GENERAL

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

B. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES AND LICENSES NECESSARY FOR PROPER EXECUTION AND COMPLETION OF THE ELECTRICAL WORK. THE CONTRACTOR SHALL ALSO ARRANGE ALL REQUIRED INSPECTIONS BEFORE THE START, DURING CONSTRUCTION AND AFTER THE COMPLETION OF THE PROJECT.

C. EACH BIDDER SUBMITTING HIS PROPOSAL SHALL EXAMINE ALL DRAWINGS RELATING TO THIS WORK AND VERIFY ALL GOVERNING CONDITIONS AT THE BUILDING AND SHALL BECOME FULLY INFORMED AS TO THE EXTENT AND EXISTING CHARACTER OF THE WORK REQUIRED AND ITS RELATION TO OTHER WORK. NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED OR WORK TO BE DONE, IT BEING UNDERSTOOD THAT THE SUBMISSION OF A PROPOSAL IS AN AGREEMENT TO ALL ITEMS AND CONDITIONS REFERRED TO HEREIN OR INDICATED ON THE ACCOMPANYING DRAWINGS AND SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF 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. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AND EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.

D. THE ENTIRE INSTALLATION SHALL COMPLY WITH ALL LOCAL GOVERNING CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE GENERAL CONDITIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATED ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S COST.

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

F. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION EQUIPMENT, SERVICES AND FACILITIES REQUIRED FOR THE COMPLETE, PROPER AND SUBSTANTIAL INSTALLATION OF ALL WORK RELATED TO THEIR TRADE.

G. THE CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND OWNER FOR EQUIPMENT LOCATIONS AND CLEARANCES REQUIRED FOR EQUIPMENT. CONTRACTOR TO COORDINATE AND MODIFY LAYOUT ACCORDINGLY.

H. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH AN EQUIPMENT AND MAINTENANCE BINDER INCLUDING EACH SYSTEM MANUFACTURER'S INSTRUCTIONS, MAINTENANCE REQUIREMENTS, GUARANTEES AND WARRANTY INFORMATION.

I. THE CONTRACTOR SHALL PROTECT THE EQUIPMENT FROM THE WEATHER AND DAMAGE AT ALL TIMES DURING SHIPMENT, STORAGE, AND CONSTRUCTION.

J. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED WILL BE FREE FROM ANY AND ALL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK.

K. MATERIALS AND EQUIPMENT SHALL BE LISTED AND / OR LABELED BY NSA, UL, ETL, CSA, OR ANOTHER RECOGNIZED TESTING LAB.

L. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES AND LICENSES NECESSARY FOR PROPER EXECUTION AND COMPLETION OF THE ELECTRICAL WORK.

M. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO AUTHORITY HAVING JURISDICTION AND UTILITY COMPANIES FOR SHOP DRAWINGS REQUIRED BY THESE AUTHORITIES FOR APPROVAL.

N. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT / ENGINEER / OWNER OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF LAWS, ORDINANCES, RULES OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

Q. ALL MATERIALS AND EQUIPMENT SHALL BE ERECTED, INSTALLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED AND PLACED IN SERVICE IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.

R. ALL CUTTING, DRILLING AND PATCHING OF MASONRY, STEEL OR IRON WORK BELONGING TO THE BUILDING MUST BE DONE BY THE APPROPRIATE CONTRACTOR IN ORDER THAT THE WORK MAY BE PROPERLY INSTALLED, BUT UNDER NO CONDITIONS, MAY STRUCTURAL WORK BE CUT, EXCEPT AT THE DIRECTION OF THE ARCHITECT, ENGINEER OR REPRESENTATIVE. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

S. SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S NAMES, CATALOG NUMBERS, CUT SHEETS, DIAGRAMS AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDENTIFY AND REVIEW THE EQUIPMENT. SUBMITTALS SHALL BE IN LOGICAL GROUPS, PARTIAL SUBMITTALS WILL NOT BE REVIEWED.

T. EXCEPT AS NOTED OTHERWISE, ALL WORK REQUIRED FOR THE INSTALLATION AS SHOWN ON DRAWINGS, INCLUDING LABOR, EQUIPMENT AND MATERIAL, SHALL BE IN STRICT COMPLIANCE WITH BUILDING OWNER'S CRITERIA AND BUILDING STANDARDS.

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

V. INSTALL ALL SYSTEMS IN THE CEILING AS HIGH AS POSSIBLE PROVIDING THE BEST POSSIBLE FINISHED CEILING HEIGHT THROUGHOUT. COORDINATE WITH ALL TRADES AS REQUIRED.

W. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MUST BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

X. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL 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 CHANGED MAKING UP THE WORK PROPOSAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING AND WORK.

Y. CONNECTIONS TO THE EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH 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 OWNER. MAINTAIN CONTINUOUS OPERATION OF 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.

Z. 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.

AA. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH A UL LISTED FIRESTOPPING ASSEMBLY MATCHED TO THE RATING OF THE PENETRATED ELEMENT. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

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

AC. 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 IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

AD. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, 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.

AE. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND OWNER FOR EQUIPMENT LOCATIONS AND CLEARANCES REQUIRED FOR EQUIPMENT. CONTRACTOR TO COORDINATE AND MODIFY LAYOUT ACCORDINGLY.

AF. DUCTWORK LAYOUT SHALL BE SUBMITTED ON 1/4" SCALE DRAWINGS AND SHOW LOCATION OF ALL NEW AND EXISTING WORK, INCLUDING FIRE DAMPERS, VOLUMETRIC DAMPERS, AND INSULATION.

CUTTING AND PATCHING

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, FITTING PATCHING, WATERPROOFING, AND FLASHING THAT MAY BE REQUIRED FOR DUCTWORK, ETC.

B. THIS CONTRACTOR SHALL COORDINATE SUPPORTS AND SUBMIT THE METHOD OF SUPPORT FOR REVIEW TO THE BUILDING MANAGEMENT.

C. THIS CONTRACTOR SHALL PROVIDE SLEEVES FOR DUCTS. SEAL OPENINGS AROUND DUCTS AND THROUGH PARTITIONS, WALLS AND FLOOR (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL.

D. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOF INTEGRITY OF THIS BUILDING AS REQUIRED BY THE REMOVAL AND/OR INSTALLATION OF PIPES AND DUCTS. SUBMIT FOR REVIEW TO THE BUILDING MANAGEMENT.

SLEEVES AND PENETRATIONS

A. DUCT SLEEVES AND OPENINGS:

1) SLEEVES THROUGH FLOORS, THROUGH EXTERIOR STRUCTURE, THROUGH FIRE-RATED CONSTRUCTION AND THROUGH SMOKE PARTITIONS THAT REQUIRE SMOKE DAMPERS SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE FOR ROUND DUCT AND SHALL MEET SMACNA FIRE DAMPER AND HEAT STOP GUIDE FOR RECTANGULAR AND FLAT OVAL DUCTS. FIREPROOF PACKING SHALL BE APPLIED TO SEAL ANY OPENINGS BETWEEN SLEEVE AND WALL. MATERIALS SHALL MAINTAIN THE FIRE RATING OF THE WALL, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SMACNA FIRE DAMPER AND HEAT STOP GUIDE.

1) OPENINGS IN WALLS, PARTITIONS AND OTHER FIRE-RATED CONSTRUCTION THAT DO NOT REQUIRE SMOKE DAMPERS SHALL MEET NFPA 90A, SECTION 3-3.8.

2) MATERIALS FOR PREPARED OPENINGS IN PARTITIONS SHALL MATCH CONSTRUCTION PENETRATED AND PREPARED OPENINGS, SIZED TO COVER ENTIRE DUCT PENETRATION INCLUDING SLEEVE AND SEAL AND TO ACCOMMODATE DUCT AND INSULATION AS NECESSARY.

ESCUTCHEONS AND DUCT COLLARS

A. PROVIDE 4" WIDE 20 GAUGE GALVANIZED SHEET METAL COLLARS AT SLEEVES EDGES SHALL HAVE MILLED LIPS GROUND SMOOTH. PAINT TO MATCH FINISH OF DUCT OR AS DIRECTED BY ARCHITECT.

DUCTWORK AND ACCESSORIES

A. MATERIAL, CONSTRUCTION AND INSTALLATION SHALL MEET THE REQUIREMENTS OF THE MOST RECENT EDITIONS OF THE SMACNA STANDARDS AND REFERENCES

B. SEALING REQUIREMENTS FOR CLASS "A", LEAKAGE CLASS 6 AND CLASS "B" LEAKAGE CLASS 12 GALVANIZED, NON-WELDED ALUMINUM TO BE AS FOLLOWS:

1) TRANSVERSE JOINTS: SEAL ALL FLANGED JOINTS WITH SEALING TAPE OF QUALITY EQUAL TO HARDCAST INC. 1902-FR. CORNERS SHALL BE SEALED AS DESCRIBED BY SMACNA AND WHEN APPLICABLE PER MANUFACTURERS PUBLISHED PROCEDURES. SEAL ALL NON-FLANGED TRANSVERSE JOINTS WITH HARDCAST INC. VERSA GRIP 102 OR APPROVED EQUAL.

2) LONGITUDINAL SEAMS: SEAL ALL LONGITUDINAL SEAMS DURING DUCTWORK FABRICATION WITH HARDCAST INC. COLD SEAL 1001 OR APPROVED EQUAL.

3) JOINTS AND DUCTWALL PENETRATIONS: SEAL ALL DUCT JOINTS AT TAKE-OFFS, ACCESS DOORS (DUCTMATE "SANDWICH" OR EQUAL), DAMPER BEARING PENETRATIONS (VENTLOK HIVEL 641 AND 609), FLEXIBLE DUCT CONNECTIONS ETC., WITH HARDCAST INC. VERSA GRIP 102 OR APPROVED EQUAL.

C. DUCT SUPPORT HANGERS TO BE SPACED AS REQUIRED BY SMACNA (8'-0" MAX.) FOR HORIZONTAL DUCTS ON 8'-0" CENTERS, UNLESS CONCENTRATED LOADINGS REQUIRE CLOSER SPACING.

D. DUCT FLEXIBLE CONNECTIONS FOR INDOORS SHALL BE NEOPRENE-COATED FIBROUS GLASS FIRE RETARDANT FABRIC, BY VENTFABRICS OR DURODYNE. SECURE FLEXIBLE CONNECTIONS TIGHTLY TO AIR HANDLERS WITH METAL BANDS. BANDS SHALL BE SAME MATERIAL AS DUCT CONSTRUCTION.

E. PREFABRICATED TRANSVERSE DUCT JOINTS SHALL BE MADE WITH GALVANIZED GASKETED FRAME AND ANGLE DUCT JOINT SYSTEM BY DUCTMATE, TDF, TDC OR APPROVED EQUAL. ANGLES SHALL BE AT LEAST 20 GAUGE. SECURE ANGLES TO DUCTS WITH SCREWS (USING CLUTCHED ARBOR) OR SPOT-WELDS SPACED AS RECOMMENDED BY MANUFACTURER FOR DUCT PRESSURE CLASS.

F. DUCT MOUNTED ACCESS DOORS SHALL BE PROPER PRESSURE AND LEAKAGE RATED AND GASKETED. ACCESS DOORS SHALL BE NEOPRENE GASKETED UL 94 HF1 LISTED, DUCTMATE "SANDWICH". MINIMUM ACCESS DOOR SIZES ARE AS FOLLOWS:

1) FIRE DAMPERS - 8"X 8"
2) AUTOMATIC CONTROL DAMPERS - 8"X 8"

G. PRESSURE TEST DUCTS AFTER TAKE-OFFS, ACCESS DOOR, VOLUME DAMPERS AND WALL PENETRATIONS ARE IN PLACE AND BEFORE APPLYING EXTERIOR INSULATION. CORRECT ANY LEAKS. PRESSURE AND LEAK TEST DUCTWORK AT 150% OF DUCT CONSTRUCTION CLASS PRESSURE.

H. DUCT LEAKAGE TESTS SHALL BE PER SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. SUBMIT LEAK TEST REPORT (PER SMACNA FORMAT) FOR OWNER REVIEW.

I. SHEET METAL DUCTS SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED SHEET METAL WITH G90 COMMERCIAL COATING ACCORDING TO ASTM 527.

J. MAKE CHANGES IN DUCT SIZE WITH TAPERED CONNECTIONS AS REQUIRED BY SMACNA CHANGES SHALL NOT EXCEED 30° FROM LINE OF AIR FLOW. TAKE-OFF TO DIFFUSERS SHALL BE 45° LEADING EDGE TYPE OR BELLMOUTH TYPE.

K. VOLUME DAMPERS SHALL BE ADJUSTABLE WITH EXTENDED MOUNT INDICATING AND LOCKING QUADRANTS ON EACH SUPPLY, RETURN DUCT TAKE-OFF. PENETRATIONS SHALL BE PROVIDED WITH SEALED ASSEMBLIES, VENTLOK HIVEL 641 AND HIVEL 609 END BEARING OR APPROVED EQUAL. DAMPERS LARGER THAN 12" IN HEIGHT SHALL BE OPPOSED MULTI-BLADE. DAMPER BLADES SHALL BE TWO GAUGES HEAVIER THAN ADJOINING DUCTWORK, AND SHALL BE RIVETED TO SUPPORTING RODS. HEM OVER EDGES PARALLEL TO RODS. BRACKETS SHALL BE GALVANIZED METAL, SECURED TO DUCTWORK WITH SHEET METAL SCREW WITH LOCKING QUADRANT ARMS.

L. INSTALL AUTOMATIC DAMPERS AS SHOWN ON DRAWINGS. CONTROL DAMPERS SHALL BE LOW LEAKAGE TYPE WITH LEAKAGE NOT TO EXCEED 3% LEAKAGE AT 3" W.C. DIFFERENTIAL PRESSURE WHEN FULLY CLOSED.

M. PROVIDE 1½" THICK ACOUSTICAL LINING WITH A MINIMUM OF INSULATION VALUE OF R-6. JOHNS MANVILLE PERMACOTE LINACOUSTIC R-300 OR EQUAL.

1) SUPPLY AND RETURN AIR DUCTWORK, INCLUDING PLENUMS FOR A MINIMUM OF 15'-0" FROM AIR HANDLING UNIT AND RETURN AIR FAN.

2) INCREASE DUCT DIMENSIONS TO ACCOMMODATE LINING WHILE MAINTAINING INSIDE CLEAR DIMENSIONS SHOWN ON THE DRAWINGS. LINING SHALL BE BLACK, MATFACED 3 LB. DENSITY RIGID BOARD.

3) THE LEADING EDGE OF THE DUCT LINER SHALL HAVE A SHEETMETAL NOSING.

O. INSULATION:

1) CONCEALED SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR DUCTS SHALL BE JOHNS MANVILLE MICROLITE XG OR EQUAL UL LISTED FIBERGLASS BLANKET INSULATION WITH VAPOR BARRIER.

a. DUCT WRAP INSULATION SHALL BE AT LEAST 2" THICK FIBROUS GLASS DUCT WRAP, WITH FOIL-KRAFT FLAME RESISTANT VAPOR BARRIER. INSULATION DENSITY SHALL BE 1 LB PER CUBIC FOOT AND MAXIMUM K-FACTOR SHALL BE 0.30 AT 75°F MEAN TEMPERATURE. IF INSULATION DOES NOT HAVE PRE-CUT LAP, MAKE LAPPED BUTT JOINTS BY CUTTING 2" STRIP OF INSULATION AWAY FROM VAPOR BARRIER. APPLY 6" STRIPS OF APPROVED ADHESIVE ON 16" CENTERS AND WRAP DUCT WITH INSULATION. STAPLE LAPPED JOINT WITH OUTWARD-CLINCHING STAPLES. SEAL STAPLED JOINTS AIR-TIGHT WITH APPROVED VAPOR BARRIER MASTIC OR PRESSURE-SENSITIVE TAPE. FOR RECTANGULAR DUCTS 24" OR LARGER IN ANY DIMENSION, AUGMENT APPLICATION METHOD SPECIFIED WITH APPROVED MECHANICAL FASTENERS, SUCH. INSTALL INSULATION, MASTICS, ADHESIVES, COATINGS, COVERS AND OTHER WORK EXACTLY AS REQUIRED BY MANUFACTURERS RECOMMENDATIONS.

2) INDOOR EXPOSED SPIRAL SUPPLY AIR DUCT SHALL BE LINED WITH 1½" THICK ROUND DUCT LINER (MINIMUM R-6), JOHNS MANVILLE SPIRACOUSTIC PLUS OR EQUAL.

3) KITCHEN HOOD EXHAUST DUCTWORK SHALL BE INSULATED, WHERE REQUIRED, PER NFPA 96 AND LOCAL CODE REQUIREMENTS. KITCHEN HOOD SUPPLY DUCTWORK SHALL BE INSULATED AS SPECIFIED FOR HVAC SUPPLY DUCTWORK.

4) OUTSIDE EXPOSED DUCTWORK - ALL DUCTWORK EXPOSED TO WEATHER SHALL BE INSULATED WITH CERTAINTEED -PRO COMMERCIAL BOARD TYPE CB-300 OR EQUIVALENT. BOARD SHALL BE A MINIMUM OF 2" THICK HAVING A DENSITY OF 3.0 POUNDS / CUBIC FOOT, A THERMAL CONDUCTIVITY OF 0.23 AT 75°F, AND A THERMAL RESISTANCE OF R-8.7. INSULATION SHALL BE APPLIED TO EXTERIOR SURFACE OF DUCTWORK USING WELDED PINS AND SELF-LOCKING SPEED CLIPS. THE VAPOR BARRIER FACING SHALL BE SEALED WITH PRESSURE SENSITIVE TAPE WHERE THE PINS HAVE PIERCED. THE DUCT INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH VENTURE-CLAD 1577CW-W JACKETING SYSTEM, CONSISTING OF A 6.0 MIL 5-PLY SELF-ASHESIVE MATERIAL. JACKET SHALL BE UL CLASSIFIED AND HAVE ZERO PERMEABILITY AND BE AN ABSOLUTE VAPOR BARRIER CONTAINING TESTED AND APPROVED MOLD INHIBITING AGENTS. JACKET SHALL MEET REQUIREMENTS FOR USDA AND FDA FACILITIES AND DEPARTMENT OF HEALTH AND HUMAN SERVICES CONSTRUCTION GUIDE FOR FOOD FACILITIES.

P. FIRE DAMPERS SHALL BE LABELED UL 555 AND RATED ONE AND ONE-HALF HOURS.

1) FRAME: SMACNA TYPE A WITH BLADES IN AIRSTREAM; FABRICATED WITH ROLL-FORMED, 0.034 INCH THICK GALVANIZED STEEL; WITH MITERED AND INTERLOCKING CORNERS.

2) MOUNTING SLEEVE: FACTORY OR FIELD INSTALLED GALVANIZED, SHEET STEEL. MINIMUM THICKNESS: 0.052 INCH OR 0.138 INCH THICK AS INDICATED, AND LENGTH TO SUIT APPLICATION.

A. EXCEPTIONS: OMIT SLEEVE WHERE DAMPER FRAME WIDTH PERMITS DIRECT ATTACHMENT OF PERIMETER MOUNTING ANGLES ON EACH SIDE OF WALL, AND THICKNESS OF DAMPER FRAME COMPLIES WITH SLEEVE REQUIREMENTS.

3) MOUNTING ORIENTATION: VERTICAL OR HORIZONTAL AS INDICATED.

4) BLADES: ROLL-FORMED, INTERLOCKING, 0.034 INCH THICK, GALVANIZED, SHEET STEEL. IN PLACE OF INTERLOCKING BLADES, USE FULL-LENGTH, 0.034 INCH THICK, GALVANIZED STEEL BLADE CONNECTORS.

5) HORIZONTAL DAMPERS: INCLUDE A BLADE LOCK AND STAINLESS-STEEL NEGATOR CLOSURE SPRING.

6) FUSIBLE LINK: REPLACEABLE, 165 OR 212 DEG F RATED AS INDICATED.

7) FIRE DAMPERS SHALL BE CONSTRUCTED, LOCATED, AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 101 AND 90A.

FANS

A. ROOF MOUNTED EXHAUST FANS

1) ROOF EXHAUST FANS SHALL BE CENTRIFUGAL BELT DRIVEN TYPE. THE FAN WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, CONSTRUCTED OF ALUMINUM AND SHALL INCLUDE A WHEEL CONE CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES. WHEELS SHALL BE STATICALLY AND DYNAMICALLY BALANCED.

2) THE FAN HOUSING SHALL BE CONSTRUCTED OF HEAVY GAUGE ALUMINUM WITH A RIGID INTERNAL SUPPORT STRUCTURE. THE FAN SHROUD SHALL HAVE A ROLLED BEAD FOR ADDED STRENGTH.

3) MOTORS SHALL BE HEAVY DUTY BALL BEARING TYPE, CAREFULLY MATCHED TO THE FAN LOAD, AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. MOTORS AND DRIVES SHALL BE MOUNTED ON VIBRATION ISOLATORS, OUT OF THE AIRSTREAM. FRESH AIR FOR MOTOR COOLING SHALL BE DRAWN INTO THE MOTOR COMPARTMENT FROM AN AREA FREE OF DISCHARGE CONTAMINANTS. MOTORS SHALL BE READILY ACCESSIBLE FOR MAINTENANCE.

4) DRIVE FRAME ASSEMBLIES SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL AND MOUNTED ON VIBRATION ISOLATORS.

5) PRECISION GROUND AND POLISHED FAN SHAFTS SHALL BE MOUNTED IN PERMANENTLY SEALED, LUBRICATED PILLOW BLOCK BALL BEARINGS. BEARINGS SHALL BE SELECTED FOR A MINIMUM (L50) LIFE IN EXCESS OF 200,000 HOURS AT MAXIMUM CATALOGED OPERATING SPEED. DRIVES SHALL BE SIZED FOR A MINIMUM OF 150% OF DRIVEN HORSEPOWER. PULLEYS SHALL BE OF THE FULLY MACHINED CAST IRON TYPE, KEYED AND SECURELY ATTACHED TO THE WHEEL AND MOTOR SHAFTS. MOTOR PULLEYS SHALL BE ADJUSTABLE FOR FINAL SYSTEM BALANCING.

6) A DISCONNECT SWITCH SHALL BE FACTORY INSTALLED AND WIRED FROM THE FAN MOTOR TO A JUNCTION BOX INSTALLED WITHIN THE MOTOR COMPARTMENT. A FAN CONDUIT CHASE SHALL BE PROVIDED THROUGH THE CURB CAP TO THE MOTOR COMPARTMENT FOR EASE OF INSTALLATION. ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE. EACH FAN SHALL BEAR A PERMANENTLY AFFIXED MANUFACTURER'S NAMEPLATE CONTAINING THE MODEL NUMBER AND INDIVIDUAL SERIAL NUMBER FOR FUTURE IDENTIFICATION.

