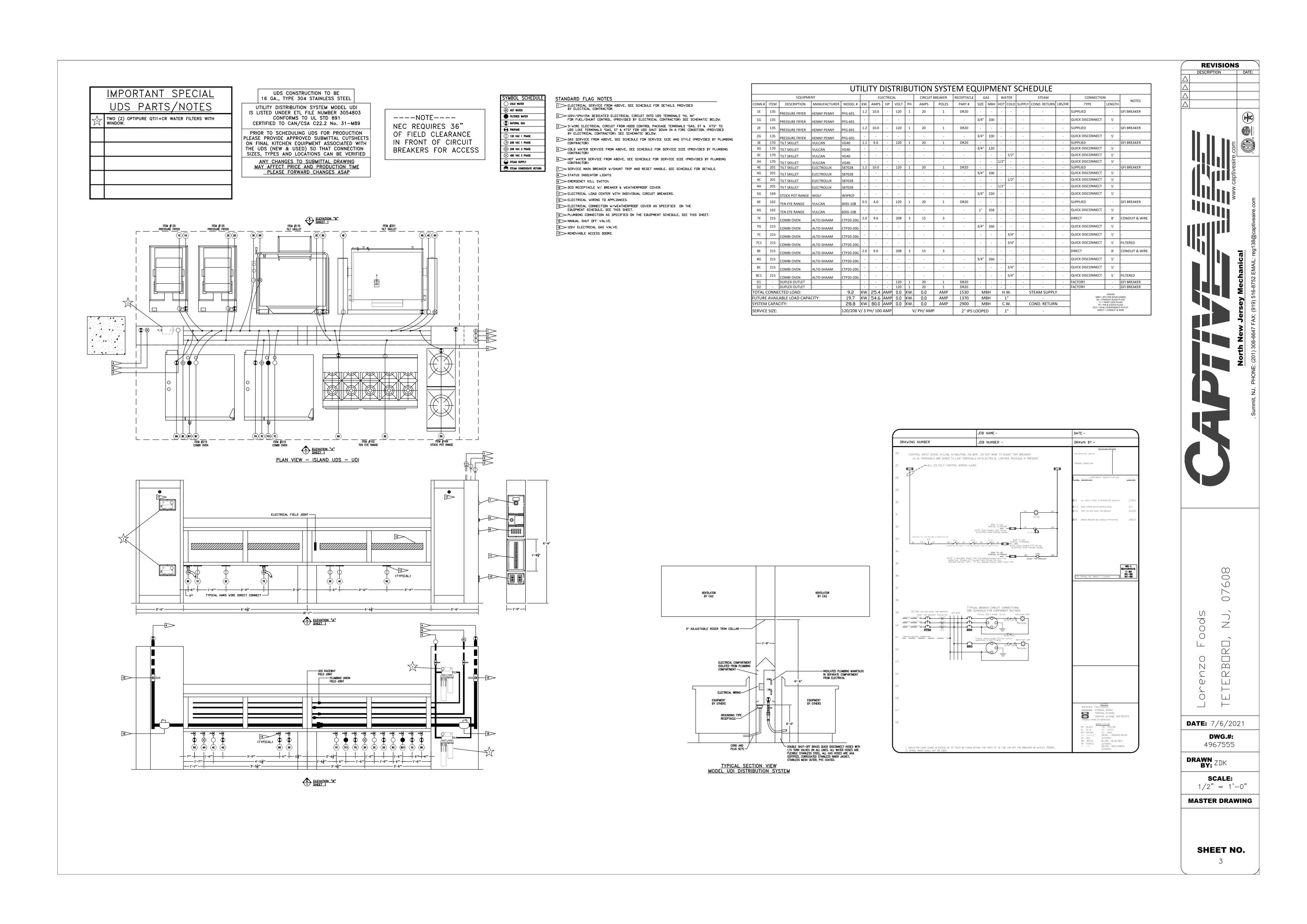
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REVIEW 🗀 PLANNING BOARD BUILDING DEPT BID ____ CONSTRUCTION ____

