

MECHANICAL NOTES AND SPECIFICATIONS

1. GENERAL

- A. CONTRACTOR SHALL PERFORM ALL WORK AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
- B. CONTRACTOR TO EXAMINE THE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE MECHANICAL WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS NOTED ON THE PLANS.
- C. DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF DUCTWORK, PIPING, DIFFUSERS, APPARATUS, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
- D. DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, CONSTRUCTED WITH NEW AND FIRST QUALITY MATERIALS AND EQUIPMENT, LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
- E. SCRAP, DEBRIS AND ABANDONED HVAC EQUIPMENT/DUCTWORK/SUPPORTS/CONTROLS AND ACCESSORIES SHALL, EXCEPT AS OTHERWISE SPECIFIED, BE REMOVED FROM THE SITE AND DISPOSED OF BY THIS CONTRACTOR.
- F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP OF ALL SYSTEMS.
- G. ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPULAINS AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING WORK OPERATIONS.
- H. CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO THE ARCHITECT FOR PRIOR APPROVAL. THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OBLIGATION TO COMPLY WITH THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS.
- I. CONTRACTOR SHALL COORDINATE CONNECTIONS TO STREET WITH LOCAL UTILITY COMPANY(S).
- J. CONTRACTOR SHALL FILE, SECURE AND PAY FOR ANY NECESSARY APPROVALS, PERMITS, LICENSES AND INSPECTIONS WHICH ARE REQUIRED BY ANY LEGALLY CONSTITUTED AUTHORITY.
- K. CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF HIS WORK TO BE COVERED UP OR CLOSED IN UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY ALL AUTHORITIES HAVING JURISDICTION. SHOULD ANY OF HIS WORK BE COVERED UP OR CLOSED IN BEFORE SUCH INSPECTION, HE SHOULD, AT HIS OWN EXPENSE, UNCOVER THE WORK TO THE SATISFACTION OF THE INSPECTION PARTY.

L. ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE CURRENT STATE BUILDING CODE AND THE CURRENT STATE MECHANICAL CODE.

M. PRIOR TO TESTING, CONTRACTOR SHALL MAKE ALL SYSTEM ADJUSTMENTS REQUIRED FOR PROPER OPERATION. ADJUSTMENTS SHALL INCLUDE AIR BALANCING, HYDRONIC BALANCING, ETC. AN ADDITIONAL COMFORT BALANCE SHALL BE PROVIDED WITHIN A YEAR OF ACCEPTANCE OF THE COMPLETED PROJECT IF REQUESTED.

N. ALL SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH SMACNA AND THE LOCAL ENERGY CODE.

O. CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING ALL FACILITIES IN AREAS INDICATED FOR DEMOLITION ON THE ARCHITECTURAL DRAWINGS.

P. WHERE DEMOLITION OF EXISTING SERVICES RESULTS IN THE INTERRUPTION OF DUCTWORK, MECHANICAL PIPING, ETC. SERVING AREAS WHICH ARE TO REMAIN, INSTALL BYPASS CONNECTIONS AS REQUIRED TO RESTORE REMAINING SERVICES TO OPERATION. SIZING, MATERIAL, JOINTINGS, AND INSULATION OF BYPASS CONNECTIONS SHALL MATCH EXISTING INSTALLATION.

Q. LABEL ALL ROOF MOUNTED EQUIPMENT AS TO THE SPACE IT SERVES.

R. THE CONTRACTOR'S PROPOSAL AND BASE BID MUST COVER ALL ITEMS IN THE PLANS AND SPECIFICATIONS/NOTES EXACTLY AS DRAWN, NOTED, SCHEDULED, DETAILED AND SPECIFIED. TO RECEIVE CONSIDERATION FOR A SUBSTITUTION OF MATERIALS AND/OR EQUIPMENT, THE CONTRACTOR MUST INCLUDE THE FOLLOWING INFORMATION WITH HIS BASE BID:

- DOCUMENTATION OF EQUALITY, A SIDE-BY-SIDE COMPARISON, OF PERFORMANCE AND CONSTRUCTION MATERIALS, BETWEEN THE SPECIFIED ITEM AND THE PROPOSED SUBSTITUTION.

- THE DOLLAR VALUE FOR CREDIT, ASSOCIATED WITH THE SUBSTITUTED ITEM(S), SHALL BE ITEMIZED IN THE BASE BID.

- ALL DRAWINGS MUST BE AFFIXED WITH ENGINEERS STAMP AND PERMITTED FOR CONSTRUCTION PRIOR TO START OF CONSTRUCTION.

S. ASHRAE METHOD OF LOAD CALCULATIONS WAS USED TO CALCULATE THE HVAC LOADS.

2. SCOPE OF WORK

THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

A. FURNISH AND INSTALL ALL EQUIPMENT AS SHOWN ON SCHEDULE & ON PLANS.

B. FURNISH AND INSTALL INSULATION FOR ALL SUPPLY AIR DUCTWORK.

C. FURNISH AND INSTALL, AS SHOWN ON DRAWINGS ALL WALL MOUNTED THERMOSTATS. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY WIRING REQUIRED FOR THERMOSTATS.