P. DIFFUSERS, REGISTERS AND GRILLES

15) PROVIDE ALUMINUM ACC CERTIFIED DIFFUSERS, REGISTERS, AND GRILLES FOR SUPPLY, RETURN AND EXHAUST OUTLETS, OF SIZE, TYPE AND DESIGN SHOWN ON DRAWINGS. EQUIPMENT SHALL BE TESTED AND RATED PER ASHRAE 91-70 AND ADC. EQUIPMENT SHALL HANDLE AIR QUANTITIES AT OPERATING VELOCITIES WITH MAXIMUM DIFFUSION WITHIN SPACE SUPPLIED OR EXHAUSTED; WITHOUT OBJECTIONABLE AIR MOVEMENT AS DETERMINED BY ARCHITECT; WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC 30; COLOR, FINISH, SHALL BE AS DIRECTED BY ARCHITECT.

4) DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED WITH GASKETS (WHERE HARD CEILINGS ARE PROVIDED) AND INSTALLED WITH FACES SET LEVEL AND PLUMB, TIGHTLY AGAINST MOUNTING SURFACE.

5) COORDINATE DIFFUSERS, REGISTERS AND GRILLES WITH CEILING AND WALL CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LENGTHS AND FOR FRAMING AND MITERING ARRANGEMENTS THAT MAY DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS.

ROOF TOP SINGLE PACKAGED HEATING AND COOLING UNIT

A. GENERAL: THE UNIT SHALL BE A DEDICATED DOWNFLOW UNIT. THE OPERATING RANGE SHALL BE BETWEEN 125°F AND 25°F IN COOLING AS STANDARD FROM THE FACTORY FOR ALL UNITS. COOLING PERFORMANCE SHALL BE RATED IN ACCORDANCE WITH ARI TESTING PROCEDURES. ALL UNITS SHALL BE FACTORY ASSEMBLED, INTERNALLY WIRED, FULLY CHARGED WITH R-410A AND 100% RUN TESTED TO CHECK COOLING OPERATION, FAN AND BLOWER ROTATION AND CONTROL SEQUENCE BEFORE LEAVING THE FACTORY. WIRING INTERNAL TO THE UNIT SHALL BE COLORED AND NUMBERED FOR SIMPLIFIED IDENTIFICATION. UNITS SHALL BE MANUFACTURED IN A FACILITY CERTIFIED TO ISO 9001 STANDARDS AND THE COOLING PERFORMANCE SHALL BE RATED IN ACCORDANCE WITH DOE AND ARI TEST PROCEDURES. UNITS SHALL BE ETL & CGA LISTED, CLASSIFIED TO ANSIZ21.47 STANDARDS, UL 1995/CAN/CSA NO. 236-M90 CONDITIONS.

B. CASING

1) UNIT CABINET SHALL BE CONSTRUCTED OF G90 GALVANIZED STEEL, WITH EXTERIOR SURFACES COATED WITH A NON-CHALKING, POWDERED PAINT FINISH, CERTIFIED AT 750 HOURS SALT SPRAY TEST PER ASTM B117 STANDARDS

2) INDOOR BLOWER SECTION SHALL BE INSULATED WITH UP TO 1" THICK INSULATION, COATED ON THE AIR SIDE. ALUMINUM FOIL FACED INSULATION SHALL BE USED IN THE FURNACE COMPARTMENT AND THE EVAPORATOR SECTION AND BE FASTENED WITH RIGID FASTENERS TO PREVENT INSULATION FROM ENTERING THE AIR STREAM.

3) CABINET PANELS SHALL BE "LARGE" SIZE, EASILY REMOVABLE FOR SERVICING AND MAINTENANCE.

4) FULL PERIMETER BASE RAILS SHALL BE PROVIDED TO ASSURE RELIABLE TRANSIT OF EQUIPMENT, OVERHEAD RIGGING AND PROPER SEALING ON ROOF CURB APPLICATIONS.

5) DISPOSABLE 2" (MIN. MERV 7) FILTERS SHALL BE FURNISHED AND BE ACCESSIBLE THROUGH A REMOVABLE ACCESS DOOR, SEALED AIR TIGHT. UNITS FILTER TRACK SHALL BE DESIGNED TO ACCOMMODATE EITHER 1" OR 2" FILTERS.

6) FAN PERFORMANCE MEASURING PORTS SHALL BE PROVIDED ON THE OUTSIDE OF THE CABINET TO ALLOW ACCURATE AIR MEASUREMENTS OF EVAPORATOR FAN PERFORMANCE WITHOUT REMOVING PANELS OR CREATING AIR BY-PASS OF THE COILS.

7) CONDENSATE PAN SHALL BE INTERNALLY SLOPED AND CONFORM TO ASHRAE 62-89 SELF-DRAINING STANDARDS. CONDENSATE CONNECTION SHALL BE A MINIMUM OF 1" I.D. FEMALE AND BE RIDGED MOUNT CONNECTION.

C. COMPRESSORS

1) SHALL BE FULLY HERMETIC TYPE, DIRECT DRIVE, INTERNALLY PROTECTED WITH INTERNAL HIGH-PRESSURE RELIEF AND OVER TEMPERATURE PROTECTION. THE HERMETIC MOTOR SHALL BE SUCTION GAS COOLED AND HAVE A VOLTAGE RANGE OF + OR -10% OF THE UNIT NAMEPLATE VOLTAGE.

2) SHALL HAVE INTERNAL SPRING ISOLATION AND SOUND MUFFLING TO MINIMIZE VIBRATION AND NOISE, AND BE EXTERNALLY ISOLATED ON A DEDICATED, INDEPENDENT MOUNTING.

D. REFRIGERANT CIRCUITS

1) BALANCE PORT THERMOSTATIC EXPANSION VALVE WITH INDEPENDENT CIRCUIT FEED SYSTEM.

2) FILTER DRIER/STRAINER TO ELIMINATE ANY MOISTURE OR FOREIGN MATTER.

3) ACCESSIBLE SERVICE GAGE CONNECTIONS ON BOTH SUCTION AND DISCHARGE LINES TO CHARGE, EVACUATE, AND MEASURE REFRIGERANT PRESSURE DURING ANY NECESSARY SERVICING OR TROUBLESHOOTING, WITHOUT LOSING CHARGE.

4) THE REFRIGERATION SYSTEM SHALL PROVIDE AT LEAST 15°F OF SUB-COOLING AT DESIGN CONDITIONS.

5) UNIT SHALL HAVE TWO INDEPENDENT CAPACITY CIRCUITS.

E. EVAPORATOR AND CONDENSER COILS

1) EVAPORATOR AND CONDENSER COILS SHALL HAVE ALUMINUM PLATE FINS MECHANICALLY BONDED TO SEAMLESS INTERNALLY ENHANCED COPPER TUBES WITH ALL JOINTS BRAZED. PROVIDE SPECIAL PHENOLIC COATING. (OPTION WHEN UNITS ARE LOCATED NEARBY TO AN OCEAN).

2) EVAPORATOR AND CONDENSER COILS SHALL BE OF THE DIRECT EXPANSION, DRAW-THRU, DESIGN.

3) CONDENSER COILS SHALL BE PROTECTED WITH FACTORY INSTALLED COIL GUARDS.

F. OUTDOOR FANS

1) THE OUTDOOR FANS SHALL BE OF THE DIRECT-DRIVEN PROPELLER TYPE DISCHARGE AIR VERTICALLY, HAVE ALUMINUM BLADES RIVETED TO CORROSION RESISTANT STEEL SPIDER BRACKETS AND SHALL BE DYNAMICALLY BALANCED FOR SMOOTH OPERATION.

2) THE OUTDOOR FAN MOTORS SHALL BE TOTALLY ENCLOSED WITH PERMANENTLY LUBRICATED BEARINGS, INTERNALLY PROTECTED AGAINST OVERLOAD CONDITIONS AND STAGED INDEPENDENTLY.

G. INDOOR FANS

1) FAN SHALL BE EITHER A BELT DRIVE ASSEMBLY AND INCLUDE AN ADJUSTABLE-PITCH MOTOR PULLEY OR DIRECT DRIVE WITH POTENTIOMETER FAN ADJUSTING SPEED. JOB SITE SELECTED (B.H.P) BRAKE HORSEPOWER SHALL NOT EXCEED THE MOTORS NAMEPLATE HORSE POWER RATING, PLUS THE SERVICE FACTOR. UNITS SHALL BE DESIGNED NOT TO OPERATE ABOVE SERVICE FACTOR.

2) FAN WHEEL SHALL BE DOUBLE-INLET TYPE WITH FORWARD-CURVED BLADES, DYNAMICALLY BALANCED TO OPERATE SMOOTHLY THROUGHOUT THE ENTIRE RANGE OF OPERATION. AIRFLOW DESIGN SHALL BE CONSTANT AIR VOLUME.

3) BEARINGS SHALL BE SEALED AND PERMANENTLY LUBRICATED FOR LONGER LIFE AND NO MAINTENANCE.

4) MOTORS SHALL BE PREMIUM EFFICIENCY TEFC TYPE WITH 1.15 SERVICE FACTOR.

5) PROVIDE HIGH STATIC MOTORS OR DRIVE AS REQUIRED FOR SCHEDULED STATIC PRESSURES. AN ALLOWANCE FOR DIRTY FILTERS IS REQUIRED.

H. NATURAL GAS HEATING

HEAT EXCHANGER AND EXHAUST SYSTEM SHALL BE CONSTRUCTED OF ALUMINIZED STEEL AND SHALL BE DESIGNED WITH INDUCED DRAFT COMBUSTION WITH POST PURGE LOGIC, ENERGY SAVING DIRECT SPARK IGNITION, AND REDUNDANT MAIN GAS VALVE. THE HEAT EXCHANGER SHALL BE OF THE TUBULAR TYPE, CONSTRUCTED OF T1-40 ALUMINIZED STEEL FOR CORROSION RESISTANCE AND ALLOWING MINIMUM MIXED AIR ENTERING TEMPERATURE OF 40 °F. BURNERS SHALL BE OF THE IN-SHOT TYPE, CONSTRUCTED OF ALUMINUM-COATED STEEL. ALL GAS PIPING SHALL ENTER THE UNIT CABINET AT A SINGLE LOCATION, THROUGH EITHER THE SIDE OR BOTTOM, WITHOUT ANY FIELD MODIFICATIONS. AN INTEGRATED CONTROL BOARD SHALL PROVIDE TIMED CONTROL OF EVAPORATOR FAN FUNCTIONING AND BURNER IGNITION. HEATING SECTION SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM PROTECTION:

1) PRIMARY AND AUXILIARY HIGH-TEMPERATURE LIMIT SWITCHES.

2) INDUCED DRAFT PRESSURE SENSOR.

3) FLAME ROLL OUT SWITCH (MANUAL RESET).

4) FLAME PROVING CONTROLS.

5) ALL TWO STAGE UNITS SHALL HAVE TWO INDEPENDENT STAGES OF CAPACITY (60% 1ST STAGE, 100% 2ND STAGE).

I. CONTROLS

1) UNIT SHALL BE COMPLETE WITH SELF CONTAINED LOW-VOLTAGE CONTROL CIRCUIT PROTECTED BY A RESETTING TYPE CIRCUIT BREAKER FUSE ON THE 24 VOLT TRANSFORMER SIDE.

2) UNIT SHALL INCORPORATE A LOCK-OUT CIRCUIT WHICH PROVIDES RESET CAPABILITY AT THE SPACE THERMOSTAT OR BASE UNIT, SHOULD ANY OF THE FOLLOWING STANDARD SAFETY DEVICES TRIP AND SHUT OFF COMPRESSOR:

A. LOSS-OF-CHARGE / LOW-PRESSURE SWITCH.

B. HIGH PRESSURE SWITCH.

C. FREEZE-PROTECTION THERMOSTAT, EVAPORATOR COIL.

3) IF ANY OF THE ABOVE SAFETY DEVICES TRIP, AN LED (LIGHT-EMITTING DIODE) INDICATOR SHALL ILLUMINATE.

4) UNIT SHALL INCORPORATE "AUTO RESET" COMPRESSOR OVER TEMPERATURE, OVER CURRENT PROTECTION.

5) UNIT SHALL OPERATE WITH CONVENTIONAL THERMOSTAT DESIGNS AND HAVE A LOW VOLTAGE TERMINAL STRIP FOR EASY HOOK-UP.

6) DUAL ENTHALPY ECONOMIZER CONTROLLER (OUTSIDE AIR AND RETURN AIR SENSORS).

7) PROVIDE ANTI SHORT CYCLE TIMER TO KEEP COMPRESSOR FROM SHORT CYCLING.

J. ELECTRICAL REQUIREMENTS: ALL UNIT POWER WIRING SHALL ENTER UNIT CABINET AT A SINGLE FACTORY PROVIDED LOCATION AND BE CAPABLE OF SIDE OR BOTTOM ENTRY, TO MINIMIZE PENETRATIONS AND AVOID UNIT FIELD MODIFICATIONS. SEPARATE SIDE AND BOTTOM OPENINGS SHALL BE PROVIDED FOR THE CONTROL WIRING.

1) PROVIDE POWERED CONVENIENCE OUTLET - GFCI OUTLET WITH COVER.

K. STANDARD LIMITED WARRANTIES:

1) COMPRESSOR - 5 YEARS.

2) HEAT EXCHANGER - 10 YEARS.

3) PARTS - 1 YEAR.

L. ROOF CURBS: UNIT SHALL BE MOUNTED ON 14" HIGH FULL PERIMETER, PREFABRICATED ROOF CURB BY EQUIPMENT MANUFACTURER. CURBS SHALL ALLOW FOR THE LEVEL MOUNTING OF THE RTU. PROVIDE TAPERED CURB IF REQUIRED.

M. FACTORY INSTALLED OPTIONS:

1) PROVIDE AIR SIDE ECONOMIZER WITH MOTORIZED DAMPERS AND POWERED EXHAUST.

2) PROVIDE COMPRESSOR LOCKOUT CONTROL TO PREVENT COMPRESSOR OPERATION DURING COLD OUTDOOR TEMPERATURE.

3) LOW LIMIT CONTROLS TO PREVENT THE SUPPLY AIR FROM DROPPING BELOW A SPECIFIED SET POINT BY USING THE FIRST STAGE OF HEAT.

4) PROVIDE RETURN AIR MOUNTED SMOKE DETECTOR.

COMMERCIAL KITCHEN HOOD

A. HOODS SHALL BE TESTED ACCORDING TO UL 710 BY AN AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION. A HOOD THAT COMPLIES WITH DESIGN, CONSTRUCTION, AND PERFORMANCE CRITERIA'S OF APPLICABLE NATIONAL AND LOCAL CODES.

B. TYPE I HOOD: A HOOD DESIGNED FOR GREASE EXHAUST APPLICATIONS.

C. HOOD MATERIALS

1) STAINLESS STEEL SHEET : ASTM A 666, TYPE 304

2) MINIMUM THICKNESS: 0.03 INCH.

3) GENERAL: COMPLY WITH SSINA'S "FINISHES FOR STAINLESS STEEL" FOR RECOMMENDATIONS FOR APPLYING AND DESIGNATING FINISHED.

a. REMOVE TOOL AND DIE MARKS AND STRETCH LINES OR BLEND INTO FINISH. GRIND AND FINISH SURFACES TO PRODUCE UNIFORM, DIRECTIONALLY TEXTURED, POLISHED FINISH INDICATED, FREE OF CROSS SCRATCHES. RUN GRAIN WITH LONG DIMENSION OF EACH PIECE.

b. CONCEALED STAINLESS STEEL SURFACES: ASTM A 480 / A 480 M, NO. 2B FINISH(BRIGHT, COLD ROLLED, UNPOLISHED FINISH).

c. EXPOSED SURFACES: ASTM A 480 / A 480 M, NO. 4 FINISH (BRIGHT, DIRECTIONAL POLISH).

d. WHEN POLISHING IS COMPLETED, PASSIVATE AND RINSE SURFACES. REMOVE EMBEDDED FOREIGN MATTER AND LEAVE SURFACES CHEMICALLY CLEAN.

4) SEALANT: ASTM C 920; TYPE S, GRADE NS, CLASS 25, USE NT ELECTROMETRIC SEALANT SHALL BE NSF CERTIFIED FOR COMMERCIAL KITCHEN HOOD APPLICATION. SEALANT, WHEN CURED AND WASHED, SHALL COMPLY WITH REQUIREMENTS IN 21 CFR, SECTION 177.2600, FOR USE IN AREAS THAT COME IN CONTACT WITH FOOD.

5) SOUND DAMPENING: NSF CERTIFIED, NONABSORBENT, HARD-DRYING, SOUND DEADENING COMPOUND FOR PERMANENT ADHESION TO METAL IN MINIMUM 1/8 INCH THICKNESS THAT DOES NOT CHIP, FLAKE, OR BLISTER.

6) GASKETS: NSF CERTIFIED FOR END USE APPLICATION INDICATED; OF RESILIENT RUBBER, NEOPRENE, OR PVC THAT IS NONTOXIC, STABLE, ODORLESS, NONABSORBENT, AND UNAFFECTED BY EXPOSURE TO FOODS AND CLEANING COMPOUNDS, AND PASSES TESTING ACCORDING TO UL 710.

D. HOOD FABRICATION GENERAL

1) WELDING: USE WELDING ROD OF SAME COMPOSITION AS METAL BEING WELDED. USE METHODS THAT MINIMIZE DISTORTION AND DEVELOP STRENGTH AND CORROSION RESISTANCE OF BASE METAL. MAKE DUCTILE WELDS FREE OF MECHANICAL IMPERFECTIONS SUCH AS GAS HOLES, PITS, OR CRACKS.

2) WELDED BUTT JOINTS: FULL-PENETRATION WELDS FOR JOINT LENGTH. MAKE JOINTS FLAT, CONTINUOUS, AND HOMOGENOUS WITH SHEET METAL WITHOUT RELYING ON STRAPS UNDER SEAMS, FILLING IN WITH SOLDER, OR SPOT WELDING.

a. GRIND EXPOSED WELDED JOINTS FLUSH WITH ADJOINING MATERIAL AND POLISH TO MATCH ADJOINING SURFACES.

b. WHERE FASTENERS ARE WELDED TO UNDERSIDE OF EQUIPMENT, FINISH REVERSE SIDE OF WELD SMOOTH AND FLUSH.

c. COAT CONCEALED STAINLESS STEEL WELDED JOINTS WITH METALLIC BASED PAINT TO PREVENT CORROSION.

d. AFTER ZINC COATED STEEL IS WELDED, CLEAN WELDS AND ABRADED AREAS AND APPLY SSPC PAINT 20, HIGH-ZINC DUST CONTENT, GALVANIZING REPAIR PAINT TO COMPLY WITH ASTM A 780 / A 780M.

e. FOR METAL BUTT JOINTS, COMPLY WITH SMACNA'S "KITCHEN EQUIPMENT FABRICATION GUIDELINES".

f. WHERE STAINLESS STEEL IS JOINED TO A DISSIMILAR METAL, USE STAINLESS STEEL WELDING MATERIAL OR FASTENING DEVICES.

g. FORM METAL WITH BREAK BENDS THAT ARE NOT FLAKY, SCALY, OR CRACKED IN APPEARANCE; WHERE BREAKS MAR UNIFORM SURFACE APPEARANCE OF MATERIAL, REMOVE MARKS BY GRINDING, POLISHING, AND FINISHING.

h. SHEARED METAL EDGES: FINISH FREE OF BURRS, FINS, AND IRREGULAR PROJECTIONS.

i. IN FOOD ZONES, AS DEFINED IN NSF, FABRICATE SURFACES FREE FROM EXPOSED FASTENERS.

j. CAP EXPOSED FASTENER THREADS, THREADS, INCLUDING THOSE INSIDE CABINETS, WITH STAINLESS STEEL LOCK WASHERS AND STAINLESS STEEL CAP (ACORN) NUTS.

k. FABRICATE PIPE SLOTS ON EQUIPMENT WITH TURNED UP EDGES SIZED TO ACCOMMODATE SERVICE AND UTILITY LINES AND MECHANICAL CONNECTIONS.

l. FABRICATE ENCLOSURES, INCLUDING PANELS, HOUSING, AND SKIRTS, TO CONCEAL SERVICE LINES, OPERATING COMPONENTS, AND MECHANICAL AND ELECTRICAL DEVICES INCLUDING THOSE INSIDE CABINETS, UNLESS OTHERWISE INDICATED.

m. FABRICATE EQUIPMENT EDGES AND BACKSPLASHES ACCORDING TO SMACNA'S "KITCHEN EQUIPMENT FABRICATION GUIDELINES".

n. FABRICATE ENCLOSURE PANELS TO CEILING AND WALL AS FOLLOWS:

o. FABRICATE PANELS ON ALL EXPOSED SIDES WITH SAME MATERIAL AS HOOD, AND EXTEND FROM CEILING TO TOP OF HOOD CANOPY AND FROM CANOPY TO WALL.

p. WALL OFFSET SPACER: MINIMUM OF 3 INCHES.

q. WALL SHELVES AND OVERSHELVES: FABRICATE ACCORDING TO SMACNA'S "KITCHEN EQUIPMENT FABRICATION GUIDELINES," WITH MINIMUM 0.0625 INCH THICK, STAINLESS STEEL SHELF TOPS.

E. TYPE I EXHAUST HOOD FABRICATION

1) WELD ALL JOINTS EXPOSED TO GREASE WITH CONTINUOUS WELDS AND MAKE GREASE REMOVAL DEVICES AND MAKEUP AIR DIFFUSERS EASILY ACCESSIBLE FOR CLEANING.

2) INCLUDE ACCESS PANELS AS REQUIRED FOR ACCESS TO FIRE DAMPERS AND FUSIBLE LINKS.

3) EXHAUST DUCT COLLARS: MINIMUM 0.0625 INCH THICK STAINLESS STEEL AT LEAST 3 INCHES LONG, CONTINUOUSLY WELDED TO TOP OF HOOD AND AT CORNERS. FABRICATE A COLLAR WITH A 0.5 INCH WIDE DUCT FLANGE.

4) GREASE REMOVAL DEVICES: REMOVABLE, STAINLESS STEEL, FILTER / BAFFLE GREASE FILTERS WITH SPRING LOADED FASTENING. FABRICATE WITH MINIMUM 0.0781 INCH THICK STAINLESS STEEL FOR FILTER FRAME AND REMOVABLE COLLECTION CUP AND TROUGH. EXPOSED SURFACES SHALL BE PITCHED TO DRAIN TO COLLECTION CUP. FILTERS / BAFFLES SHALL COMPLY WITH UL 1046, "GREASE FILTERS FOR EXHAUST DUCTS."