ដ្ឋBRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER

NO. GE 45801 DATE: 09/24/2021

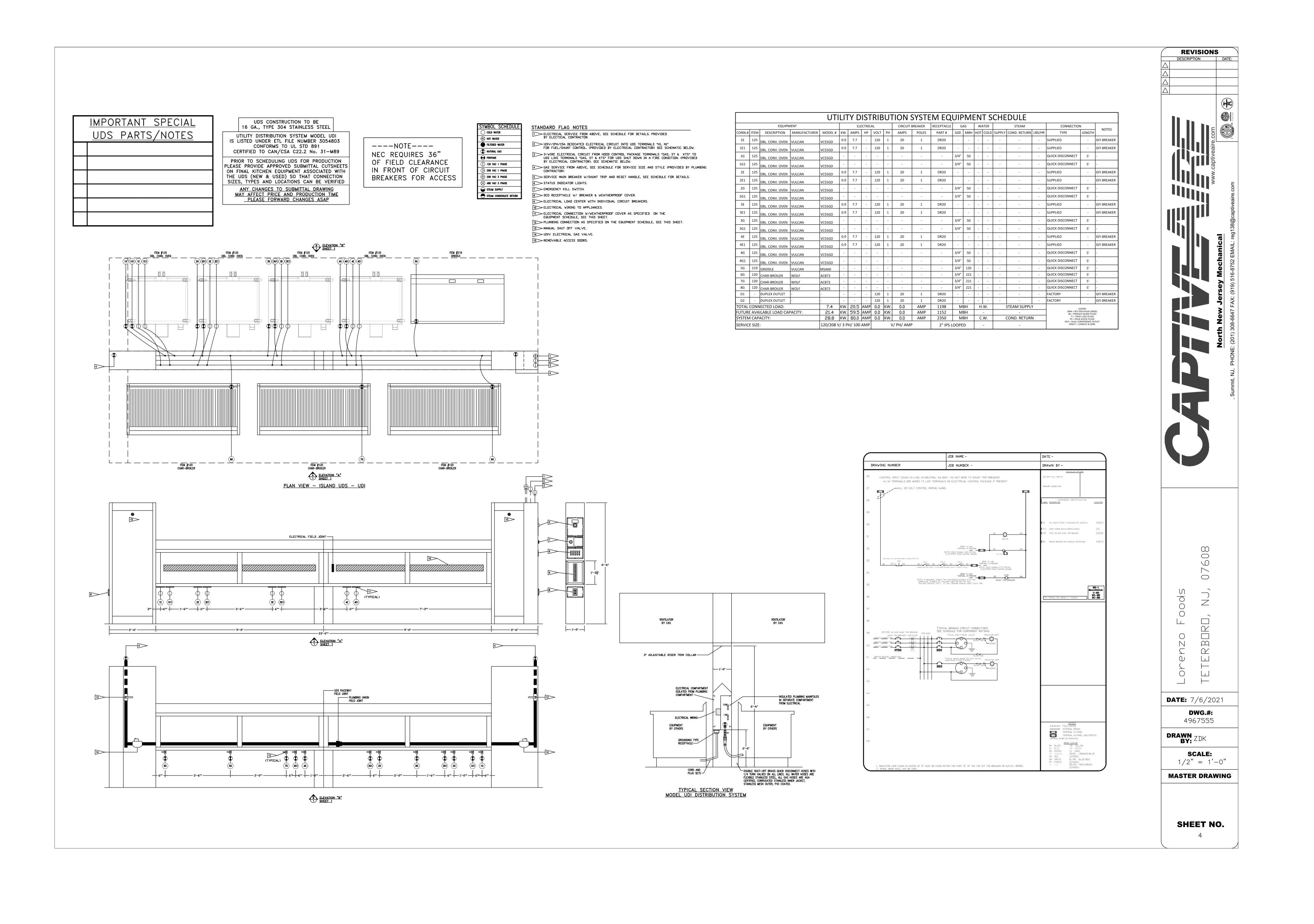
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BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER

NO. GE 45801

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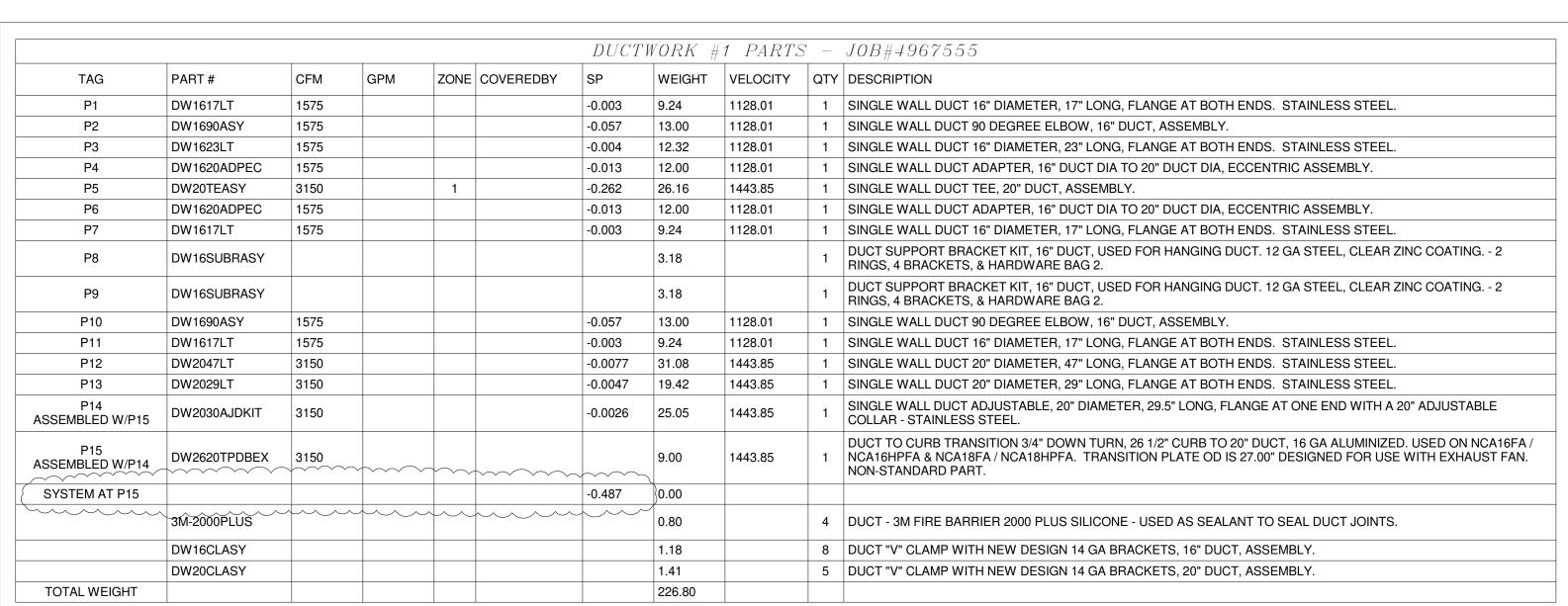
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KF
sject no.:
2102
swing no.:

M-510.00

DB BARCODE:

Total



SINGLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.