5) REMOVABLE GREASE EXTRACTOR: REMOVABLE, STAINLESS STEEL EXTRACTOR, AT LEAST 0.0781 INCH THICK. HOOD WITH EXTRACTOR MUST BE TESTED ACCORDING TO UL 710.

6) LIGHT FIXTURES: UL LISTED, LED FIXTURES AND LAMPS WITH LENSES SEALED VAPORTIGHT. WIRING SHALL BE INSTALLED IN STAINLESS STEEL CONDUIT ON HOOD EXTERIOR. NUMBER AND LOCATION OF FIXTURES SHALL PROVIDE A MINIMUM OF 70 FC ON COOKING SURFACE BELOW HOOD.

7) SWITCHES SHALL BE MOUNTED ON FRONT PANEL OF HOOD CANOPY.

8) WET CHEMICAL FIRE SUPPRESSION SYSTEM: PRE-ENGINEERED DISTRIBUTION PIPING DESIGNED FOR AUTOMATIC DETECTION AND RELEASE OR MANUAL RELEASE OF FIRE SUPPRESSION AGENT BY HOOD OPERATOR. FIRE SUPPRESSION SYSTEM SHALL BE LISTED AND LABELED BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

a) STEEL PIPE, NPS 2 AND SMALLER: ASTM A 53/A 53 M, TYPE S, GRADE A, SCHEDULE 40, PLAIN ENDS.

b) MALLEABLE IRON THREADED FITTINGS: ASME B16.3, CLASSES 150 AND 300.

c) PIPE COVERS: CHROME PLATED ALUMINUM TUBING.

d) PIPING, FUSIBLE LINKS AND RELEASE MECHANISM, TANK CONTAINING THE SUPPRESSION AGENT, AND CONTROLS SHALL BE FACTORY INSTALLED. CONTROLS SHALL BE IN STAINLESS STEEL CONTROL CABINET MOUNTED ON WALL OR HOOD. FURNISH MANUAL PULL STATION FOR WALL MOUNTING ADJACENT TO HOOD. EXPOSED PIPING SHALL BE COVERED WITH STAINLESS STEEL SLEEVES. EXPOSED FITTINGS SHALL BE CHROME PLATED.

e) LIQUID EXTINGUISHING AGENT: NONCORROSIVE, LOW PH LIQUID.

f) FURNISH AN ELECTRIC OPERATED, GAS SHUTOFF VALVE WITH CLEARLY MARKED OPEN AND CLOSED INDICATOR FOR FIELD INSTALLATION. VALVE SHALL CLOSE UPON ACTIVATION OF SUPPRESSION SYSTEM.

g) FIRE SUPPRESSION SYSTEM CONTROLS SHALL BE INTEGRATED WITH CONTROLS FOR FANS, LIGHTS, AND FUEL SUPPLY AND LOCATED IN A SINGLE CABINET FOR EACH GROUP OF HOODS IMMEDIATELY ADJACENT.

h) WIRING SHALL HAVE COLOR CODED, NUMBERED TERMINAL BLOCKS AND GROUNDING BAR. SPARE TERMINALS FOR FIRE ALARM, OPTIONAL WIRING TO START FAN WITH FIRE ALARM, RED PILOT LIGHT TO INDICATE FAN OPERATION, AND CONTROL SWITCHES SHALL ALL BE FACTORY WIRED IN CONTROL CABINET WITH RELAYS OR STARTERS.

i) HOOD CONTROLS: SINGLE, HOOD MOUNTING CONTROL CABINET SHALL CONTROL GROUPS OF ADJACENT HOODS AND SHALL BE FABRICATED WITH STAINLESS STEEL.

j) EXHAUST FAN: ON / OFF SWITCHES SHALL START AND STOP THE EXHAUST FAN. INTERLOCK EXHAUST FAN WITH FIRE SUPPRESSION SYSTEM TO OPERATE FANS DURING FIRE SUPPRESSION AGENT RELEASE AND TO REMAIN IN OPERATION UNTIL MANUALLY STOPPED.

k) HIGH TEMPERATURE CONTROL: ALARM SHALL SOUND AND COOKING EQUIPMENT SHALL SHUT DOWN BEFORE HOOD DISCHARGE TEMPERATURE RISES TO ACTUATION TEMPERATURE OF FIRE SUPPRESSION SYSTEM.

9) INSTALLATION

a) INSTALL HOODS LEVEL AND PLUMB.

b) COMPLETE FIELD ASSEMBLY OF HOODS WHERE REQUIRED.

c) MAKE CLOSED BUTT CONTACT JOINTS THAT DO NOT REQUIRE FILLER.

d) GRIND FIELD WELDS ON STAINLESS STEEL EQUIPMENT SMOOTH, AND POLISH TO MATCH ADJACENT FINISH.

e) INSTALL HOODS AND ASSOCIATED SERVICES WITH CLEARANCES AND ACCESS FOR MAINTAINING, CLEANING, AND SERVICING HOODS, GREASE REMOVAL DEVICES, AND FIRE SUPPRESSION SYSTEMS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

f) MAKE CUTOUTS IN HOODS WHERE REQUIRED TO RUN SERVICE LINES AND TO MAKE FINAL CONNECTIONS.

g) SECURELY ANCHOR AND ATTACH ITEMS AND ACCESSORIES TO WALLS, FLOORS, OR BASES WITH STAINLESS STEEL FASTENERS, UNLESS OTHERWISE INDICATED.

h) INSTALL HOODS TO OPERATE FREE FROM VIBRATION.

i) INSTALL TRIM STRIPS AND SIMILAR ITEMS REQUIRING FASTENERS IN A BED OF SEALANT. FASTEN WITH STAINLESS STEEL FASTENERS AT 48 INCHES O.C. MAXIMUM.

j) INSTALL SEALANT IN JOINTS BETWEEN EQUIPMENT AND ABUTTING SURFACES WITH CONTINUOUS JOINT BACKING, UNLESS OTHERWISE INDICATED. PROVIDE AIRTIGHT, WATERTIGHT, VERMIN PROOF, SANITARY JOINTS.

10) CONNECTIONS

a) DUCT CONNECTIONS: WELD EXHAUST DUCT CONNECTIONS.

b) FIRE SUPPRESSION PIPING: INSTALL PIPING CONNECTIONS FOR REMOTE MOUNTED SUPPRESSION SYSTEMS ACCORDING TO NFPA 17, "WET CHEMICAL EXTINGUISHING SYSTEMS."

c) GROUND EQUIPMENT.

d) TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.

11) GREASE EXHAUST DUCTWORK AND INSULATION

a) GREASE EXHAUST DUCTWORK SHALL BE CONSTRUCTED OF 16 GAUGE STEEL.

b) GREASE EXHAUST DUCTWORK JOINTS / SEAMS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD OR BRAZE MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM.

c) INSTALL CLEANOUTS IN EACH CHANGE OF DIRECTION AND AT INTERVALS OF 12' VERTICAL OR HORIZONTAL.

d) GREASE EXHAUST DUCTS SHALL BE ENCAPSULATED IN 2 HR. 3M FIRE WRAP.

e) SLOPE EXHAUST DUCTWORK TOWARD HOOD AND MAINTAIN A 2% SLOPE.

f) GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NONCOMBUSTIBLE MATERIAL SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY AND SEISMIC LOADS WITHIN THE STRESS LIMITATIONS OF THE INTERNATIONAL BUILDING CODE.

F. TYPE 1 EXHAUST HOOD CONTROL

1) COMMERCIAL KITCHEN EXHAUST HOOD SYSTEMS SHALL OPERATE DURING THE COOKING OPERATION. THE EXHAUST FAN SERVING A TYPE I HOOD SHALL HAVE AUTOMATIC CONTROLS THAT WILL ACTIVATE THE FAN WHEN ANY APPLIANCE LOCATED UNDER THAT HOOD IS TURNED ON, OR A MEANS OF INTERLOCK SHALL BE PROVIDED THAT WILL PREVENT OPERATION OF SUCH APPLIANCES WHEN THE EXHAUST FAN IS NOT TURNED ON.

2) WHERE ONE OR MORE TEMPERATURE SENSORS ARE USED TO ACTIVATE A TYPE I HOOD EXHAUST FAN, THE FAN SHALL ACTIVATE NOT MORE THAN 15 MINUTES AFTER THE FIRST APPLIANCE SERVED BY THAT HOOD HAS BEEN TURNED ON.

3) A METHOD OF INTERLOCK BETWEEN AN EXHAUST HOOD SYSTEM AND APPLIANCES EQUIPPED WITH STANDING PILOT BURNERS SHALL NOT CAUSE THE PILOT BURNERS TO BE EXTINGUISHED. A METHOD OF INTERLOCK BETWEEN AN EXHAUST HOOD SYSTEM AND COOKING APPLIANCES SHALL NOT INVOLVE OR DEPEND ON ANY COMPONENT OF A FIRE-EXTINGUISHING SYSTEM.

4) THE NET EXHAUST VOLUMES FOR HOODS SHALL BE PERMITTED TO BE REDUCED DURING PART-LOAD COOKING CONDITIONS, WHERE ENGINEERED OR LISTED MULTISPEED OR VARIABLE SPEED CONTROLS AUTOMATICALLY OPERATE THE EXHAUST SYSTEM TO MAINTAIN CAPTURE AND REMOVAL OF COOKING EFFLUENTS AS REQUIRED. REDUCED VOLUMES SHALL NOT BE BELOW THAT REQUIRED TO MAINTAIN CAPTURE AND REMOVAL OF EFFLUENTS FROM THE IDLE COOKING APPLIANCES THAT ARE OPERATING IN A STANDBY MODE.

GENERAL NOTES:

A. THE DRAWINGS AS PREPARED ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.

B. ALL ROOF PENETRATIONS SHALL BE AT THE CONTRACTOR'S EXPENSE. COORDINATE WITH OWNER'S ROOFING CONTRACTOR SO AS NOT TO VOID ANY EXISTING ROOF WARRANTIES.

C. ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.

D. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND OWNER.

E. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE TO NOTIFY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR WHO SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.

F. ALL PIPING TO BE CONCEALED ABOVE CEILINGS, CHASES AND FURRED SPACES.

G. THE CONTRACTOR SHALL VERIFY DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND INSTALLATION.

H. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.

I. PROTECT ALL SURFACES, UTILITIES, MECHANICAL SYSTEMS AND REPAIR DAMAGES SUSTAINED BY SAME DURING THE COURSE OF THIS CONTRACTOR'S WORK AT NO ADDITIONAL COST TO THE OWNER.

J. REFER TO SPECIFICATIONS FOR DUCT PRESSURE CONSTRUCTION REQUIREMENTS.

K. ALL TOILET EXHAUST DUCTS TO BE CONSTRUCTED TO 3" W.G.

L. ALL COOLING COIL CONDENSATE TRAPS SHALL BE PIPED TO NEARBY FLOOR DRAINS.

M. CONTRACTOR SHALL FURNISH AND INSTALL ACCESS DOORS (GASKETED) IN DUCTWORK FOR THE FOLLOWING DEVICES: AUTOMATIC FIRE / SMOKE DAMPERS (ACCESSIBLE SIDE), FIRE DAMPERS (ACCESSIBLE SIDE).

N. TRANSITIONS SHALL BE MADE SO THAT BOTTOMS OF DUCT ARE HELD CONSTANT, WHERE POSSIBLE.

O. PROVIDE SLEEVES ON ALL PIPES PENETRATING WALLS AND FLOORS PER SPECIFICATIONS AND DETAILS.

P. THERMOSTATS AND LOCAL INDICATING PANELS LOCATIONS ARE APPROXIMATE AND SHALL BE COORDINATED TO SUIT FIELD CONDITIONS.

Q. ALL SUPPORTS FOR MECHANICAL EQUIPMENT ARE BASED ON PRELIMINARY INFORMATION FROM ONE SPECIFIED MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING SIZES FROM CERTIFIED DRAWINGS OF THE EQUIPMENT AND SHALL MAKE ANY MODIFICATIONS REQUIRED WITHOUT ANY ADDITIONAL COST TO THE OWNER.

R. ROOF EQUIPMENT CURBS AND EQUIPMENT ARRANGEMENT FOR MECHANICAL EQUIPMENT ARE BASED ON PRELIMINARY INFORMATION FROM ONE SPECIFIED MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING SIZES FROM CERTIFIED DRAWINGS OF THE EQUIPMENT AND SHALL MAKE ANY MODIFICATIONS REQUIRED WITHOUT ANY ADDITIONAL COST TO THE OWNER.

S. ELECTRICAL POWER PROVISIONS FOR MECHANICAL EQUIPMENT ARE BASED ON PRELIMINARY INFORMATION FROM ONE SPECIFIED MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ELECTRICAL RATINGS FROM CERTIFIED DRAWINGS OF THE EQUIPMENT AND SHALL MAKE ANY BRANCH CIRCUIT AND DISTRIBUTION MODIFICATIONS REQUIRED WITHOUT ANY ADDITIONAL COST TO THE OWNER. HE SHALL SUBMIT A SCHEDULE OF SUCH CHANGES FOR APPROVAL BY THE ENGINEER. ALL APPROVED CHANGES SHALL BE RECORDED ON "AS BUILT" DRAWINGS.

T. CONTRACTOR SHALL ADJUST LOCATIONS AND ELEVATION OF NEW WORK TO PREVENT INTERFERENCE WITH EXISTING CONDITIONS.

U. EACH EQUIPMENT SHOWN IS BASED ON THE DESIGN OF ONE MANUFACTURER. IF AN ALTERNATE MANUFACTURER IS SELECTED, THE CONTRACTOR MUST COORDINATE ALL THE MODIFICATIONS REQUIRED TO ACCOMMODATE THE EQUIPMENT INSTALLATION AND OPERATION. A/E TO VERIFY AND APPROVE ALL EQUIPMENT SELECTIONS.

Freddy's STEAKBURGERS

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

Architrave GROUP PC
2517 Route 35 - Building E - Suite101
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JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - SPECIFICATIONS

DATE
1/13/2025
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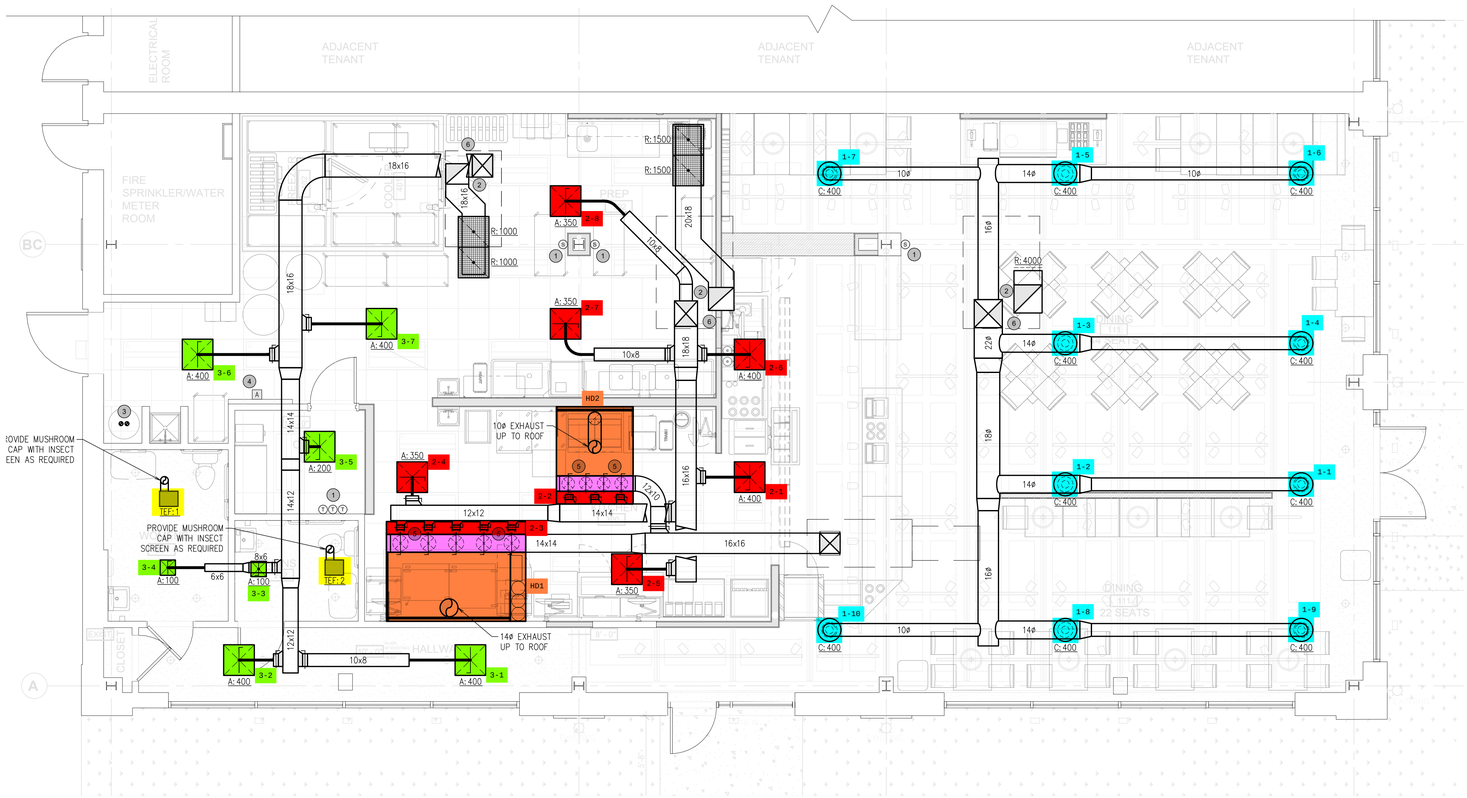
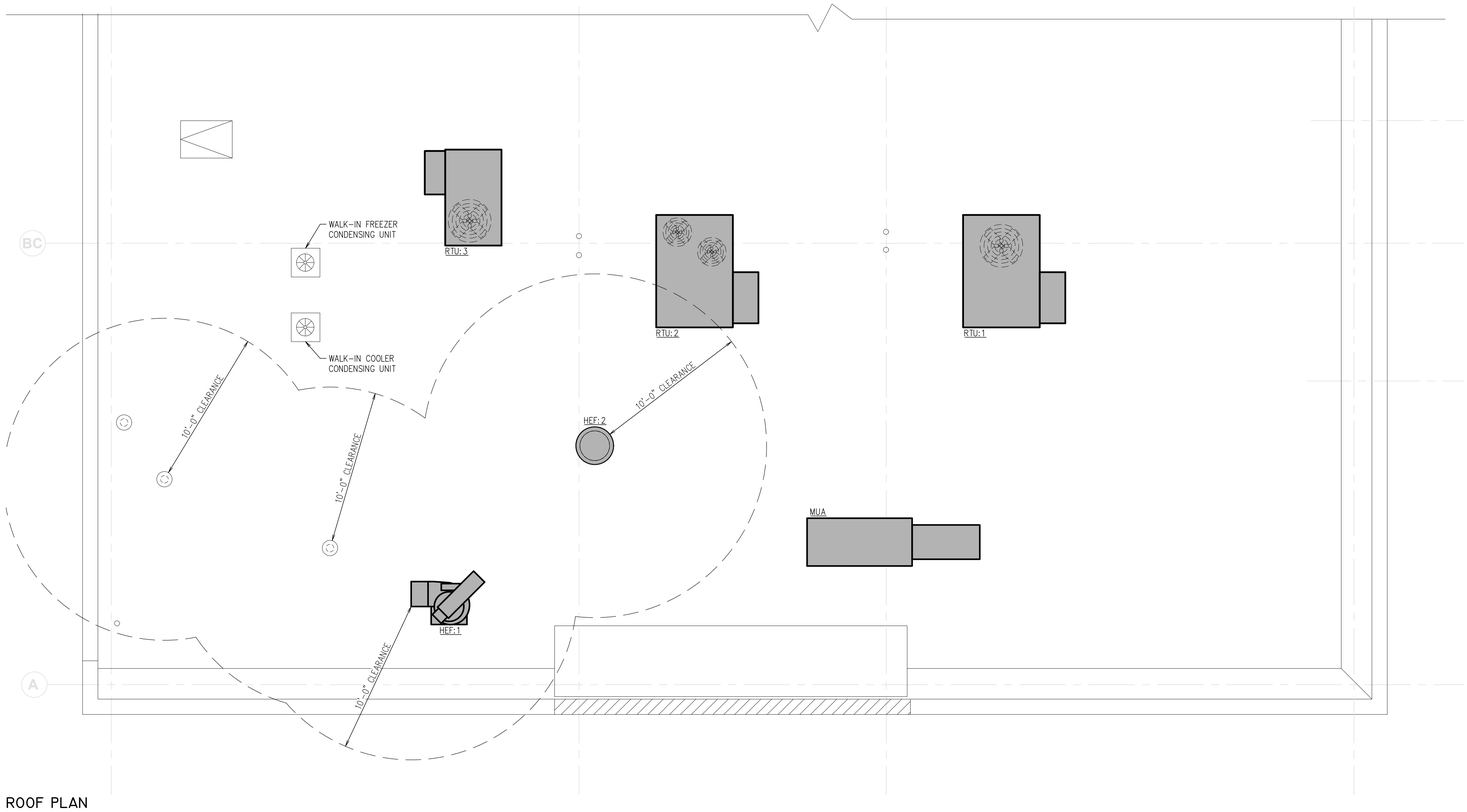
M0.1



AIR DISTRIBUTION PLAN

Scale: 1/4" = 1'-0"



ROOF PLAN

Scale: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE AND INSTALL 7-DAY PROGRAMMABLE THERMOSTAT AT MANAGER'S DESK. PROVIDE REMOTE SENSOR 48"AFF AT THE LOCATION INDICATED. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER.
2. PROVIDE DUCT SMOKE DETECTORS IN THE SUPPLY AND RETURN DUCT OF EACH UNIT. DUCT SMOKE DETECTOR SHALL BE TIED TO THE FIRE ALARM PANEL, IF PRESENT, OR THEY SHALL SHUT DOWN THE UNIT AS REQUIRED BY CODE REQUIREMENTS. PROVIDE REMOTE TEST AND RESET BUTTONS AT LOCATION INDICATED. THE FIRE ALARM PANEL SHALL BE ABLE TO SHUT DOWN ALL AIR HANDLING UNITS SIMULTANEOUSLY. COORDINATE WITH FIRE ALARM CONTRACTOR.
3. CONCENTRIC VENT LINE FOR COMBUSTION AIR INTAKE/EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF TERMINATION KIT. ROUTE PIPING FROM RESPECTIVE UNIT TO LOCATION INDICATED ON PLAN. ROUTE PIPING WITH MINIMAL AMOUNT OF BENDS AND MINIMUM LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURER'S REQUIREMENTS.
4. ANSUL SYSTEM PULL STATIONS. COORDINATE EXACT LOCATION WITH SYSTEM VENDOR AND FIRE MARSHALL.
5. SUPPLY DUCT DOWN TO HOOD SUPPLY COLLAR. PROVIDE VOLUME DAMPERS. TYPICAL FOR ALL COLLARS.
6. HVAC UNIT SUPPLY AND RETURN DUCTWORK SHALL BE PROPERLY INSULATED. ALL EXPOSED DUCTWORK SHALL BE INTERNALLY INSULATED. ALL CONCEALED DUCTWORK SHALL BE EXTERNALLY INSULATED.