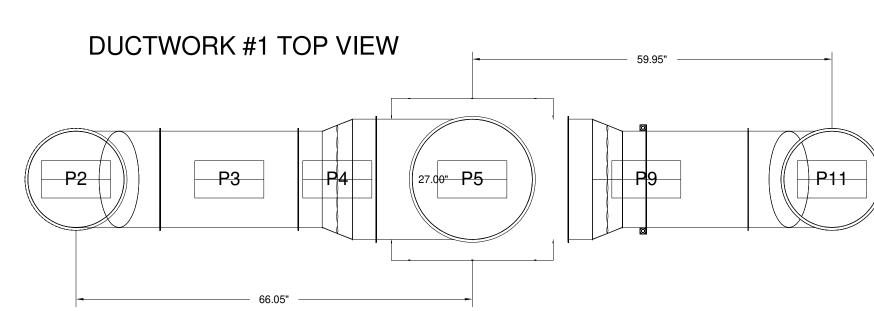
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.

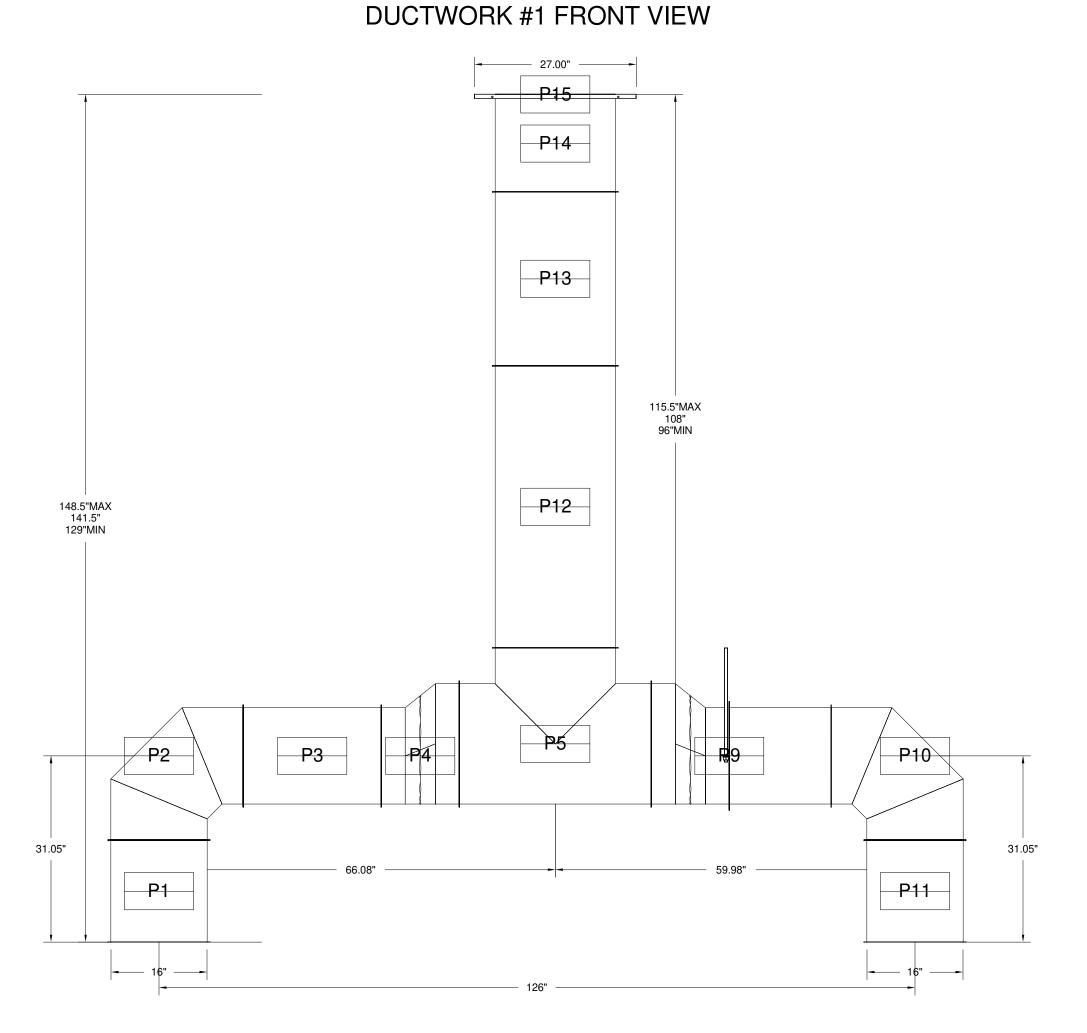
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.

- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

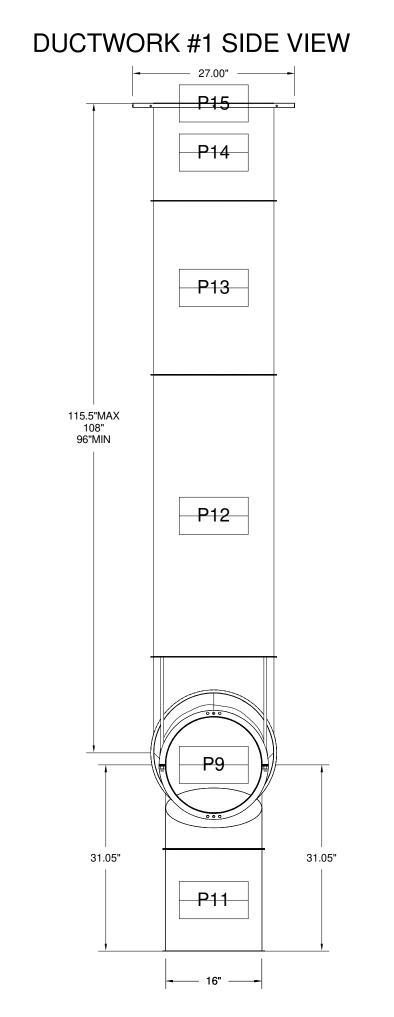
DUCT DIAMETER	HORIZONTAL SUPPORT (FT)	VERTICAL WALL SUPPORT (FT)	VERTICAL CURB SUPPORT (FT)
5"	10'	10'	24'
6"	10'	10'	24'
7"	10'	10'	24'
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'
26"	10'	10'	24'
28"	10'	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 SE VIEW

P12

07608 8/24/202 4967555 ZDK

MASTER DRAWING

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engineering



Lorenzo Foods Teterboro 25 CENTRAL AVE TETERBORO, NJ, 07608

PLANNING BOARD

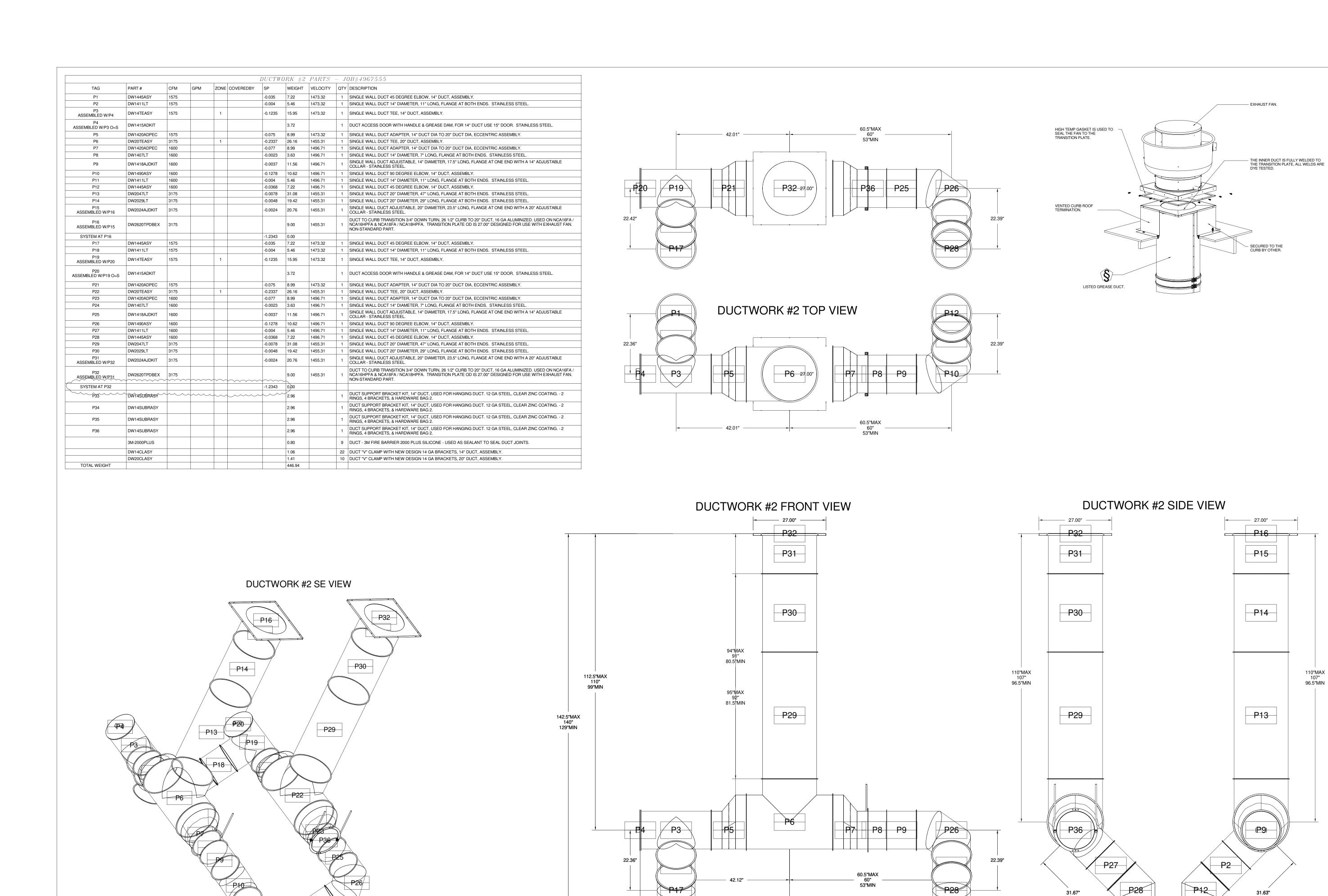
ផ្លី BRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER NO. GE 45801 DATE: 09/24/2021

HVAC CAPTIVE AIRE DETAILS

As indicated 09/24/2021

M-511.00

Total



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Lorenzo Foods Teterboro

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REVIEW 🗀 PLANNING BOARD BUILDING DEPT CONSTRUCTION ____ ផ្លី BRIAN D. TANNENHAUS

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

HVAC CAPTIVE AIRE DETAILS

As indicated 09/24/2021

M-512.00

Total

116"MAX - 115.5" 108.5"MIN

0

8/24/2021

4967555

ZDK

MASTER DRAWING

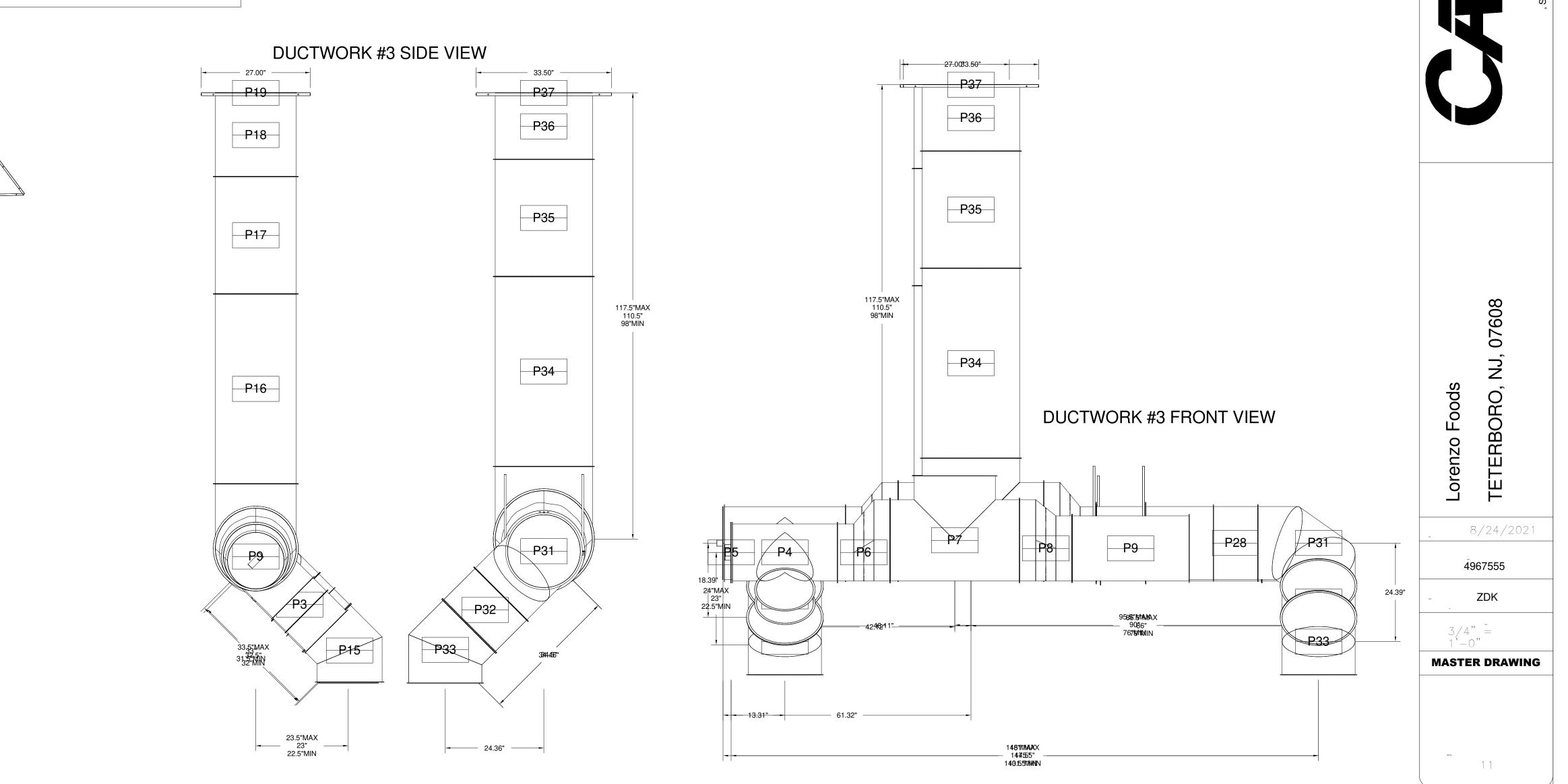
22.42"

22.36"