AIR BALANCE

UNIT	AREA SERVED	SUPPLY AIR	RETURN AIR	OUTSIDE AIR Volume	OUTSIDE AIR %OA	MAKEUP AIR	EXHAUST AIR
RTU:1	DINING ROOM	4,000 CFM	3,200 CFM	800 CFM	20%		500 CFM
RTU:2	KITCHEN	3,000 CFM	2,400 CFM	600 CFM	20%		350 CFM
RTU:3	KITCHEN	2,000 CFM	1,600 CFM	400 CFM	20%		250 CFM
MUA	HOODS					1,900 CFM	
HEF:1	HOODS						1,600 CFM
HEF:2	HOODS						775 CFM
TEF:1	RESTROOM						110 CFM
TEF:2	RESTROOM						110 CFM
	TOTALS:	9,000 CFM	7,200 CFM	1,800 CFM		1,900 CFM	3,695 CFM
	BUILDING PRESSURE ..... POSITIVE 5 CFM						
	POSITIVE AIR BALANCE OF 0%						

The Contractor Shall Provide An Air Balance Report From An Independent Company To Ensure The Installation Is Within The Design Tolerances Allowed

VENTILATION CALCULATIONS

OCCUPIED AREA	AREA FT²	MINIMUM PERSONS PER FT²	REQUIRED OUTSIDE AIR CFM PER PERSON	REQUIRED OUTSIDE AIR PER FT²	MINIMUM OUTSIDE AIR (CFM) OCCUPANTS	AREA	E_z	TOTAL	MINIMUM RESTROOM EXHAUST Fixture Count	Min CFM per Fixture	Min Req. Exhaust	REQUIRED EXHAUST AIR PER FT²	MINIMUM EXHAUST AIR PER FT²
Dining Area	1,260	70	89	7.5	0.18	667.5	227	0.80	1,118	-	-	-	-	-
Corridor	231	0	0	0	0.06	0	14	0.80	17	-	-	-	-	-
Kitchen	1,128	20	23	7.5	0.12	172.5	135	0.80	385	-	-	-	0.70	789.60
Office	57	5	1	5	0.06	5	3	0.80	11	-	-	-	-	-
Men's RR	53	-	-	-	-	-	-	-	-	1	50	50	-	-
Women's RR	90	-	-	-	-	-	-	-	-	1	50	50	-	-
DEFAULT OCCUPANT DENSITY					1531 CFM Minimum Outside Air				50 CFM Minimum Exhaust			790 CFM Minimum Exhaust	

E_z - Zone Air Distribution Effectiveness

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

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Phone (732) 212-0000 Fax (732) 212-0059
JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - AIR DISTRIBUTION PLAN

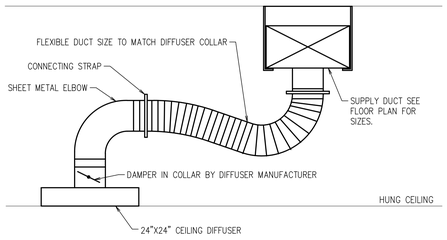
DATE
1/13/2025
REV 1 3/14/2025

DRAWN BY: SC
CHECKED BY: JS
PROJECT NO: G24-75

SHEET NO.
M1.1

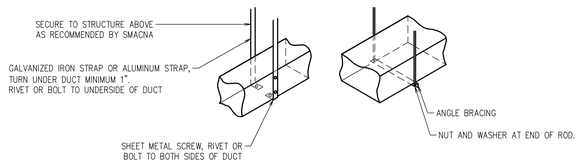
DATE PRINTED: WEDNESDAY, MARCH 12, 2025 4:53:38 PM

SYLVESTRO CONSULTING PROJECT NUMBER: G320 LAST REVISED ON: MARCH 12, 2025

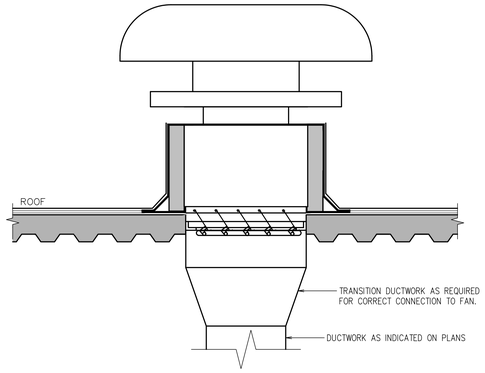


DIFFUSER CONNECTION DETAIL

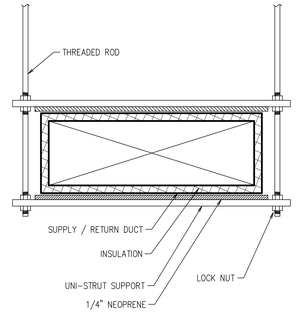
RECTANGULAR DUCT HANGER SCHEDULE (MINIMUM SIZES)								
HALF DUCT PERIMETER RANGE	PAIR AT 10' SPACING		PAIR AT 8' SPACING		PAIR AT 5' SPACING		PAIR AT 4' SPACING	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 < 30"	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	12 GA. (0.106")	1"x 22 GA.	12 GA. (0.106")
P/2 < 72"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"	1"x 22 GA.	1/4"	1"x 22 GA.	1/4"
P/2 < 96"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	3/8"	1"x 22 GA.	1/4"
P/2 < 120"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"
P/2 < 168"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"
P/2 < 192"	–	1/2"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 16 GA.	3/8"

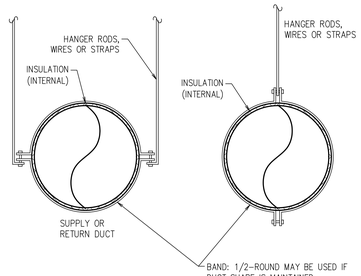


DUCT HANGER DETAILS



ROOFTOP MUSHROOM CAP





NOTES:
1. Hangers Must Not Deform Duct Shape. Hang Per Local Seismic Regulations.

DUCT SUPPORT DETAILS

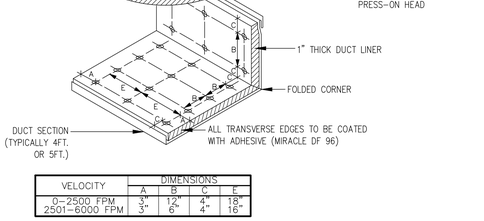
DIFFUSER AND REGISTER SCHEDULE

UNIT ID	MANUFACTURER	MODEL	DECRIPTION	REMARKS
A	TITUS	TMSA-AA	ALUMINUM, FULL LOUVERED FACE, FULL PANEL FACE, ADJUSTABLE DISCHARGE, AND VOLUME CONTROL OPPOSED BLADE DAMPER, MODEL AG-75-AA.	1,2,3,4,5
C	TITUS	TMRA	ALUMINUM ROUND DIFFUSERS AIRFLOW DISCHARGE PATTERN SHALL BE FIELD ADJUSTABLE FROM HORIZONTAL TO VERTICAL WITH VOLUME CONTROL DAMPER.	1,2,5
R	TITUS	50F	ALUMINUM BORDER RETURN GRILLE - 1/2"x1/2"x1/2" ALUMINUM GRID CORE. VOLUME CONTROL OPPOSED BLADE DAMPERS, MODEL AG-15-AA. OPERABLE FROM FACE.	1,2,4,5

NOTES:
1. Maximum Noise Criterion Rating < 30 DBA.
2. Black Finish, Color To Be Selected By Architect.
3. Diffusers Shall Be 4-Way Blow Unless Otherwise Indicated On Plans.
4. Mounting Frame Type Shall Be Coord. With Ceiling / Wall Construction Type.
5. Neck Size Shall Be As Scheduled.
6. Flexible Ducts Connecting The Diffusers Shall Be Full Size Of Neck Diameter.

Round Neck Size Schedule

UP TO 100 CFM	- 6" DIA
101 TO 225 CFM	- 8" DIA
226 TO 375 CFM	- 10" DIA
376 TO 600 CFM	- 12" DIA
601 TO 900 CFM	- 14" DIA
901 TO 1500 CFM	- 16" DIA



VELOCITY	DIMENSIONS			
	A	B	C	E
0–2500 FPM	3"	12"	4"	18"
2501–6000 FPM	3"	6"	4"	16"

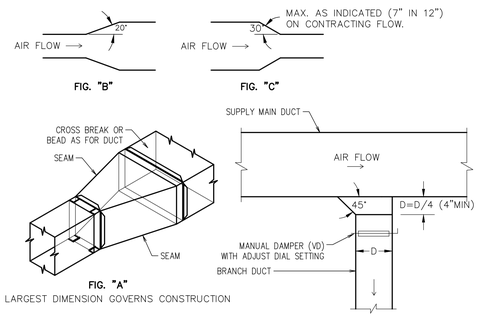
NOTES:
1. Maximum Spacing For Fasteners. Actual Intervals Are Approximate.
2. The Velocity Rated Side Of Liner Must Face The Air Flow.
3. Liner Adhered To The Duct With 90% Minimum Area Coverage Of Adhesive.

DUCT LINER INSTALLATION DETAIL

FAN SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	TYPE	DRIVE	CFM	FAN	S.P.	MOTOR			SERVICE	INTERLOCKED	COMMENTS
						RPM	(IN. W.G.)	HP	VOLTS	PHASE		WITH	
TEF:1-2	GREENHECK	SP-B110	CEILING	DIRECT	110	940	0.125	Frac	120	1	RESTROOMS	LIGHTING	1 - 6

COMMENTS:
1. Provide with Disconnect Switch
2. Provide with Backdraft Damper.
3. Flexible Duct Connections.
4. Vibration Isolators.
5. Speed Control Switch Mounted To Fan Cabinet For Exact Balancing.
6 Exterior Louver



NOTE:
1. Duct Transitions Typical After Each Take-Off(s) Where Change In Duct Size Is Indicated.

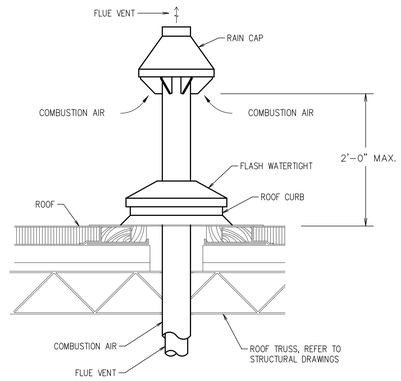
DUCT TRANSITION DETAILS

ROOFTOP UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	NOMINAL TONS	SUPPLY FAN			GAS HEAT SECTION			COOLING COIL					COMPRESSORS			ELECTRICAL				EER	OPERATING WEIGHT (lbs)	NOTES AND REQUIRED ACCESSORIES
				TOTAL AIR (CFM)	MINIMUM OUTSIDE AIR (CFM)	ESP (W.G)	INPUT (MBH)	OUTPUT (MBH)	STAGES	TOTAL MBH	SENS. MBH	AMBIENT AIR	EAT db	EAT wb	NO	STAGES	REFRIG	VOLTS	PHASE	MCA	MOCP			
RTU:1	CARRIER	48HCEG11	10	4,000	800	0.75	224	180	2	119.8	92.5	95	80	67	2	2	R-410A	208	3	53	60	12	1,448	1 - 15
																		480	3	24.9	30			
RTU:2	CARRIER	48HCED08	7.5	3,000	600	0.75	150	115	2	93.3	72.2	95	80	67	2	2	R-410A	208	3	43	50	12	925	1 - 15
																		480	3	20	25			
RTU:3	CARRIER	48HCEA06	5	2,000	400	0.75	115	93	1	60.42	48	95	80	67	1	1	R-410A	208	3	30	45	12.85	815	1 - 15
																		480	3	13.8	20			

NOTES:
1. Cooling capacity indicated in schedule based on standard conditions db/wb - 80/67 °F.
2. Insulated roof curb, 14" (sloped to match pitch of roof, refer to architectural drawings).
3. Cabinet with 3/4" fiberglass insulation and hinged access doors.
4. Condensate drain with 2" deep vented trap discharge to splash block on roof.
5. Weatherproof non-fused, handle type disconnect switch. Verify Voltage
6. Factory installed GFCI receptacle - Unit Powered.
7. Duct Smoke Detector - unit mounted, Return, Supply or Both per Code
8. Programmable thermostat (24 hour, 7-day) with remote sensor capability. Provide remote sensors when indicated.
9. Throwaway 2" filters (MERV 8).
10. Multiple stage gas valve if available with unit.
11. Anti short cycle timer.
12. Factory installed differential enthalpy economizer with power exhaust.
13. Control board capable of handling a DCV system to provide operational control of outside air damper.
14. Hot gas reheat with associated controls and sensors for dehumidification control.
15. Variable Frequency Drive (VFD) with Variable Air Volume (VAV) control.

THE MECHANICAL CONTRACTOR SHALL VERIFY, IN WRITING, THE VOLTAGE OF ALL MECHANICAL EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING ORDER TO EQUIPMENT VENDOR.



COMMENTS:
1. TYPICAL ONLY FOR PIPES WITH TEMPERATURES LESS THAN 250°F.
2. ROOF PENETRATION SHALL BE WEATHERPROOF.
3. PITCH FLUE PIPING BACK TOWARDS UNIT.
4. ONE (1) FOR EACH UNIT.

WATER HEATER CONCENTRIC VENT DETAIL

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

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2517 Route 35 - Building E - Suite101
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Phone (732) 212-0059 Fax (732) 212-0059
JOSE C. SANTOS, RA. - NJ AI18745

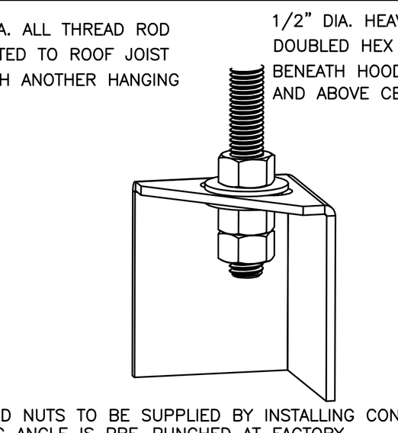
MECHANICAL - DETAILS

DATE
1/13/2025

DRAWN BY: SC
CHECKED BY: JS
PROJECT NO: G24-75

SHEET NO.
M2.1

ND-2 HANGING ANGLE DETAIL



* ROD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR HANGING ANGLE IS PRE-PUNCHED AT FACTORY

HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24"H)	DIM FROM FRONT (30"H)
CANOPY ND2	4.166"	2.246"	2.246"
ND2-PSP-F	4.166"	2.246"	2.246"
BACKSHELF BD-2	4.166"	2.246	–
VHB/VHB-G	36"X36"	42"X42"	48"X48"
FRONT/BACK DIMS BY SIZE	2.246"	2.246"	2.246"

CALCULATIONS UTILIZED

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

$$\text{TOTAL DUCT AREA} = 144 \times \frac{\text{CFM}}{\text{FPM}(*)}$$

$$\text{DUCT LENGTH} = \frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$$

* CAPTIVE-AIRE DUCT CONNECTION SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1500-1800 FPM AND A SUPPLY VELOCITY OF 300-400 FPM.

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

ETL LISTED #3054804-001 & #3054804-002 · UL STANDARD 710 · ETL SANITATION LISTED Intertek · BUILT IN ACCORDANCE WITH NFPA No. 96

Listed under ETL File number 3054804-001/002

CLEARANCE TO COMBUSTIBLES

CAPTIVE-AIRE HOODS HAVE OPTIONAL CLEARANCE REDUCTION SYSTEMS AVAILABLE AS FOLLOWS:

MATERIAL	CLEARANCE REDUCTION SYSTEM
NON-COMBUSTIBLE	NONE REQUIRED
LIMITED-COMBUSTIBLE	3" UNINSULATED STANDOFF
COMBUSTIBLE	1" INSULATED STANDOFF

GENERAL NOTES

INSTALLATION

1. ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
3. HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
4. ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTORS'S PLANS.
5. COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
6. EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
7. ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
8. LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
9. SEISMIC RESTAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
10. INSTALLING CONTRACTORS ASSUME ALL RELATED REPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DOCUMENTS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

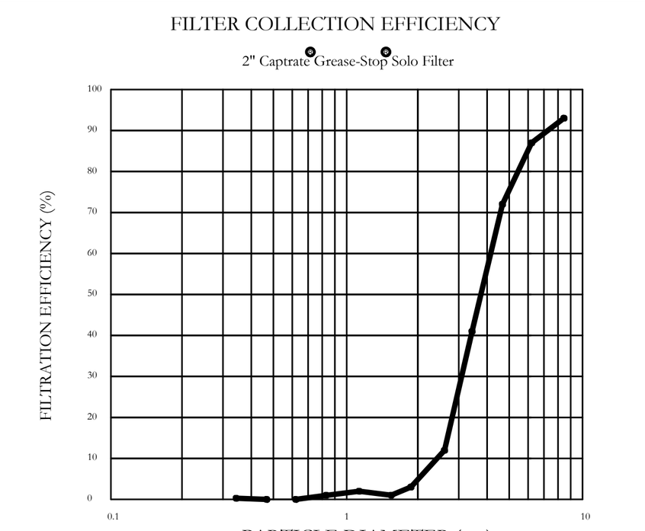
BALANCE

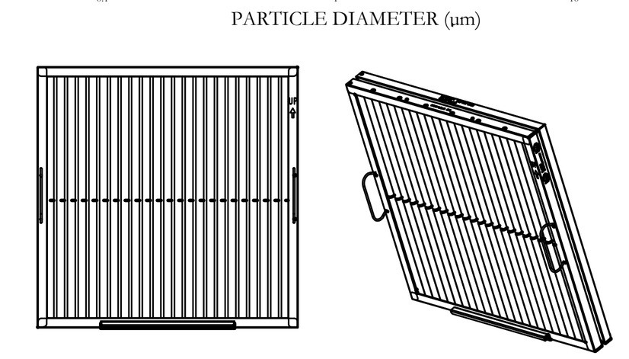
11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.
13. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.

ADDITIONAL

14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
15. SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

FILTER DETAIL





CaptiveAire Captrate Solo Filter
ETL Listed Grease Extracting Filters
Made From 430 Stainless Steel

HOOD INFORMATION – JOB#7328629

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	ITEM 33A	5424 ND-2-ACPSP-F	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	200	1600			4"	14"	1600	1497	-0.734"	1280	500	430 SS WHERE EXPOSED	ALONE	FRONT
2	ITEM 33B	5424 ND-2-ACPSP-F	CAPTIVEAIRE	5' 0"	450 DEG	I	MEDIUM	155	775			4"	10"	775	1421	-0.436"	620	309	430 SS WHERE EXPOSED	ALONE	ALONE

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	ITEM 33A	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0/4.0	DCV-2111	1 LIGHT 1 FAN	YES	1064 LBS
2	ITEM 33B	CAPTRATE SOLO FILTER	3	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							YES	449 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	ITEM 33A	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		INSULATION FOR TOP OF HOOD.
		INSULATION FOR BACK OF HOOD.
2	ITEM 33B	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		INSULATION FOR TOP OF HOOD.
		INSULATION FOR BACK OF HOOD.
		RISER SENSOR INSTALL 6IN PLEN.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	ITEM 33A	Front	109"	24"	6"	MUA			12"	256	0.084"
						MUA			12"	256	0.084"
						MUA			12"	256	0.084"
						MUA			12"	256	0.084"
						MUA			12"	256	0.084"
						AC			8"	100	0.032"
						AC			8"	100	0.032"
						AC			8"	100	0.032"
						AC			8"	100	0.032"
						AC			8"	100	0.032"
2	ITEM 33B	Front	60"	22"	6"	MUA			10"	155	0.047"
						MUA			10"	155	0.047"
						MUA			10"	155	0.047"
						MUA			10"	155	0.047"
						AC			8"	103	0.034"
						AC			8"	103	0.034"
						AC			8"	103	0.034"

SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

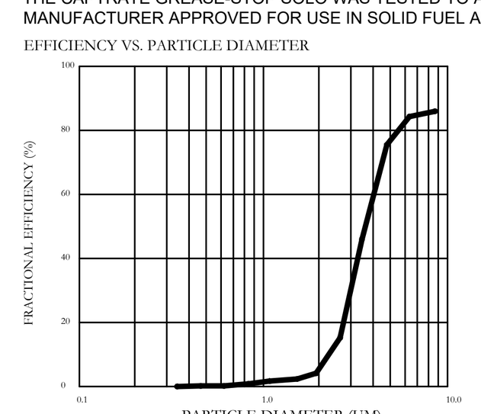
THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

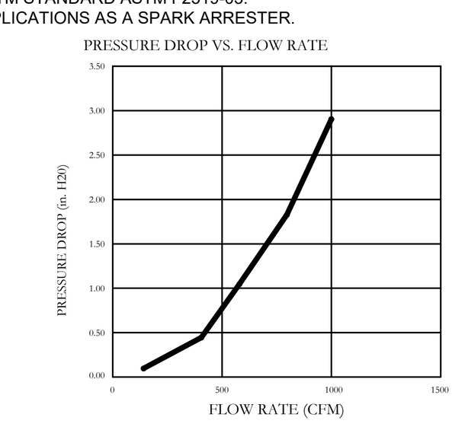
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

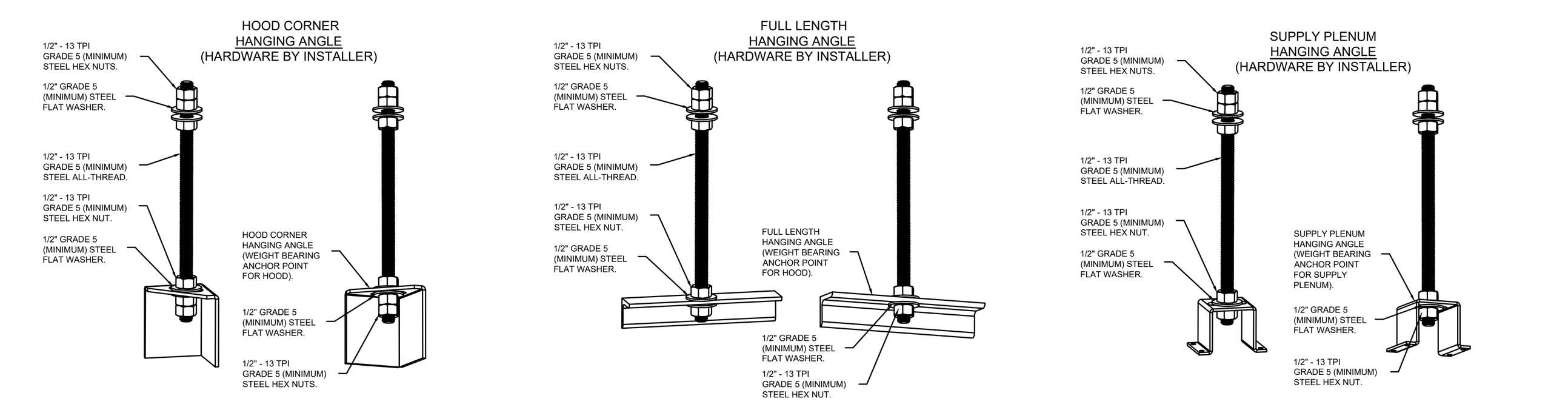
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.





CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:.
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.



ASSEMBLY INSTRUCTIONS

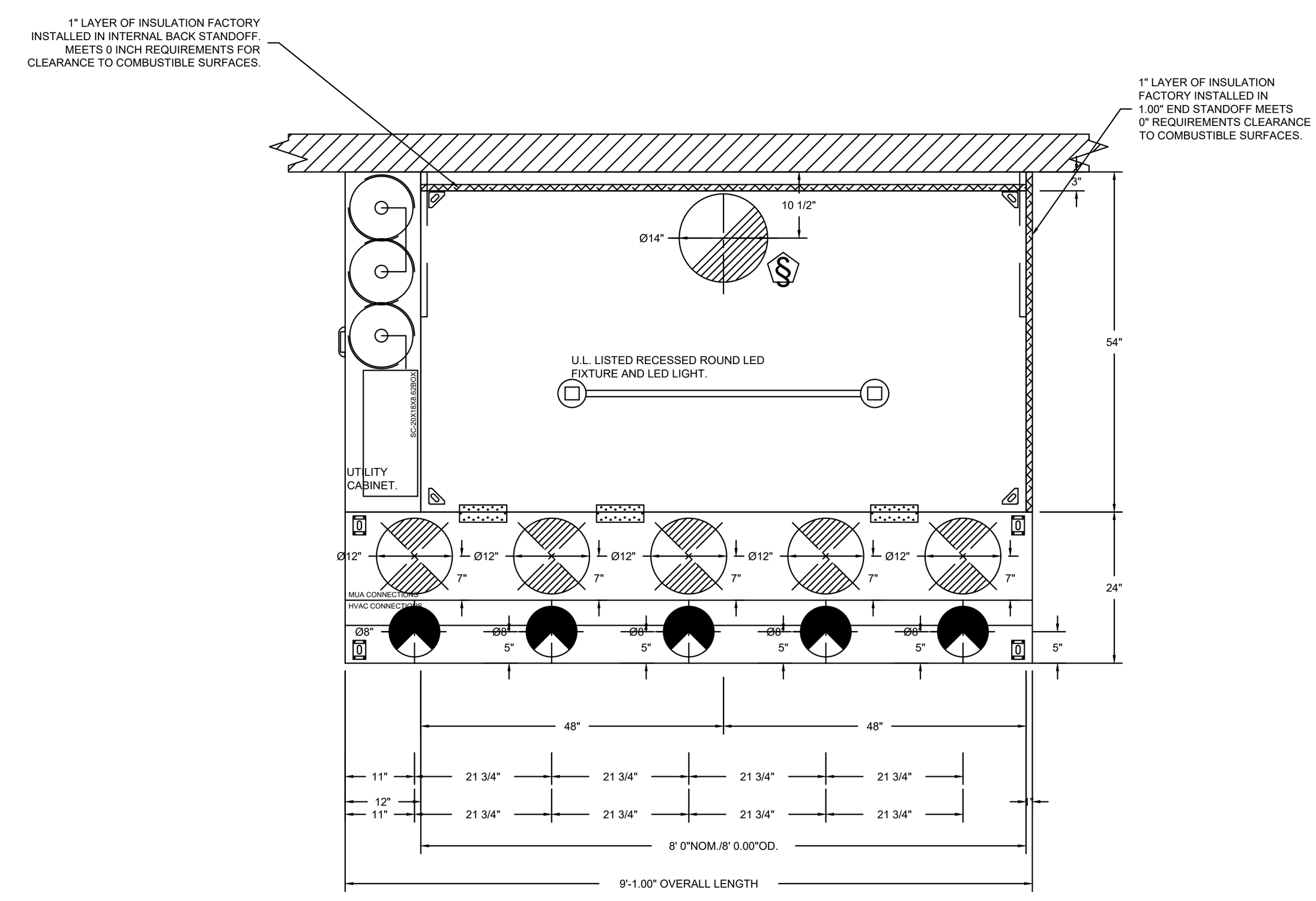
HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

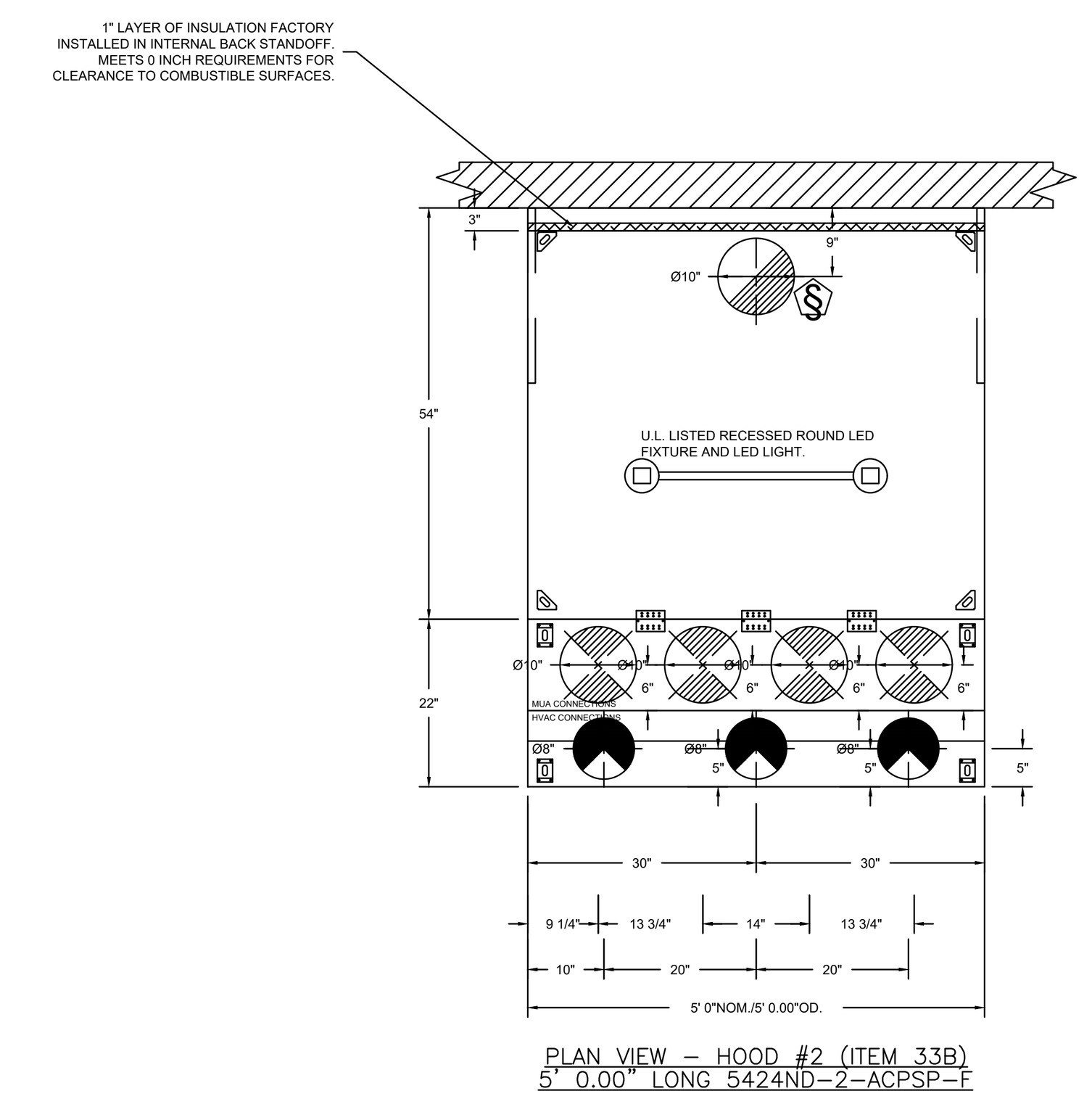
ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



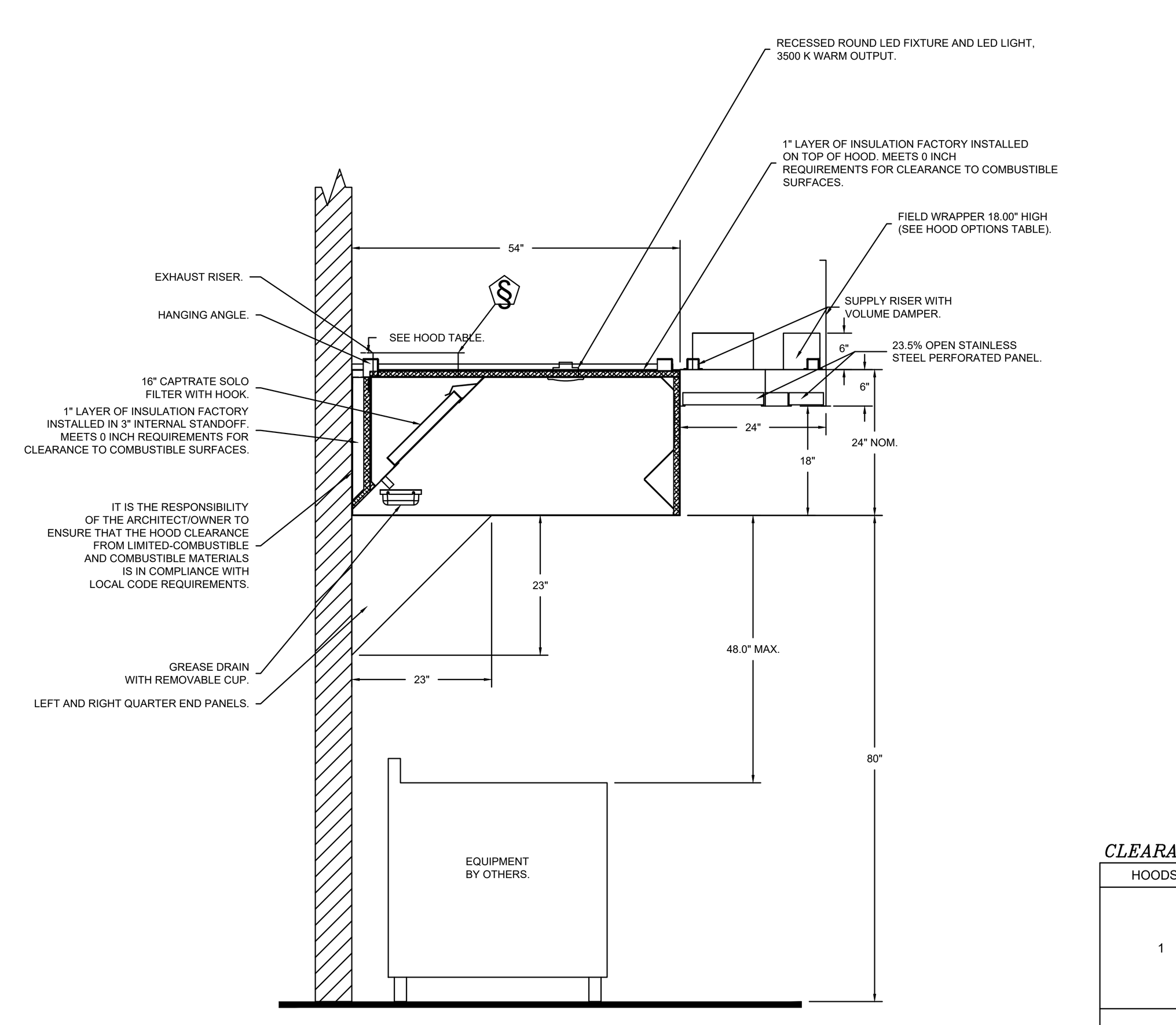
PLAN VIEW – HOOD #1 (ITEM 33A)
8' 0.00" LONG 5424ND-2-ACPSP-F

ACPSP SHIPS LOOSE FOR FIELD INSTALLATION



PLAN VIEW – HOOD #2 (ITEM 33B)
5' 0.00" LONG 5424ND-2-ACPSP-F

ACPSP SHIPS LOOSE FOR FIELD INSTALLATION

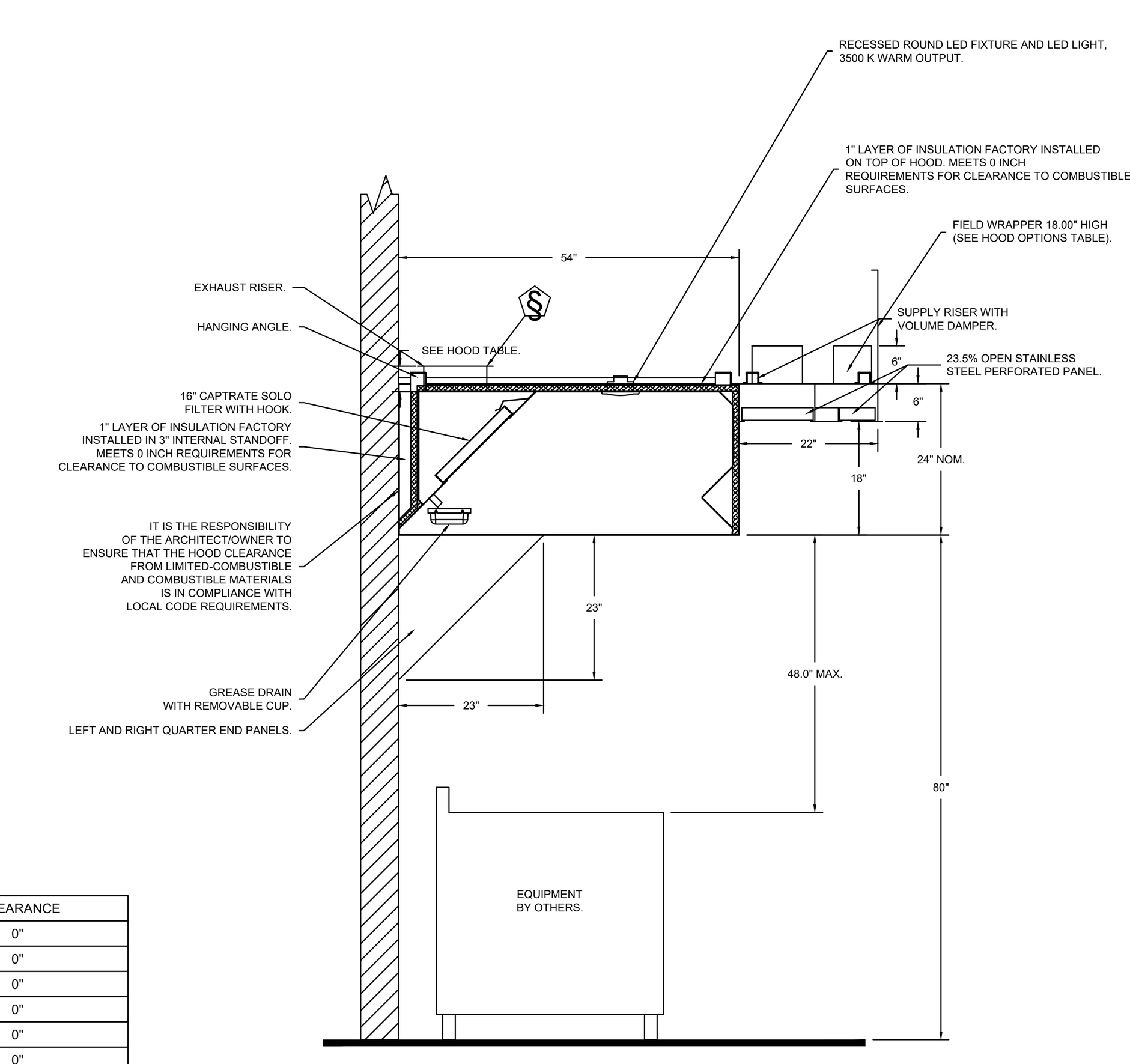


SECTION VIEW – MODEL 5424ND-2-ACPSP-F
HOOD – #1 (ITEM 33A)

CLEARANCE TO COMBUSTIBLES

HOODS #	SURFACE	*CLEARANCE
1	TOP	0"
	FRONT	0"
	BACK	0"
	LEFT	0"
	RIGHT	0"
2	TOP	0"
	FRONT	0"
	BACK	0"
	LEFT	18"
	RIGHT	18"

- *0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
- HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.



SECTION VIEW – MODEL 5424ND-2-ACPSP-F
HOOD – #2 (ITEM 33B)

FOR QUESTIONS, CALL THE:
KANSAS CITY REGIONAL OFFICE
1126 SWIFT STREET, KANSAS CITY, MO 64116
PHONE: (816) 221-8575
FAX: (816) 221-8311

CUSTOMER APPROVAL TO MANUFACTURE:

- Approved as Noted ☐
- Approved with NO Exception Taken ☐
- Revise and Resubmit ☐

SIGNATURE ____________________

Your Title ________ Date ________

*** NOTE ***

ALL WALLS AND STRUCTURES THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. WOOD STUDS OR ANY OTHER COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD NO ALLOWED.

*** NOTE ***

HOOD MANUFACTURER RECOMMENDS NO RETURNS OR 4-WAY DIFFUSERS WITHIN 10 FEET OF HOOD IN ALL DIRECTION.

*** NOTE ***

MAKEUP AIR SHALL BE DELIVERED INTO SPACE IN MANNER THAT WILL NOT DISRUPT HOODS ABILITY TO CAPTURE AND CONTAIN.

REVISIONS DESCRIPTION	DATE:
△	
△	
△	
△	

CAPTIVEAIRE
HBT Foodservice
www.captiveaire.com
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

Freddy's - Holmdel, NJ (MUA)
HOLMDEL, NJ, 07733

DATE: 2/7/2025
DWG.#: 7328629
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 1

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

Architrave GROUP PC
2517 Route 35 - Building E - Suite101
Manasquan, New Jersey 08736
Phone (732) 212-0007 Fax (732) 212-0059
JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - HOOD SPECIFICATIONS

DATE
1/13/2025

DRAWN BY: SC
CHECKED BY: JS
PROJECT NO: G24-75
SHEET NO.
M2.2

FIRE SYSTEM INFORMATION – JOB#7328629

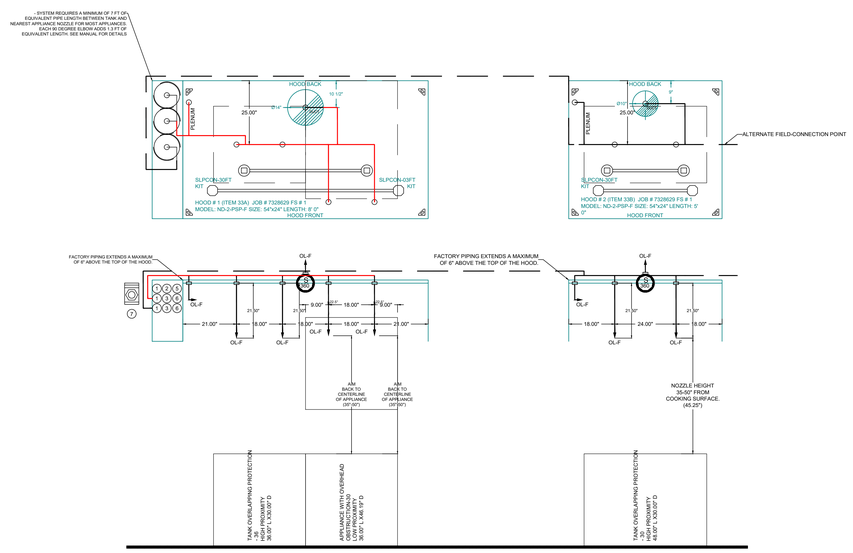
FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0/4.0	60	42	FIRE CABINET LEFT	LEFT, HOOD 1

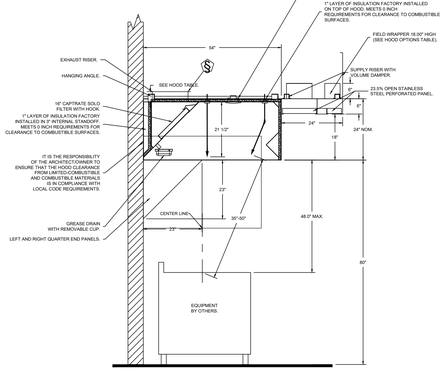
GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	1.250	CAPTIVEAIRE SYSTEMS

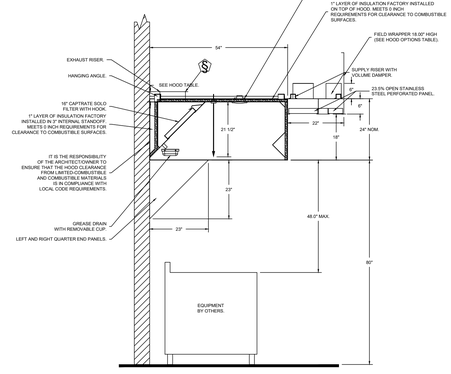
FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 13-F28021-32144-OT-360-DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F. (A0034310).	2	0
		0 - 0 - 32-00002 QUIK SEAL - 1/2" (ULL).	2	0
		0 - 0 - 361091 3/8" BRASS PLUG.	3	0
		0 - 0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	3	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	2	0
		0 - 0 - 79425 3/8" NPT FEMALE TO 1/2" MALE PROPRESS ADAPTER.	3	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	3	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	3	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM. SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300033-001 DIN CONNECTOR, CANFIELD PART #5J560-201-EUGA, TANK FIRE SUPPRESSION, SUBMINATURE SOLENOID CONNECTION (CED VENDOR 30377).	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	12	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	9	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	9	0
		0 - 0 - 9869A4115 HARDWARE, DATALOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	6	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX. RED COLOR.	1	0
		0 - 0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	2	0
		0 - 0 - B1145 3/8" BLACK IRON 90 ELL.	4	0
		0 - 0 - CBI-22-5 CHROME PLATED PIPE FITTING 3/8" NPT 22.5 DEGREE ELBOW.	2	0
		0 - 0 - DATAMOLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 - 0 - SLPCON-03FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 2' GAP. KIT CONTAINS 5 FEET OF BLACK MG WIRE, 5 FEET OF TAN MG WIRE, 3 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 - 0 - SLPCON-30FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN HOODS WITH UPTO 29' GAP. KIT CONTAINS 32 FEET OF BLACK MG WIRE, 32 FEET OF TAN MG WIRE, 30 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	2	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	9	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	3	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	10	0
		16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	10	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	10	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0





SECTION VIEW – MODEL 5424ND-2-ACPSP-F HOOD – #1



SECTION VIEW – MODEL 5424ND-2-ACPSP-F HOOD – #2

NOTES
- FIELD PIPE DROPS AS SHOWN
- PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP. FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP. FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS PRE-ENGINEERED FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 7328629.
JOB NAME: FREDDY'S - HOLMDEL, NJ (MUA).