TAG	PART#	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1445ASY	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 SSEMBLED 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.
									+ :	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE
P10	DW1630AJDKIT	2200				-0.0057	20.06	1575.63	1	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 NCA16HPFA & 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	DW1843A31	3025				-0.003	6.99	1711.80	1	SINGLE WALL DUCT 18" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P22	DWIGHE	3023				-0.003	0.33	1711.00	+ '-	SINGLE WALE DOOT TO DIAMETER, IT ESNO, TEANGE AT BOTT ENDS. STAINLESS STEEL.
ASSEMBLED W/P23	DW18TEASY	3025		1		-0.1795	22.75	1711.80	1	SINGLE WALL DUCT TEE, 18" DUCT, ASSEMBLY.
P23 SSEMBLED W/P22 O=S	DW1819ADKIT						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		<u>'</u>		-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.
ΓΔΙ	DW 1029L1	3023				-0.0073	17.43	1711.00	+ '	SINGLE WALL DUCT ADJUSTABLE, 18" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 18" ADJUSTABLE
P28	DW1818AJDKIT	3025				-0.0027	14.83	1711.80	1	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	DW3324TPDBEX	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.
ASSEMBLED W/P96 SYSTEM AT P37	, ~~~~	1 ~~~	1 ~ ~ ~ ~			-1.8588	0.00		-	FANT. FOR USE WITH EXPAUST FAINS.
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		<u> </u>					1			
	3M-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	1			1	1.65	1	E	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 24" DUCT, ASSEMBLY.
	DW24CLAST						1.03		5	DOCT V CLAWF WITH NEW DESIGN 14 GA BRACKETS, 24 DOCT, ASSEMBLT.

DUCTWORK #3 SE VIEW

P16



24"MAX

24.36"

95.5"MAX — 90" 76"MIN

- P9

DUCTWORK #3 TOP VIEW

33.50" **P37** P10

P28

P31

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DOB STAMP

ISSUED FOR

REVIEW

PLANNING BOARD

BUILDING DEPT

BID

CONSTRUCTION

CONSTRUCTION CONST

NO. GE 45801 DATE: 09/24/2021

HVAC CAPTIVE AIRE DETAILS

scale:

As indicated

release date:

drawing date:

09/24/2021

proved by:

KF

Dject no.:

2102

M-513.00

Total

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 SSEMBLED 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 SSEMBLED 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

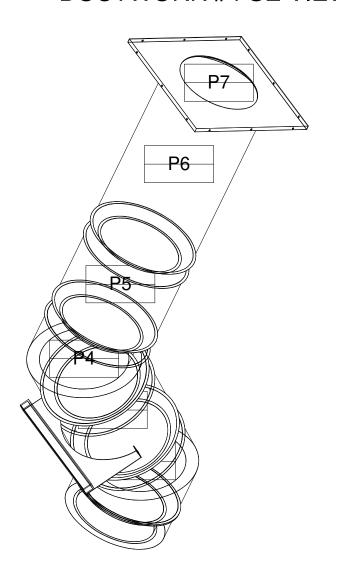
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.

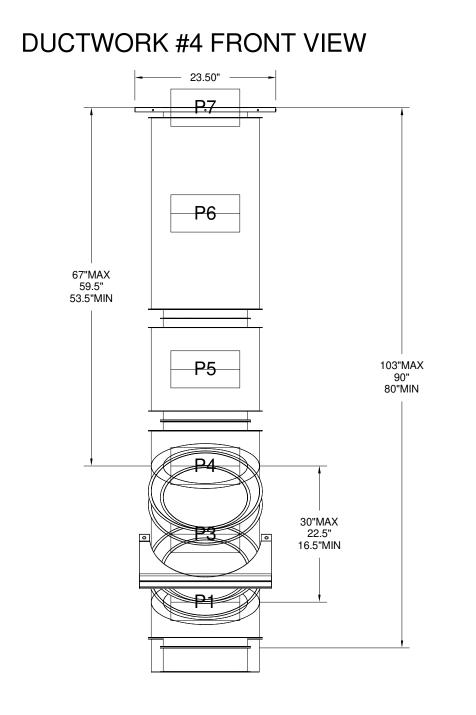
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZ	ZONTAL				
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'				

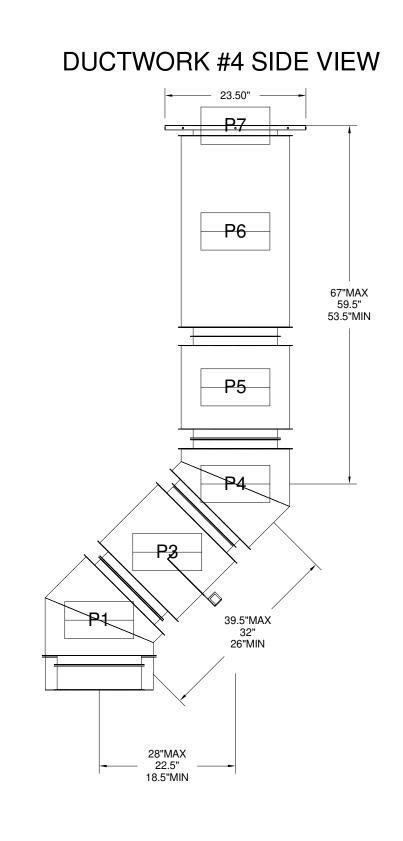
VERTICAL										
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)							
2R & 2R HT (5"-16")	20'	24'	24'							
2R (18")	18'	24'	24'							
3R & 3Z (5"-24")	10'	24'	24'							
3Z (26" -36")	10'	20'	20'							

DUCTWORK #4 SE VIEW





DUCTWORK #4 TOP VIEW



07608 TETERBORO, 8/24/2021 4967555 ZDK 3/4" = **MASTER DRAWING**

Lorenzo Foods Teterboro 25 CENTRAL AVE TETERBORO, NJ, 07608

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L ____

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REVIEW __ PLANNING BOARD BUILDING DEPT BID ____ CONSTRUCTION ្តីBRIAN D. TANNENHAUS NJ PROFESSIONAL ENGINEER

NO. GE 45801 DATE: 09/24/2021

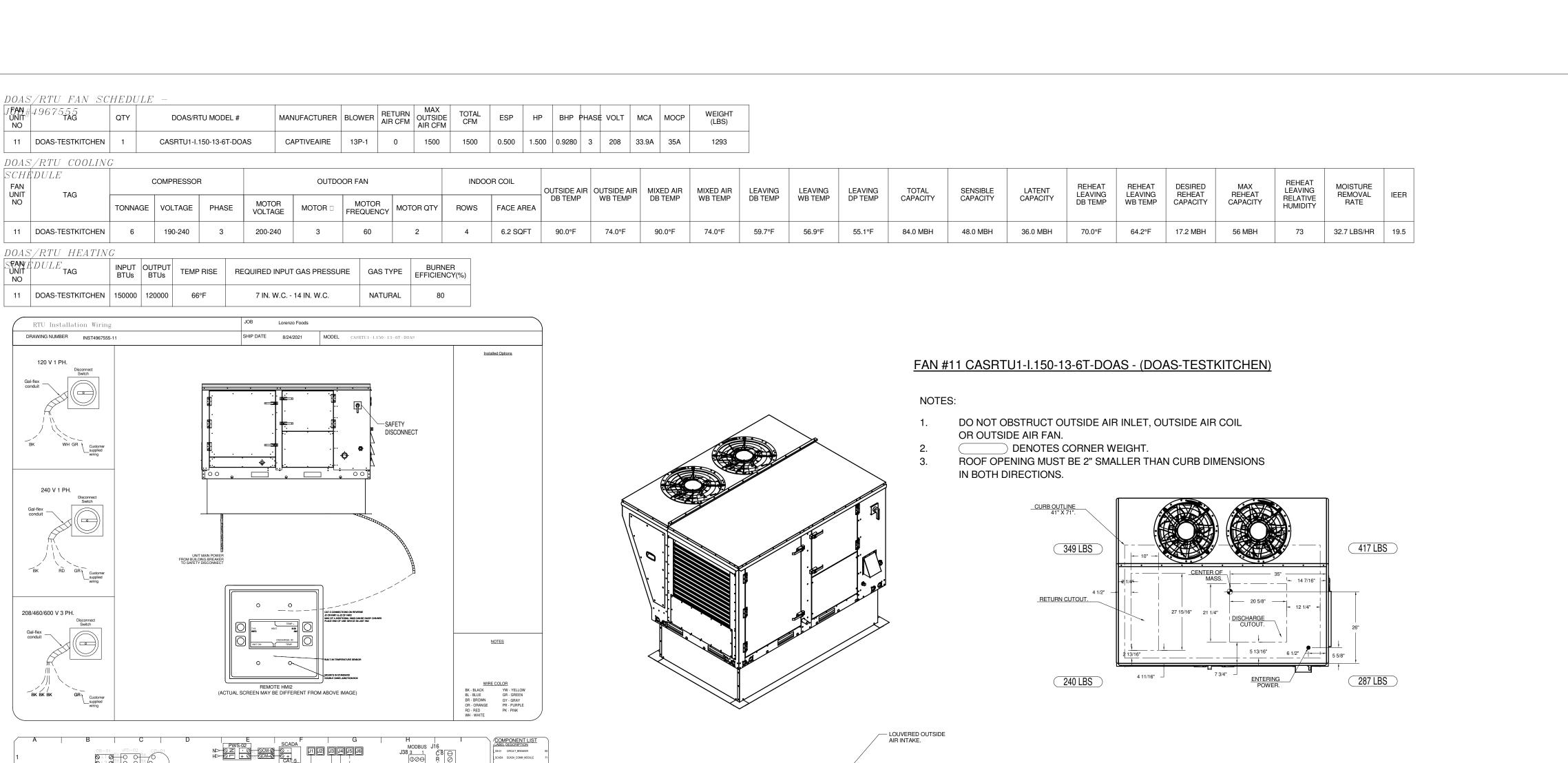
HVAC CAPTIVE AIRE DETAILS

As indicated

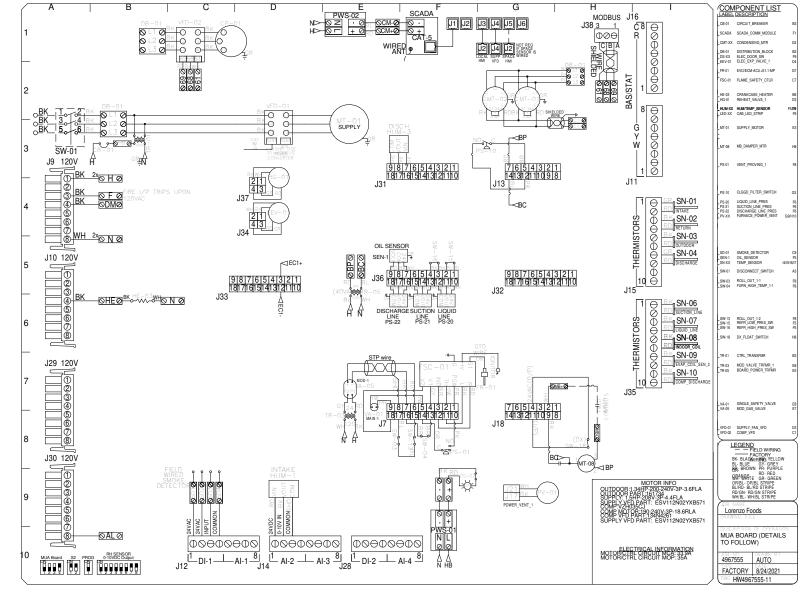
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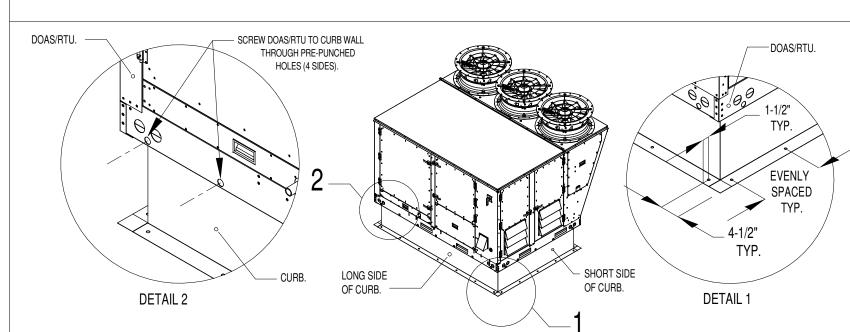


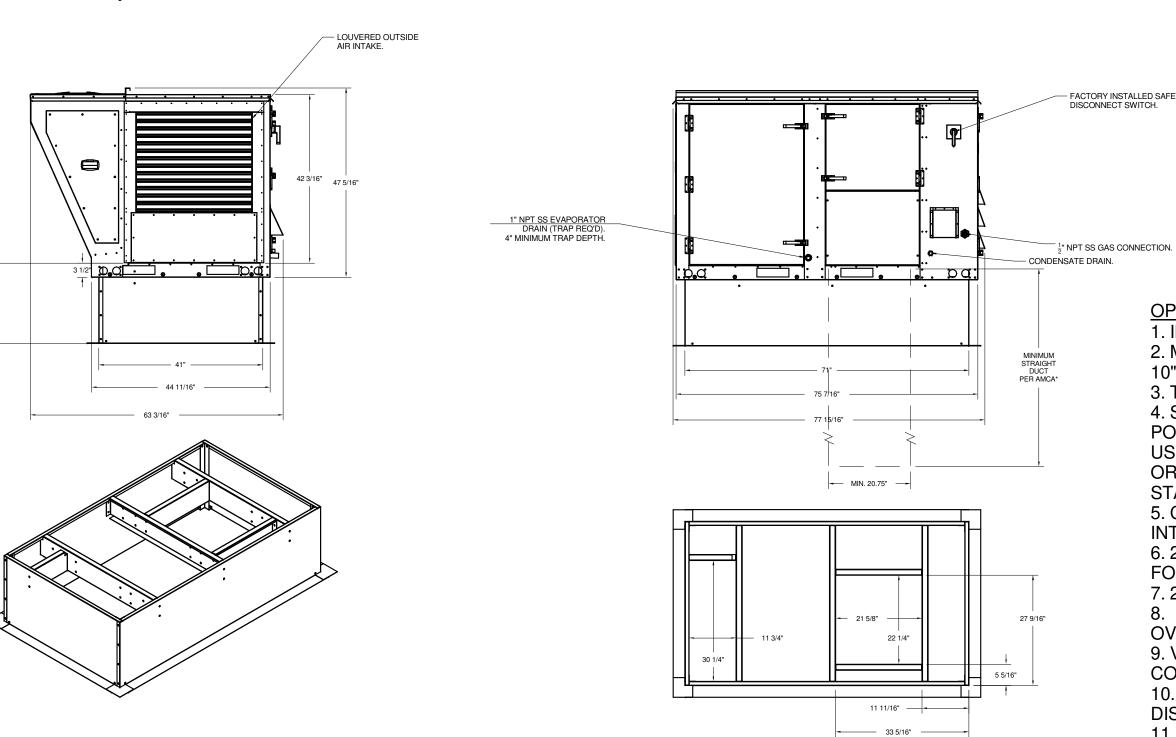
SUGGESTED STRAIGHT DUCT SIZE IS 20.75" x 21.5".



TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

- 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.
- 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.





*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.

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. OVERHEAT STAT. 9. VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR RTU. 10. RTU SIZE 1 DOWN 11. COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS). 12. SIZE 1 RTU CURB DUCT HANGER. 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).

10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND

CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE

1. INLET PRESSURE GAUGE, 0-35".

2. MANIFOLD PRESSURE GAUGE, 0 TO

19. RTU FIELD WIRED INTAKE/RETURN

20. 5 YEAR ENTIRE UNIT PARTS WARRANTY,

PARTS WARRANTY (SEE ADDITIONAL DETAILS).

DAMPER SWITCH CONTROL.

As indicated

HVAC CAPTIVE AIRE DETAILS

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REVIEW 🗀

BUILDING DEPT

CONSTRUCTION

ផ្លីBRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER

NO. GE 45801

DATE: 09/24/2021

BID ____

PLANNING BOARD

730 River Road

P.O.BOX 514

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09/24/2021

M-515.00

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8/24/202 4967555 ZDK **MASTER DRAWING**

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