SYSTEM SIZE: TANK-SP-3 DESIGN FP: 42. MAXIMUM FP: 60.
HOOD # 1 8' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 1.4" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 5' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 1" DIA.
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

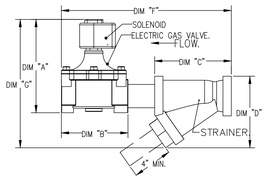
INCLUDES: FIELD INSTALLATION AND HOOKUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE. TWO SITE VISITS ONLY (ONE VISIT TO SET PULL STATION & SYSTEM HOOKUP AND ONE VISIT FOR ONE TEST. ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES). ONE MECHANICAL OR ELECTRICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 2", PERMIT, AND SYSTEM TEST. EXCLUDES: UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED IF APPLICABLE), GAS VALVE INSTALLATION, ELECTRICAL HOOKUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.

GAS VALVES AND STRAINERS																
	GAS VALVE SIZING						GAS VALVE DIMENSIONS							INSTALLATION	PART NUMBERS		
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	PIPE ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1	ELECTRICAL	1-1/4"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	1,925,000 BTU/HR	1,249,105 BTU/HR	7-5/8"	6-3/8"	5-1/8"	5-15/16"	13-1/2"	12-1/16"	HORIZONTAL/VERTICAL	B214265	4417K66	(3C)CSVA1-1/4

ELECTRIC GAS VALVES ONLY SOLENOID ORIENTATION
3/4"-2" 120VAC GAS VALVES CAN BE MOUNTED WITH THE SOLENOID IN ANY POSITON AT OR ABOVE HORIZONTAL.
2-1/2"-3" 120VAC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.
24VDC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$.



HBT Foodservice
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg9@captiveaire.com
www.captiveaire.com

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

Freddy's - Holmdel, NJ (MUA)
HOLMDEL, NJ, 07733

DATE: 2/7/2025
DWG.#: 7328629
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 2

Architrave GROUP PC
2517 Route 35 - Building E - Suite101
Manasquan, New Jersey 08736
Phone (732) 212-0007 Fax (732) 212-0069
JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - HOOD SPECIFICATIONS

DATE **1/13/2025**
DRAWN BY: **SC**
CHECKED BY: **JS**
PROJECT NO: **G24-75**
SHEET NO. **M2.3**

EXHAUST FAN INFORMATION – JOB#7328629

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	ITEM 74.1	1	CASRE18DD	CAPTIVEAIRE	1600	1.400	1225	ODP,PREMIUM	2.000	0.9520	3	460	2.7	928 FPM	303	15.7
2	ITEM 74.2	1	DUS0HFA	CAPTIVEAIRE	775	1.250	1532	TEAO-ECM	0.500	0.3950	1	115	6.3	295 FPM	102	16.4

MUA FAN INFORMATION – JOB#7328629

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
3	MUA-1	1	A1-D-250-15D	15MF-1-MOD	A1-D-250	1000	1900	0.500	2000	ODP,PREMIUM	1.500	1.2740	3	460	2.0	3.1A	15A	529	19.5

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUh	OUTPUT BTUh	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
3	MUA-1	129546	119182	59°F	7 IN. W.C. – 14 IN. W.C.	NATURAL	92

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	ITEM 74.1	1	UTILITY SET GREASE CUP
		1	RE18 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	LOAD REACTOR MOUNTED IN FAN
		1	VFD MOUNTING BRACKET FOR CASRE18DD
		1	2 YEAR PARTS WARRANTY
2	ITEM 74.2	1	GREASE BOX
		1	UPBLAST FAN WHEEL ACCESS PORT
		1	36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE)
		1	GUY LINE EYE BOLTS - USED FOR 3 GUY LINE TIE OFF POINTS
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
3	MUA-1	1	SIZE 1 TEMPERED COMMERCIAL DOWN DISCHARGE FOR DIRECT DRIVE AHUS
		1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	8HP LOOSE GAS STRAINER 3/4"
		1	MOTORIZED BACKDRAFT DAMPER FOR A1-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	FREEZESTAT
		1	LOAD REACTOR MOUNTED IN FAN
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	2 YEAR PARTS WARRANTY
		1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET

FAN ACCESSORIES

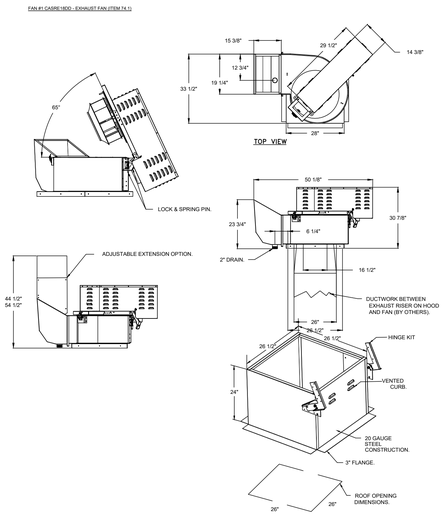
FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	ITEM 74.1	YES						
2	ITEM 74.2	YES						
3	MUA-1						YES	

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	ITEM 74.1	52 LBS	CURB	26.500"W X 26.500"L X 24.000"H VENTED HINGED.
2	# 2	ITEM 74.2	34 LBS	CURB	19.500"W X 19.500"L X 24.000"H VENTED HINGED.
3	# 3	MUA-1	63 LBS	CURB	21.000"W X 71.000"L X 15.000"H INSULATED.

HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #3	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55

FAN #1 CASRE18DD - EXHAUST FAN (ITEM 74.1)



FEATURES:

- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL762 AND ULC-S645.
- HIGH HEAT OPERATION DIRECT DRIVE 300°F (149°C).
- HEAT SLINGER.
- GREASE CLASSIFICATION TESTING.
- TILT OUT WHEEL.
- LOCKING PIN FOR POWER PACK.
- MOTOR WEATHER COVER.
- INTERLOCKED DISCONNECT SWITCH.
- NEMA 4X SAFETY DISCONNECT SWITCH.

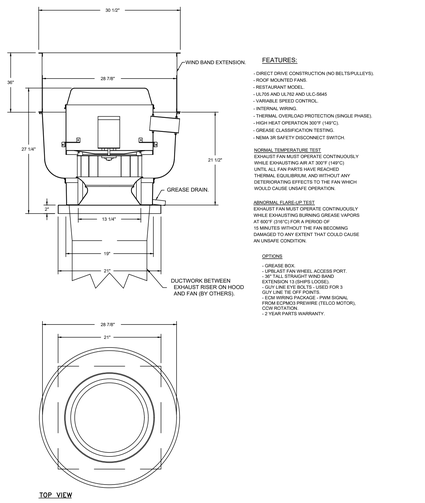
NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C).
UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST BELT & DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF
15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- UTILITY SET GREASE CUP.
- RE18 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE.
- UNIT MOUNTED VFD FOR USE WITH ECPM03.
- LOAD REACTOR MOUNTED IN FAN.
- VFD MOUNTING BRACKET FOR CASRE18DD.
- 2 YEAR PARTS WARRANTY.

FAN #2 DUS0HFA - EXHAUST FAN (ITEM 74.2)



FEATURES:

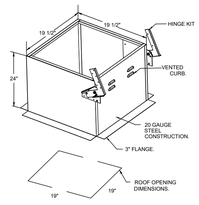
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

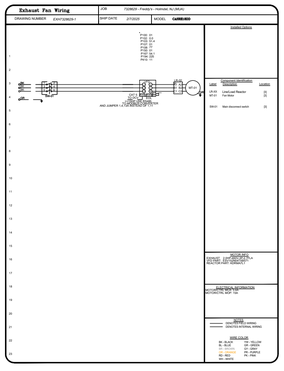
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C)
UNTIL ALL FAN PARTS HAVE REACHED
THERMAL EQUILIBRIUM, AND WITHOUT ANY
DETERIORATING EFFECTS TO THE FAN WHICH
WOULD CAUSE UNSAFE OPERATION.

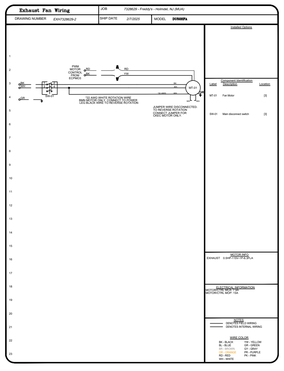
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY
WHILE EXHAUSTING BURNING GREASE VAPORS
AT 600°F (316°C) FOR A PERIOD OF
15 MINUTES WITHOUT THE FAN BECOMING
DAMAGED TO ANY EXTENT THAT COULD CAUSE
AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- UPBLAST FAN WHEEL ACCESS PORT.
- 36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE).
- GUY LINE EYE BOLTS – USED FOR 3 GUY LINE TIE OFF POINTS.
- ECM WIRING PACKAGE – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.







REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		
5		

Freddy's STEAKBURGERS

CAPTIVE AIRE
HBT Foodservice
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: regR@captiveaire.com
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FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

Freddy's - Holmdel, NJ (MUA)
HOLMDEL, NJ, 07733

DATE: 2/7/2025

DWG.#: 7328629

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 3

Architrave GROUP PC
2517 Route 35 - Building E - Suite101
Manasquan, New Jersey, 08736
Phone (732) 212-0007 Fax (732) 212-0059
JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - HOOD SPECIFICATIONS

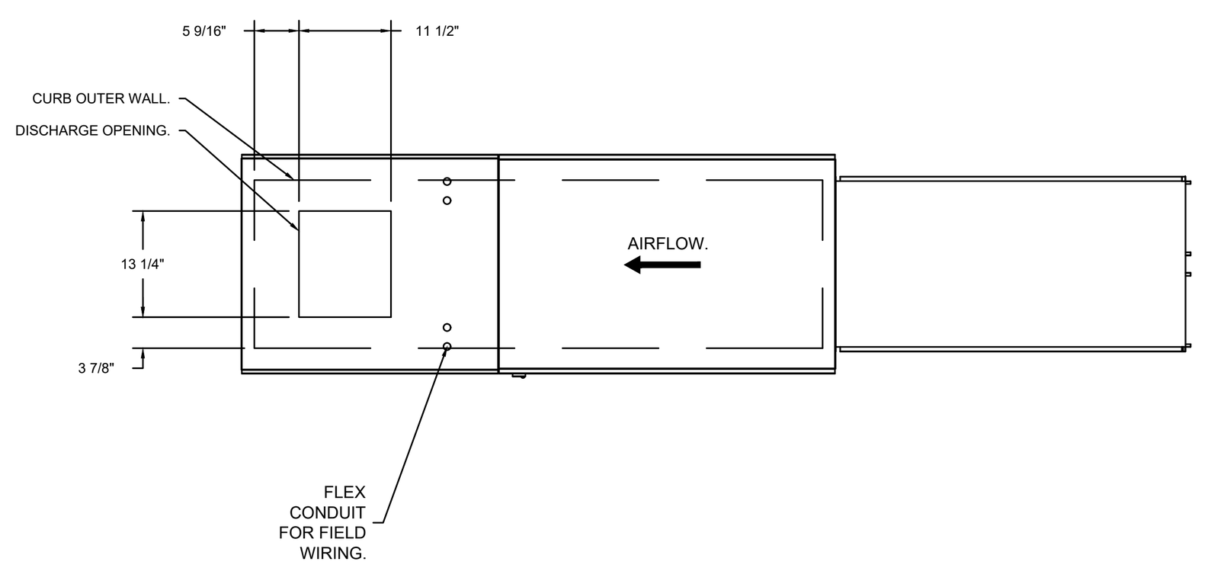
DATE	1/13/2025
DRAWN BY:	SC
CHECKED BY:	JS
PROJECT NO:	G24-75
SHEET NO.	M2.4

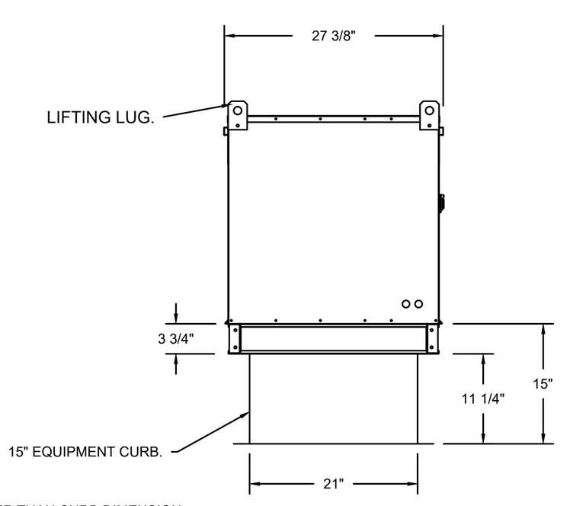
FAN #3 A1-D.250-15D - HEATER (MUA-1)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. DOWN DISCHARGE CONSTRUCTION FOR SIZE 1 DIRECT DRIVE AHUS.
5. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
6. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE.
7. SHIP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 3/4" CONNECTION.
8. MOTORIZED BACK DRAFT DAMPER 16" X 18" FOR SIZE 1 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, TFB120S ACTUATOR INCLUDED.
9. FREEZESTAT.
10. MOUNT LOAD REACTOR IN FAN.
11. UNIT MOUNTED VFD FOR USE WITH ECPM03.
12. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
13. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.
14. 2 YEAR PARTS WARRANTY.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 14" x 14".

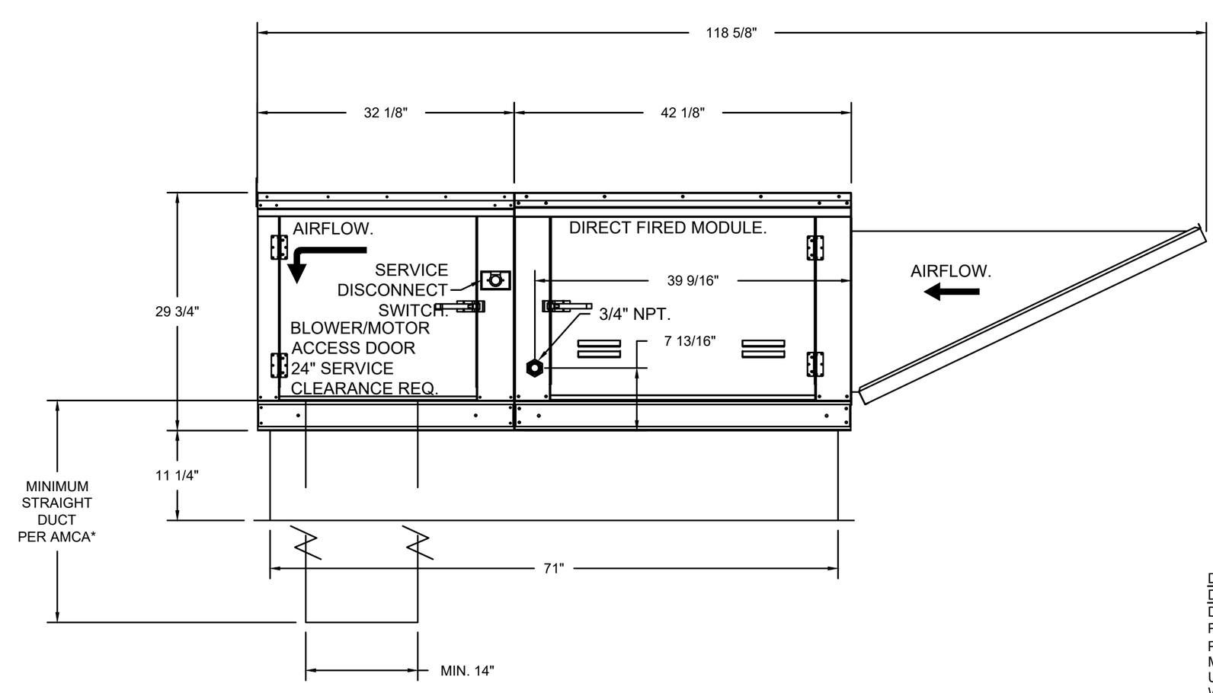
SUPPLY SIDE HEATER INFORMATION:

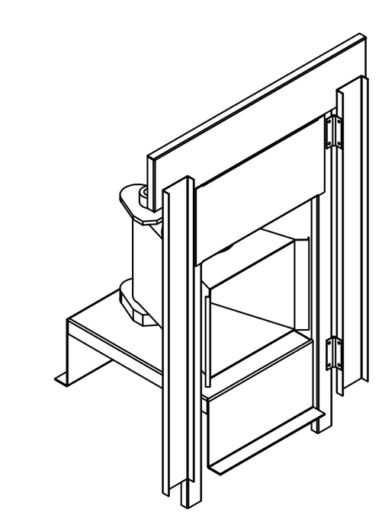
WINTER TEMPERATURE = 16°F. TEMP. RISE = 59°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 119761.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 130175.
OUTPUT BTUs AT ALTITUDE OF 134 FT. = 119182.
INPUT BTUs AT ALTITUDE OF 134 FT. = 129546.





ROOF OPENING 2" SMALLER THAN CURB DIMENSION.





DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

DIRECT FIRED PROFILE PLATE SPECIFICATIONS:

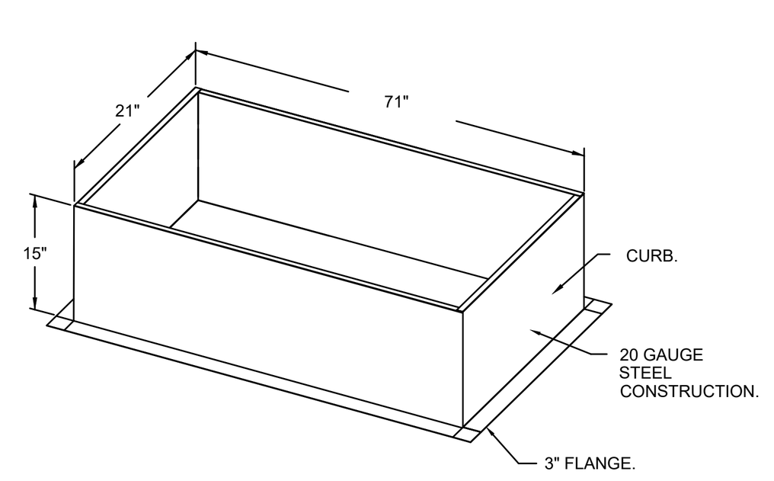
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO.: US6629523B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2). DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

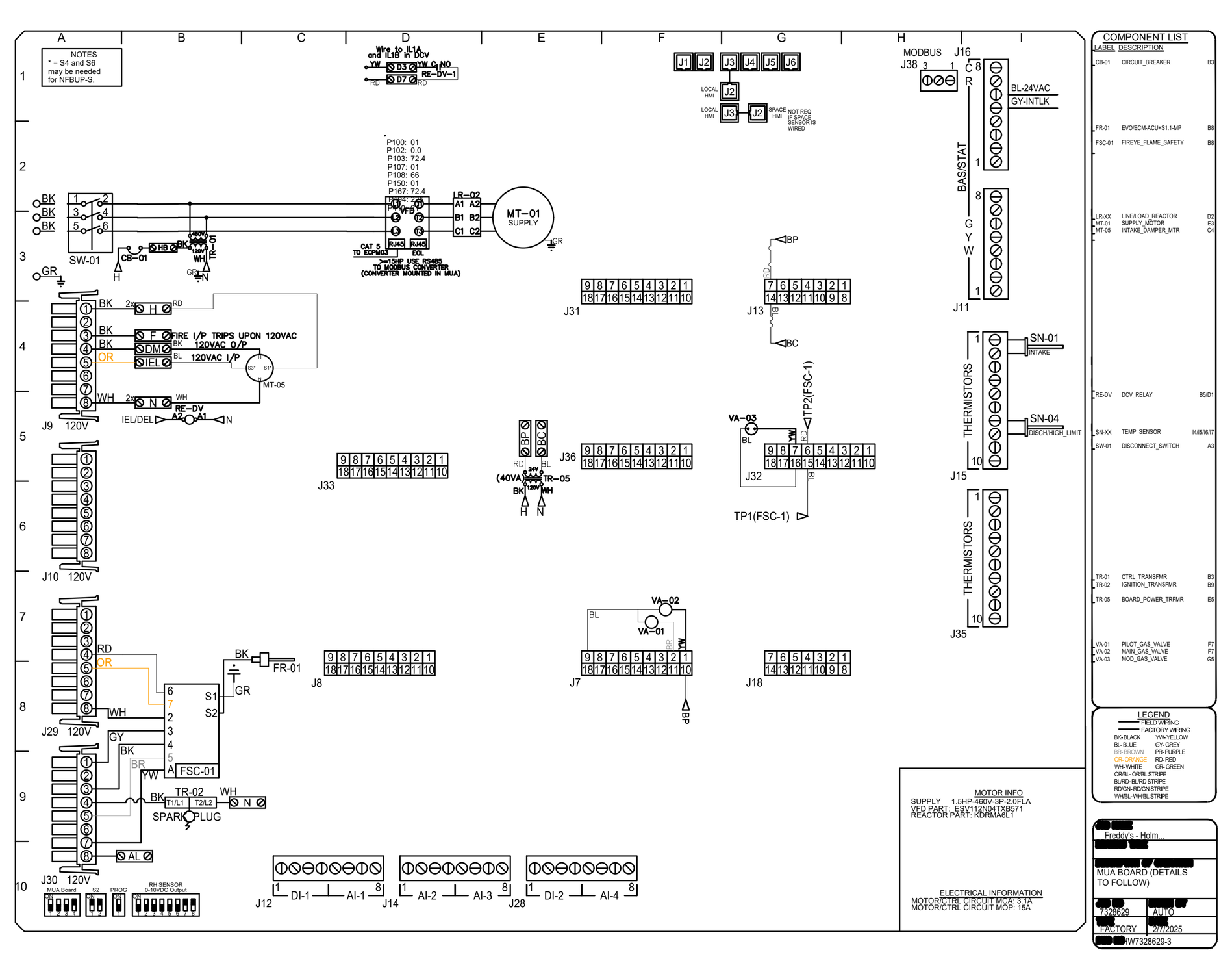
APPLICATION:
SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

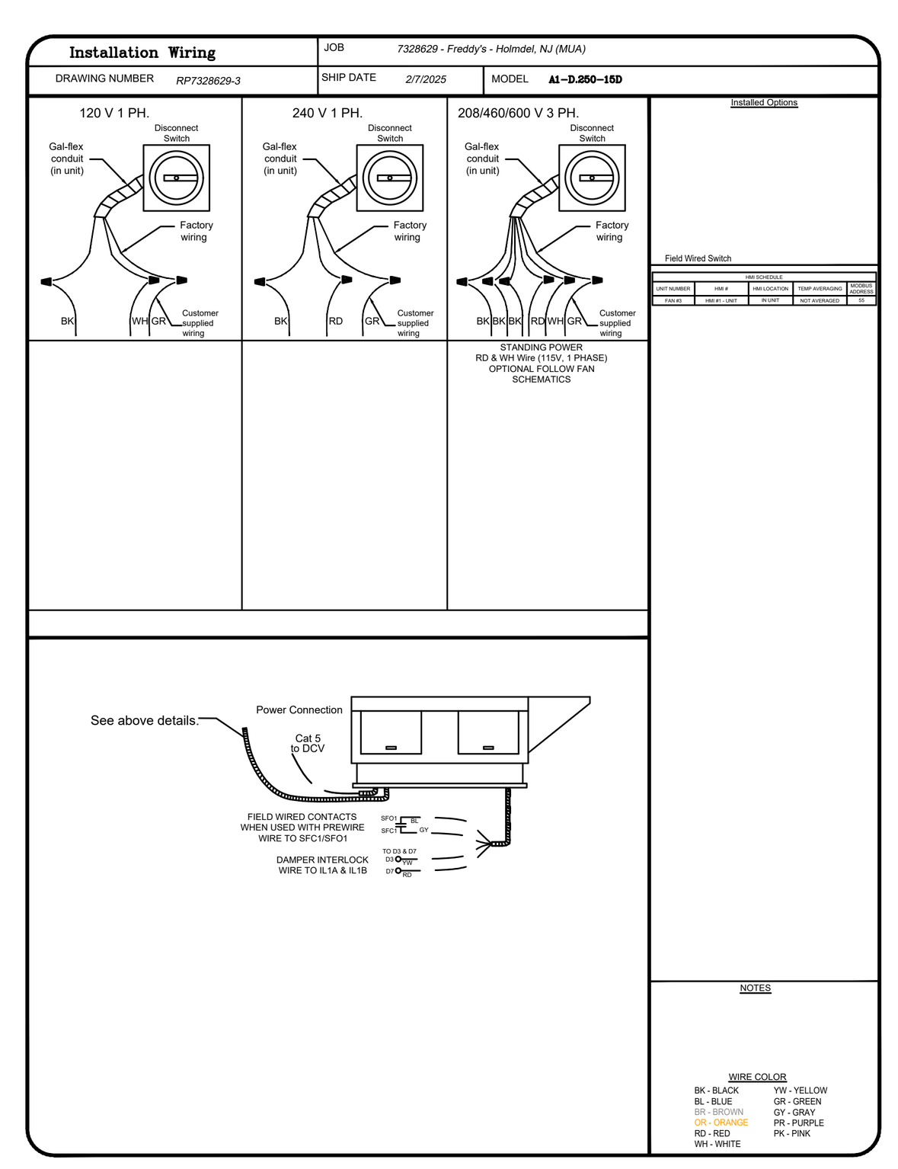
CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

OPTIONS:
- FULL BOTTOM CORNERS.







REVISIONS

	DESCRIPTION	DATE:
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Freddy's - Holmdel, NJ (MUA)

HOLMDEL, NJ, 07733

DATE: 2/7/2025

DWG.#: 7328629

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 4

Freddy's STEAKBURGERS

THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJECT AND TO REPORT ANY DISCREPANCIES TO THE FREDDY'S FROZEN CUSTARD & STEAKBURGERS REPRESENTATIVE PRIOR TO COMMENCING WORK. THESE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS INDICATED BY FREDDY'S FROZEN CUSTARD & STEAKBURGERS AS "ISSUED FOR CONSTRUCTION".

FREDDY'S FROZEN CUSTARD

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HOLMDEL, NEW JERSEY

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JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - HOOD SPECIFICATIONS

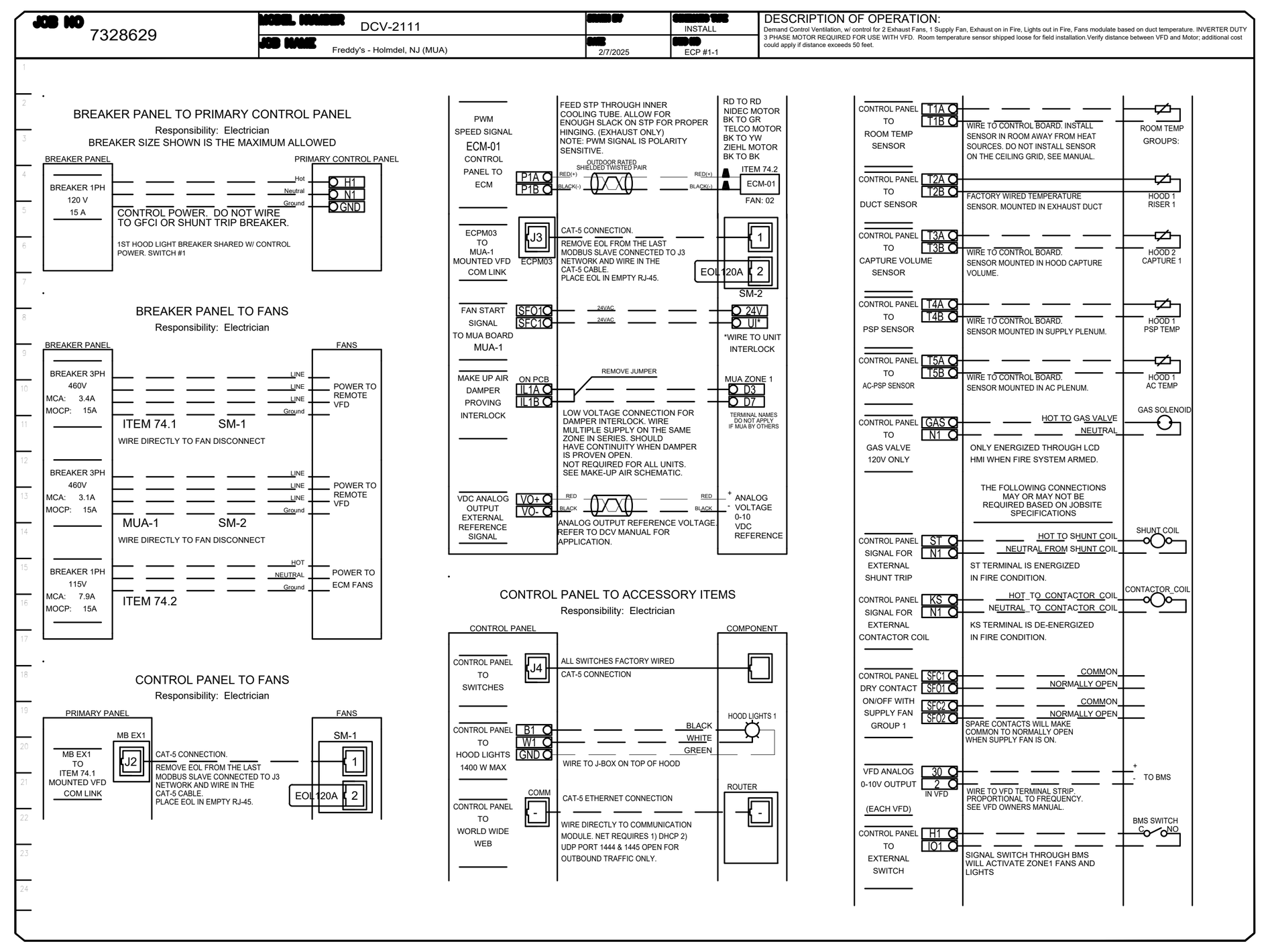
DATE
1/13/2025

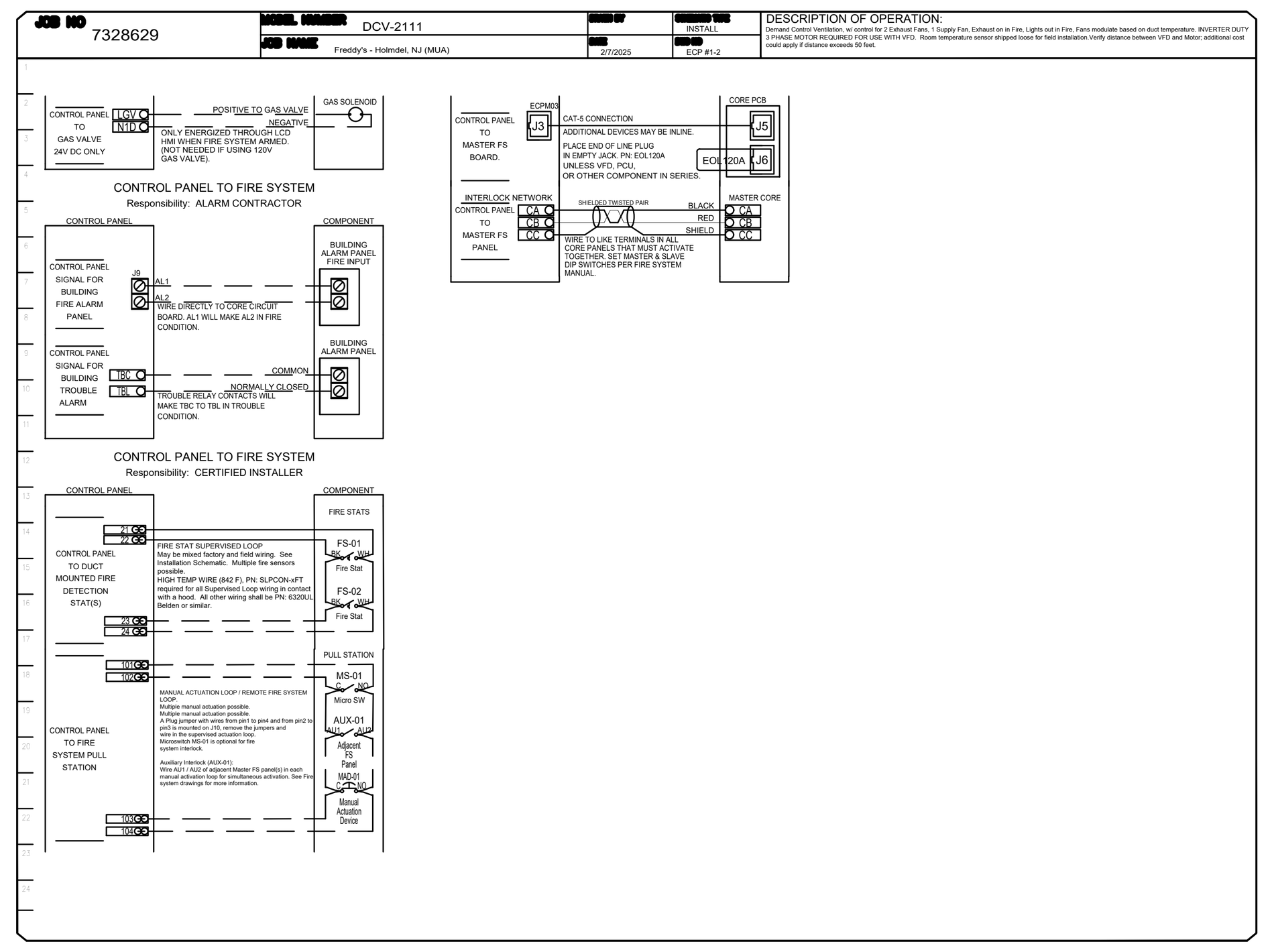
DRAWN BY: **SC**
CHECKED BY: **JS**
PROJECT NO: **G24-75**

SHEET NO.
M2.5

ELECTRICAL PACKAGE – JOB#7328629

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	ϕ	HP	VOLT	FLA
1	ECP-1	DCV-2111	UTILITY CABINET LEFT	UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	ITEM 74.1	EXHAUST	3	2.000	460	2.7
							ITEM 74.2	EXHAUST	1	0.500	115	6.3
				HOOD # 1	1 FAN		MUA-1	SUPPLY	3	1.500	460	2.0





JOB NO 7328629 | DCV-2111 | Freddy's - Holmdel, NJ (MUA) | INSTALL | 2/7/2025 | ECP #1-3

DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0/4.0

TANK PROTECTION ELECTRICAL DETAIL

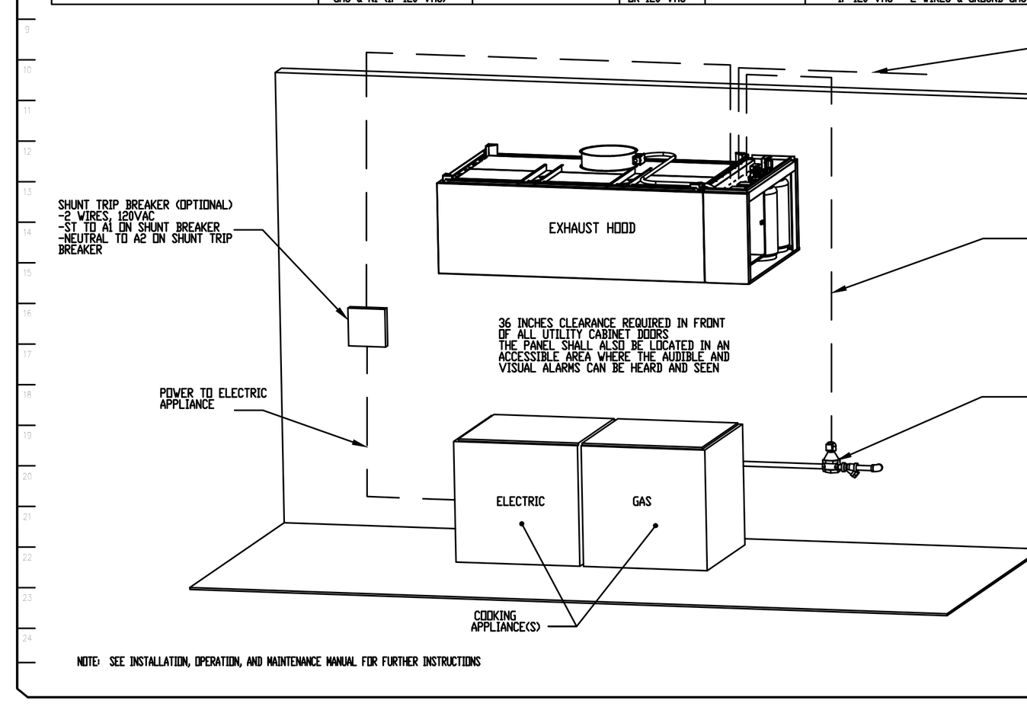
02/10/2021 Rev. 2

FS-1: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	LGV & NID (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, NID TO RED, LGV TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 7328629 | DCV-2111 | Freddy's - Holmdel, NJ (MUA) | INSTALL | 2/7/2025 | ECP #1-4

DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0/4.0

TANK PROTECTION LOW-VOLTAGE DETAIL

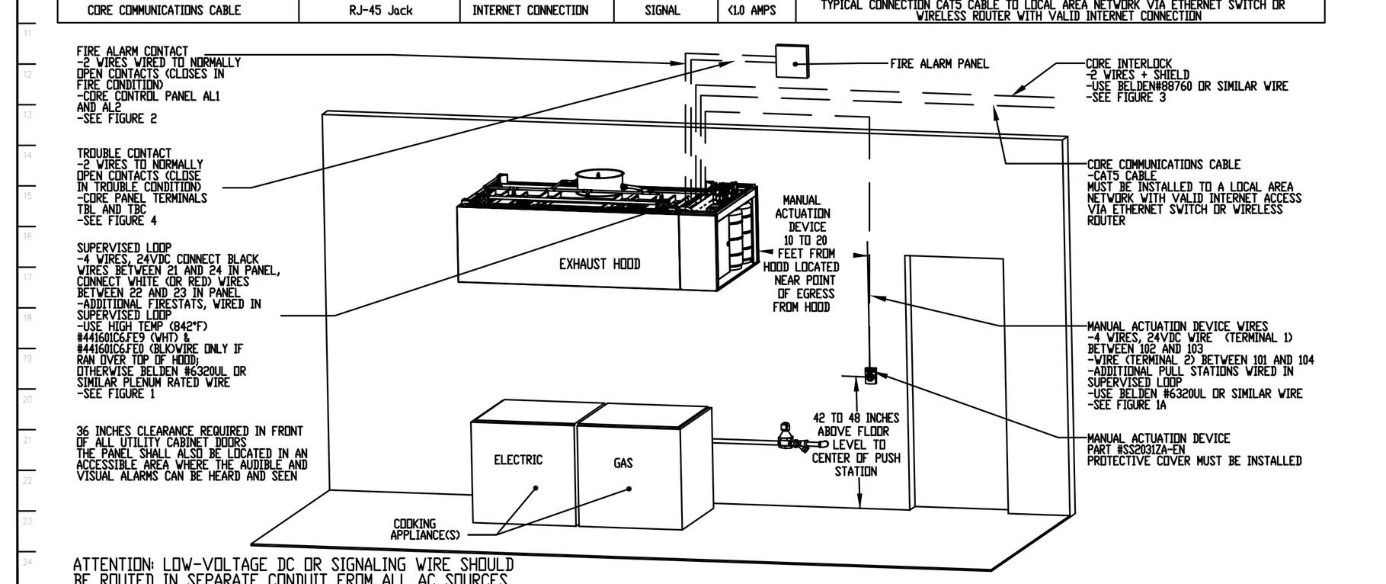
10/01/2023 Rev. 3

FS-1: MASTER

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

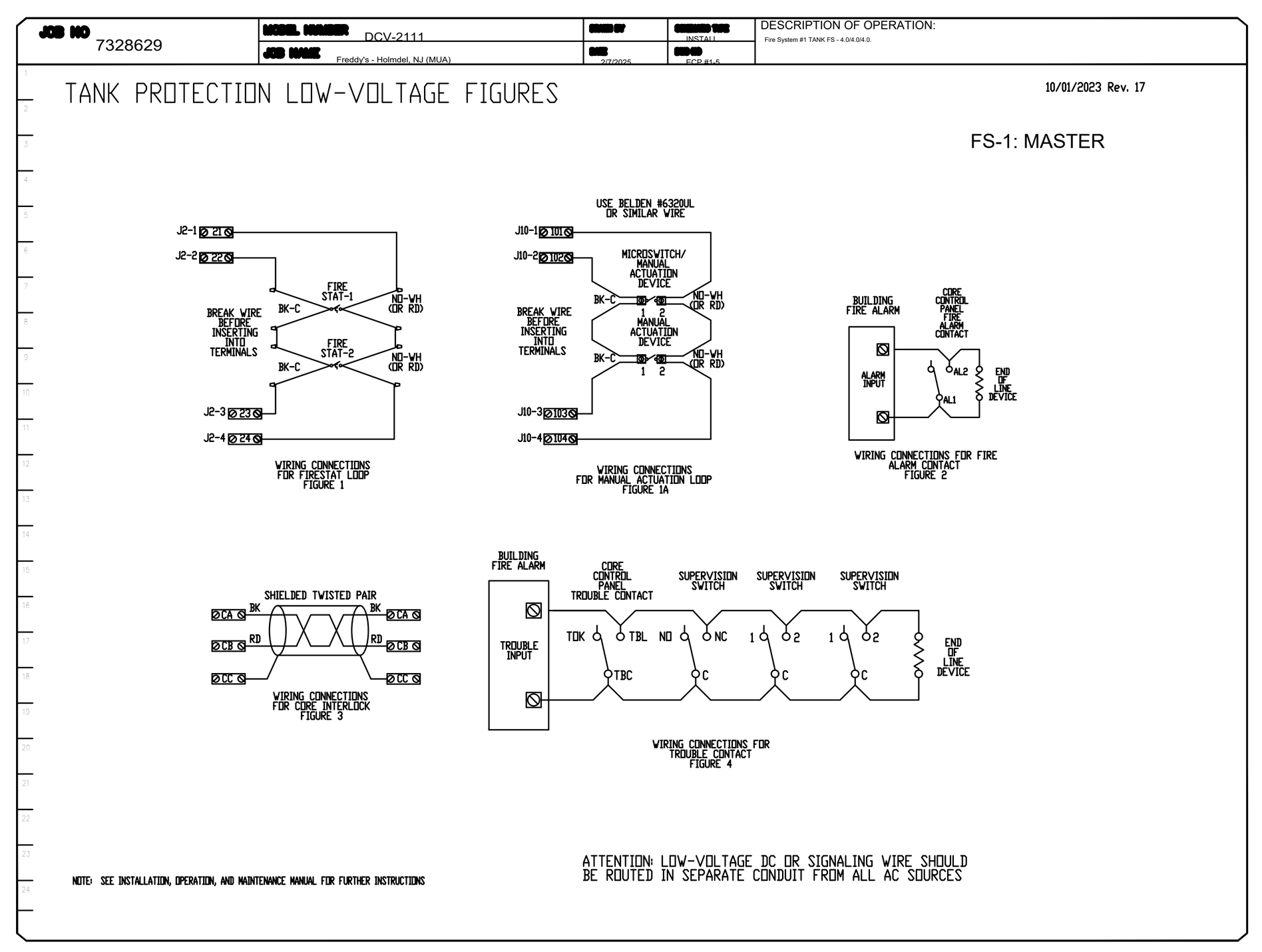
ALARM CONTRACTOR REQUIREMENT

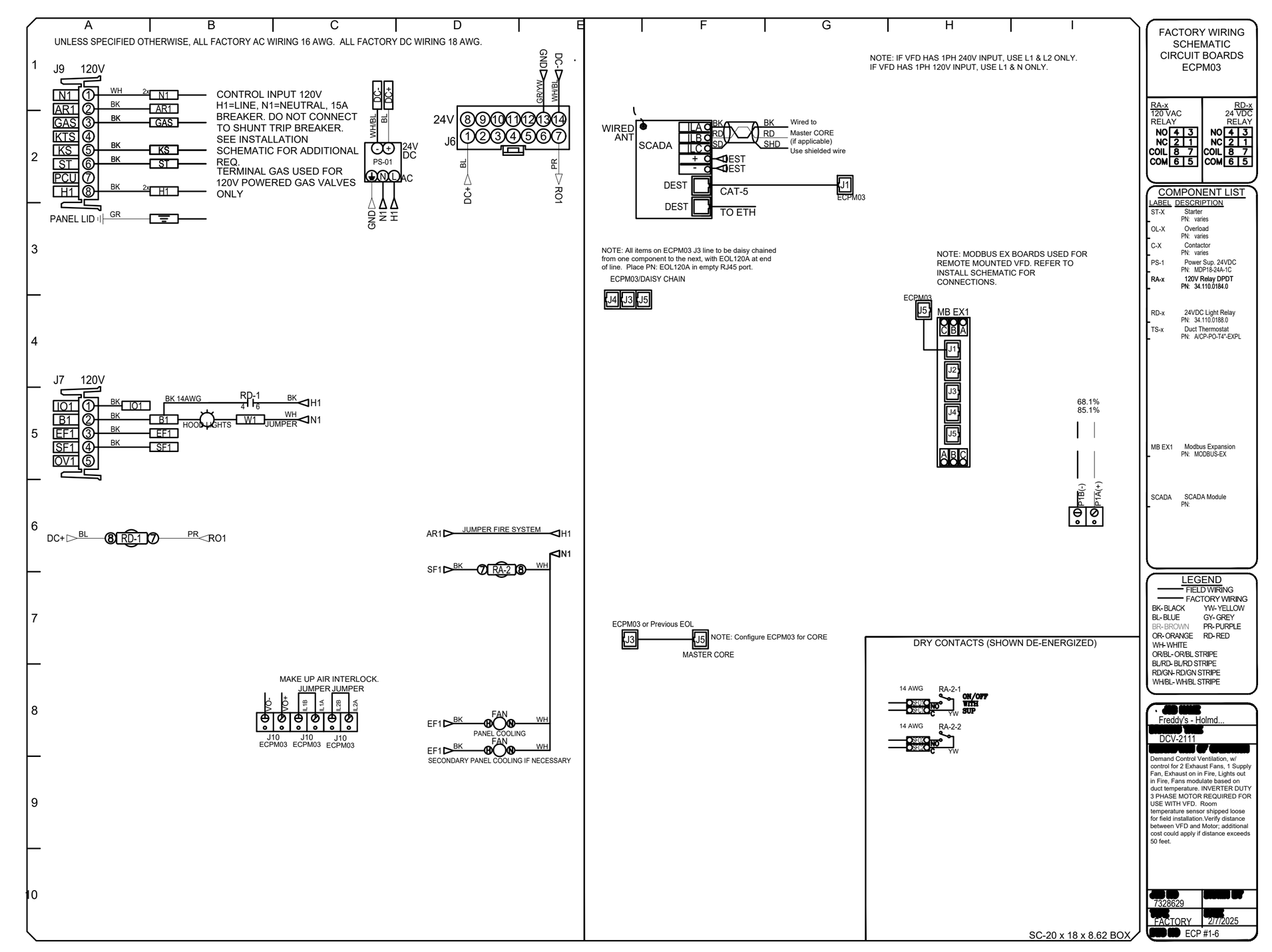
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #441601C6FE9 (WHT) & #441601C6FE9 (BLK)WIRE ONLY IF RAN OVER TOP OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE. SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	CA, CB, CC	CA, CB, CC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) CA, TO CORE SYSTEM (2) CA. CORE SYSTEM (1) CB, TO CORE SYSTEM (2) CB. CORE SYSTEM (1) CC, TO CORE SYSTEM (2) CC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TDK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION

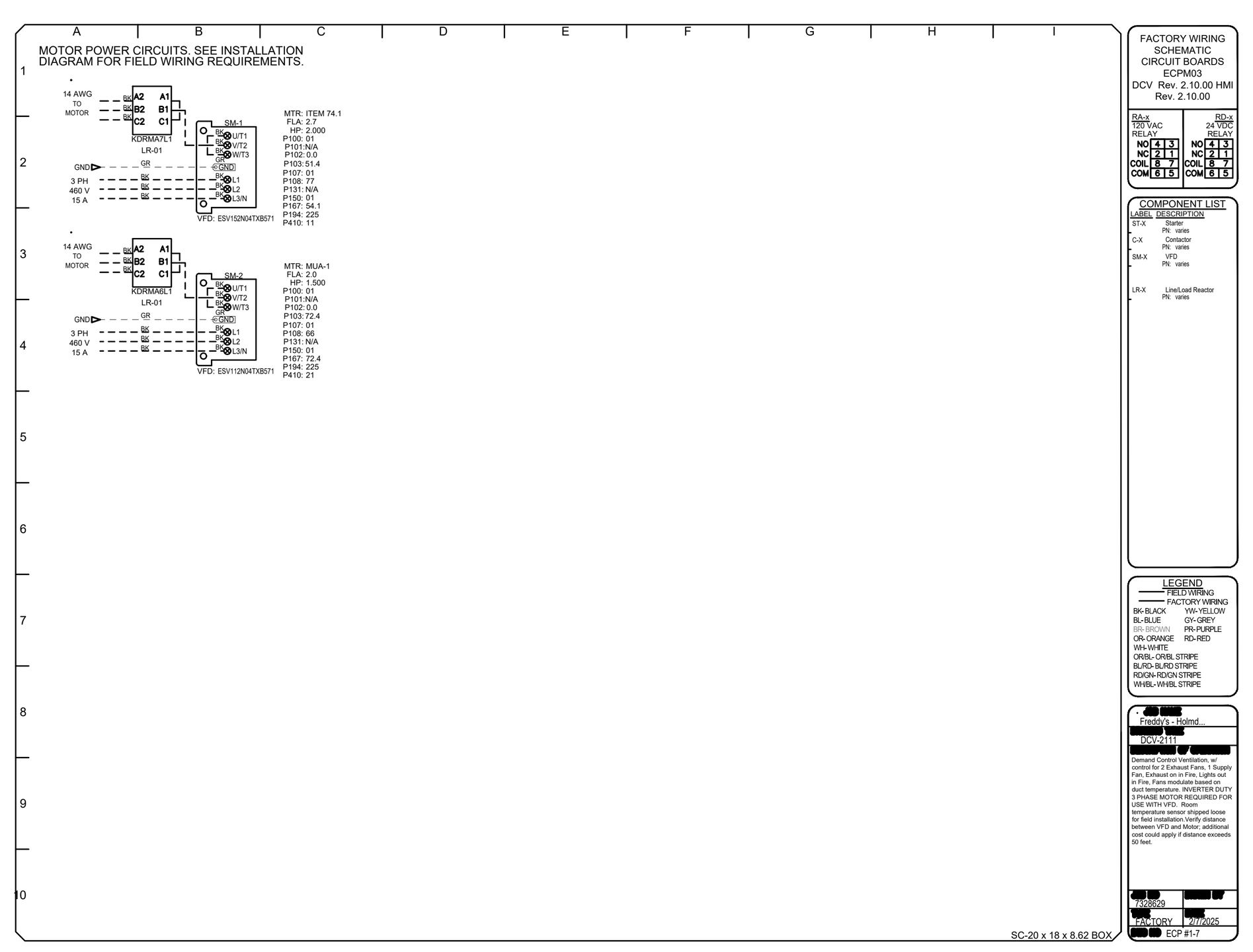


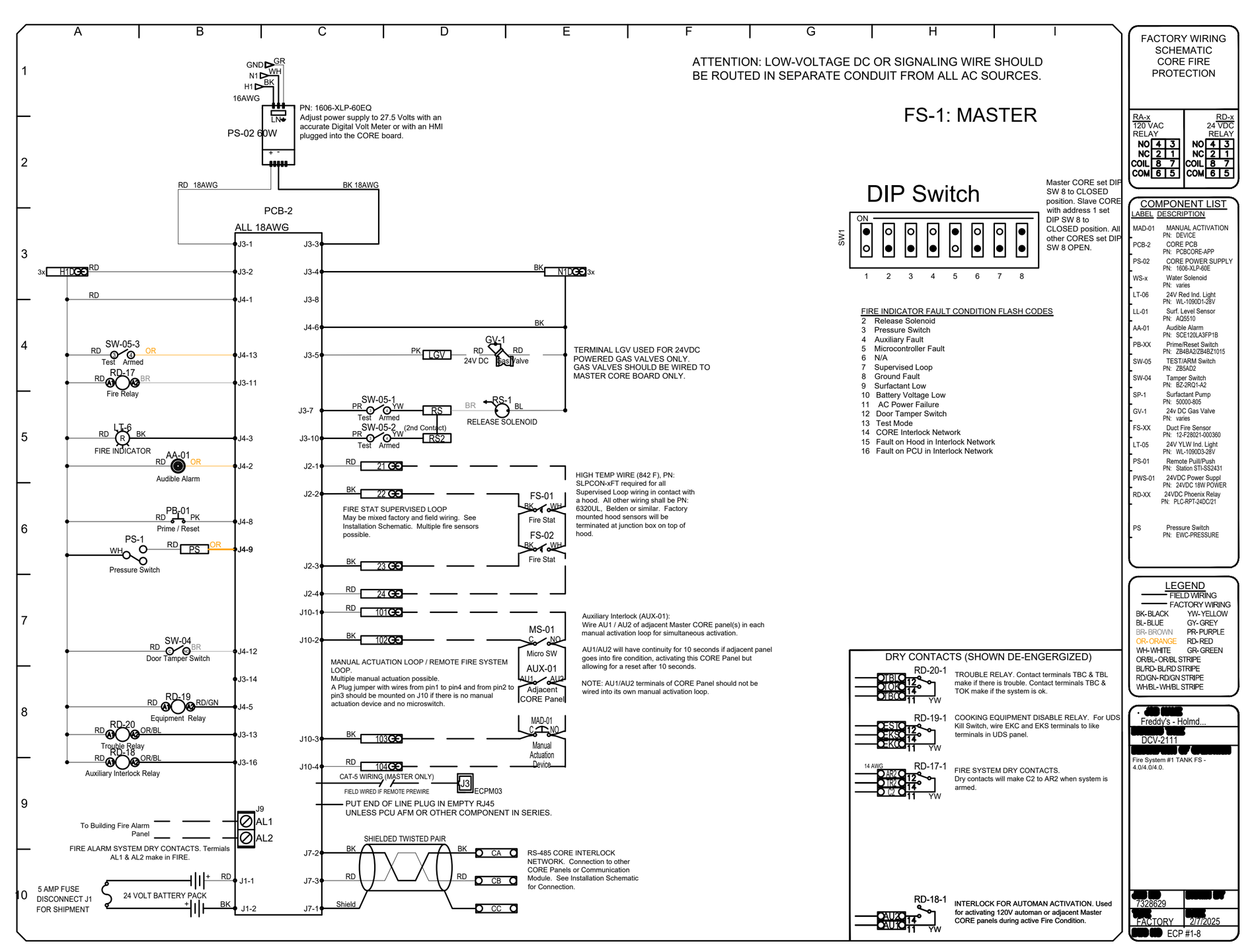
ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS









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HOLMDEL, NJ, 07733

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DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 5

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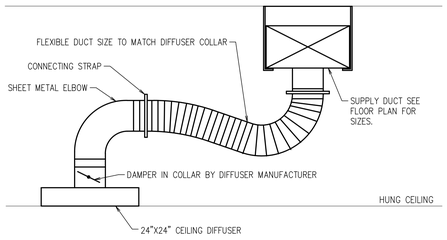
Phone (732) 212-0007 Fax (732) 212-0059
JOSE C. SANTOS, RA - NJ AI18745

MECHANICAL - HOOD SPECIFICATIONS

DATE
1/13/2025

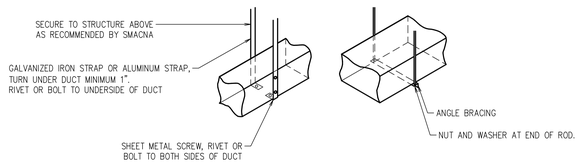
DRAWN BY: **SC**
CHECKED BY: **JS**
PROJECT NO: **G24-75**
SHEET NO.
M2.6

Date Printed: Friday, February 14, 2025 12:29:39 PM

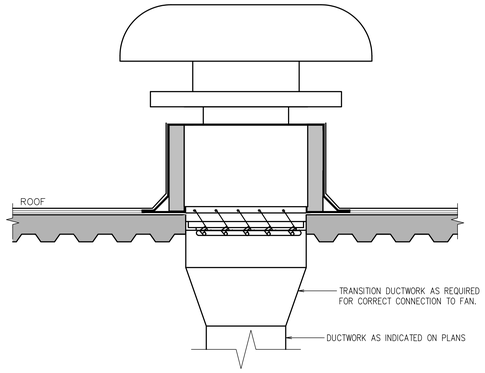


DIFFUSER CONNECTION DETAIL

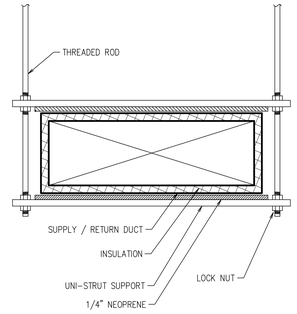
RECTANGULAR DUCT HANGER SCHEDULE (MINIMUM SIZES)								
HALF DUCT PERIMETER RANGE	PAIR AT 10' SPACING		PAIR AT 8' SPACING		PAIR AT 5' SPACING		PAIR AT 4' SPACING	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 < 30"	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	10 GA. (0.135")	1"x 22 GA.	12 GA. (0.106")	1"x 22 GA.	12 GA. (0.106")
P/2 < 72"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"	1"x 22 GA.	1/4"	1"x 22 GA.	1/4"
P/2 < 96"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	3/8"	1"x 22 GA.	1/4"
P/2 < 120"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"	1"x 20 GA.	1/4"
P/2 < 168"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 18 GA.	3/8"
P/2 < 192"	–	1/2"	1-1/2"x 16 GA.	1/2"	1"x 16 GA.	3/8"	1"x 16 GA.	3/8"

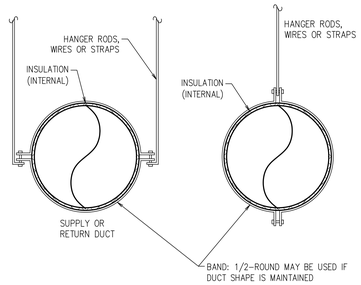


DUCT HANGER DETAILS



ROOFTOP MUSHROOM CAP





NOTES:
1. Hangers Must Not Deform Duct Shape. Hang Per Local Seismic Regulations.

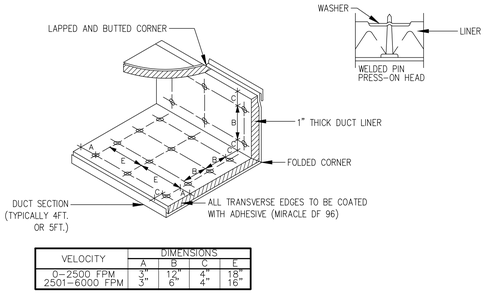
DUCT SUPPORT DETAILS

DIFFUSER AND REGISTER SCHEDULE

UNIT ID	MANUFACTURER	MODEL	DECRIPTION	REMARKS
A	TITUS	TMSA-AA	ALUMINUM, FULL LOUVERED FACE, FULL PANEL FACE, ADJUSTABLE DISCHARGE, AND VOLUME CONTROL OPPOSED BLADE DAMPER, MODEL AG-75-AA.	1,2,3,4,5
C	TITUS	TMRA	ALUMINUM ROUND DIFFUSERS AIRFLOW DISCHARGE PATTERN SHALL BE FIELD ADJUSTABLE FROM HORIZONTAL TO VERTICAL WITH VOLUME CONTROL DAMPER.	1,2,5
R	TITUS	50F	ALUMINUM BORDER RETURN GRILLE - 1/2"x1/2"x1/2" ALUMINUM GRID CORE. VOLUME CONTROL OPPOSED BLADE DAMPERS, MODEL AG-15-AA. OPERABLE FROM FACE.	1,2,4,5

NOTES:
1. Maximum Noise Criterion Rating < 30 DBA.
2. Black Finish, Color To Be Selected By Architect.
3. Diffusers Shall Be 4-Way Blow Unless Otherwise Indicated On Plans.
4. Mounting Frame Type Shall Be Coord. With Ceiling / Wall Construction Type.
5. Neck Size Shall Be As Scheduled.
6. Flexible Ducts Connecting The Diffusers Shall Be Full Size Of Neck Diameter.

Round Neck Size Schedule	
UP TO 100 CFM	- 6" DIA
101 TO 225 CFM	- 8" DIA
226 TO 375 CFM	- 10" DIA
376 TO 600 CFM	- 12" DIA
601 TO 900 CFM	- 14" DIA
901 TO 1500 CFM	- 16" DIA



VELOCITY	DIMENSIONS			
	A	B	C	E
0–2500 FPM	3"	12"	4"	18"
2501–6000 FPM	3"	6"	4"	16"

NOTES:
1. Maximum Spacing For Fasteners. Actual Intervals Are Approximate.
2. The Velocity Rated Side Of Liner Must Face The Air Flow.
3. Liner Adhered To The Duct With 90% Minimum Area Coverage Of Adhesive.

DUCT LINER INSTALLATION DETAIL

FAN SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	TYPE	DRIVE	CFM	FAN	S.P.	MOTOR			SERVICE	INTERLOCKED	COMMENTS
						RPM	(IN. W.G.)	HP	VOLTS	PHASE		WITH	
TEF:1-2	GREENHECK	SP-B110	CEILING	DIRECT	110	940	0.125	Frac	120	1	RESTROOMS	LIGHTING	1 - 6

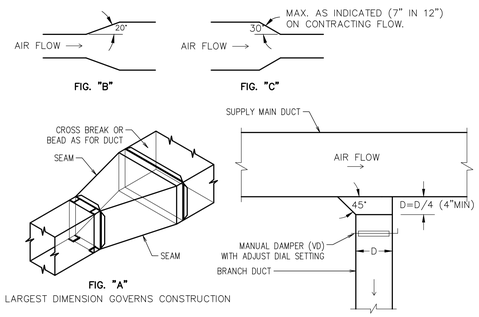
COMMENTS:
1. Provide with Disconnect Switch
2. Provide with Backdraft Damper.
3. Flexible Duct Connections.
4. Vibration Isolators.
5. Speed Control Switch Mounted To Fan Cabinet For Exact Balancing.
6. Exterior Louver

ROOFTOP UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	NOMINAL TONS	SUPPLY FAN			GAS HEAT SECTION			COOLING COIL					COMPRESSORS			ELECTRICAL				EER	OPERATING WEIGHT (lbs)	NOTES AND REQUIRED ACCESSORIES
				TOTAL AIR (CFM)	MINIMUM OUTSIDE AIR (CFM)	ESP (W.G)	INPUT (MBH)	OUTPUT (MBH)	STAGES	TOTAL MBH	SENS. MBH	AMBIENT AIR	EAT db	EAT wb	NO	STAGES	REFRIG	VOLTS	PHASE	MCA	MOCP			
RTU:1	TRANE	YHK120A4S0H**F0C0A1A1A0A2	10	4,000	800	0.75	240	194	2	127.6	96.7	95	80	67	2	3	R-410A	480	3	34	45	11.6	1,373	1 - 15
	YORK	KJ120N24R4DFEAL2A1								126.7	89.5					2				32.5	35	12.2	1,335	
RTU:2	TRANE	YHK090A4S0M**F0C0A1A1A0A2	7.5	3,000	600	0.75	150	122	2	93.6	73	95	80	67	2	3	R-410A	480	3	25	30	12.1	1,292	1 - 15
	YORK	KJ090N18P4DFEAL2A1					180	146		94.5	67.7					2				28.1	30	12.2	1,305	
RTU:3	TRANE	YHK060A4S0M**F0C0A1A1A0A2	5	2,000	400	0.75	100	81	2	62.5	45	95	80	67	2	2	R-410A	480	3	21	25	13	1,191	1 - 15
	YORK	KJ061N12B4DFEAL2A1					120	97		65.3	46.7									21.5	25	12.5	1,015	

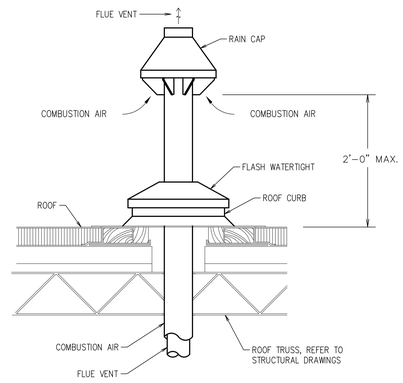
NOTES:
1. Cooling capacity indicated in schedule based on standard conditions db/wb - 80/67 °F.
2. Insulated roof curb, 14" (sloped to match pitch of roof, refer to architectural drawings).
3. Cabinet with 3/4" fiberglass insulation and hinged access doors.
4. Condensate drain with 2" deep vented trap discharge to splash block on roof.
5. Weatherproof non-fused, handle type disconnect switch. Verify Voltage
6. Factory installed GFCI receptacle - Unit Powered.
7. Duct Smoke Detector - unit mounted, Return, Supply or Both per Code
8. Programmable thermostat (24 hour, 7-day) with remote sensor capability. Provide remote sensors when indicated.
9. Throwaway 2" filters (MERV 8).
10. Multiple stage gas valve if available with unit.
11. Anti short cycle timer.
12. Factory installed differential enthalpy economizer with power exhaust.
13. Control board capable of handling a DCV system to provide operational control of outside air damper.
14. Hot gas reheat with associated controls and sensors for dehumidification control.
15. Variable Frequency Drive (VFD) with Variable Air Volume (VAV) control.

THE MECHANICAL CONTRACTOR SHALL VERIFY, IN WRITING, THE VOLTAGE OF ALL MECHANICAL EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING ORDER TO EQUIPMENT VENDOR.



NOTE:
1. Duct Transitions Typical After Each Take-Off(s) Where Change In Duct Size Is Indicated.

DUCT TRANSITION DETAILS



COMMENTS:
1. TYPICAL ONLY FOR PIPES WITH TEMPERATURES LESS THAN 250°F.
2. ROOF PENETRATION SHALL BE WEATHERPROOF.
3. PITCH FLUE PIPING BACK TOWARDS UNIT.
4. ONE (1) FOR EACH UNIT.

WATER HEATER CONCENTRIC VENT DETAIL

FREDDY'S FROZEN CUSTARD
COMMONS AT HOLMDEL - BLOCK 50.35, LOT 1
2136 ROUTE 35 SOUTH - UNIT 200
HOLMDEL, NEW JERSEY

Architrave GROUP PC
2517 Route 35 - Building E - Suite101
Manasquan, New Jersey 08736
Phone (732) 212-2007 Fax (732) 212-0059
JOSE C. SANTOS, RA. - NJ AI18745

MECHANICAL - DETAILS

DATE
1/13/2025
REV 1 3/14/2025

DRAWN BY: SC
CHECKED BY: JS
PROJECT NO: G24-75

SHEET NO.
M2.1

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