D. FURNISH AND INSTALL ALL HANGERS AND SUPPORTS PER DETAILS & SPECIFICATIONS.

E. SHOP DRAWINGS FOR APPROVAL.

F. ALTERATIONS, REMOVALS, AND DISPOSAL.

G. CUTTING AND ROUGH PATCHING TO MATCH EXISTING.

H. OBTAINING AND PAYING FOR ALL NECESSARY PERMITS, INSPECTIONS AND CERTIFICATES REQUIRED IN CONNECTION WITH THIS WORK.

I. FURNISH AND INSTALL ALL TRANSFER AIR WALL OPENINGS AND ALL TRANSFER AIR DUCTWORK.

J. REMOVE AND CAP ALL WORK INDICATED ON THE DRAWINGS.

K. FURNISH AND INSTALL AS SHOWN ON DRAWINGS ALL INTERNAL ACOUSTIC LINING FOR SUPPLY AND RETURN DUCTWORK AS WHERE CALLED FOR.

L. RELOCATE AS SHOWN ON DRAWINGS EXISTING WALL MOUNTED THERMOSTATS. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY WIRING REQUIRED FOR THERMOSTAT RELOCATION. REMOVE AND RELOCATE ALL SUPPLY AIR DIFFUSERS, RETURN AIR GRILLES, RETURN AIR REGISTERS AND EXHAUST AIR REGISTERS AS SHOWN ON PLANS.

M. FURNISH AND INSTALL ALL ACCESS DOORS AND FIRE DAMPERS AS REQUIRED BY THE BUILDING CODE.

N. FURNISH AND INSTALL ALL CONTROLS, CONTROL WIRING, TRANSFORMERS, ETC. ASSOCIATED WITH THE ROOFTOP HVAC UNIT AND THE AIR COOLED CONDENSING UNIT AS SPECIFIED HEREIN AND SHOWN ON DRAWINGS.

Q. FURNISH AND INSTALL INSULATION FOR ALL REFRIGERATION PIPING.

R. FURNISH AND INSTALL ALL CONTROLS, CONTROL WIRING, TRANSFORMERS, ETC. ASSOCIATED WITH THE HVAC SYSTEMS AS SPECIFIED HEREIN AND SHOWN ON DRAWINGS. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LINE VOLTAGE WIRING.

Q. ALL FANS FOR AIR HANDLERS, PACKAGED ROOFTOP UNITS, SUPPLY FANS, EXHAUST FANS, ETC. SHALL BE PROVIDED WITH ADJUSTABLE SHEAVES ON MOTOR DRIVE AND FIXED SHEAVE ON DRIVEN EQUIPMENT. SHEAVES SHALL BE SELECTED SUCH THAT DESIGN CFM IS ACHIEVED WITH DESIGN STATIC PRESSURE AT THE MIDRANGE OF THE SHEAVE ADJUSTMENT. WHERE ADJUSTABLE SHEAVES ARE NOT AVAILABLE FROM THE FACTORY FOR PACKAGED EQUIPMENT, CONTRACTOR SHALL CHANGE OUT MOTOR SHEAVES IN THE FIELD. ALL ADJUSTABLE SHEAVES, GROOVE SIZES AND QUANTITIES SHALL BE SELECTED TO MATCH FACTORY INSTALLED SHEAVES ON DRIVEN EQUIPMENT. ALL SHEAVES SHALL BE MANUFACTURED BY BROWNING OR APPROVED EQUAL.

R. ALL EXHAUST FANS SHALL BE INSTALLED WITHIN LEGAL DISTANCE TO BUILDING INSTAKES & BUILDING OPENINGS. ANY SUCH DISCREPANCIES ON MECHANICAL PLANS MUST BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION FOR CORRECTION.

R. ALL EQUIPMENT SHALL BE LABELED PER THE EQUIPMENT SCHEDULE DESIGNATION AND THE AREA SERVED BY THE EQUIPMENT.

3. WORK NOT INCLUDED

THE FOLLOWING ITEMS OF WORK SHALL BE PROVIDED UNDER OTHER CONTRACTS:

A. FINISHED PATCHING AND PAINTING.

4. NOISE CONTROL

A. ALL INSTALLATION SHALL BE IN A MANNER THAT THE NOISE CRITERIA LEVEL IN THE SPACE SHALL NOT EXCEED NC=35. NOISE LEVELS ABOVE THIS LIMIT WILL NOT BE ACCEPTED AND SHOULD BE CORRECTED BY THIS CONTRACTOR AT NO EXPENSE TO THE OWNER.

B. ALL SUPPLY AND RETURN DUCTWORK SHALL BE PROVIDED WITH 1" INTERNAL ACOUSTIC LINING AT LEAST 20" FROM EACH AIR HANDLING UNIT. ALL DUCTWORK DIMENSIONS NOTED ON THE PLANS ARE CLEAR INSIDE DIMENSIONS.

5. VIBRATION CONTROL

A. ALL INSTALLATIONS SHALL BE IN SUCH A MANNER THAT VIBRATION FROM ROTATING EQUIPMENT IS ISOLATED FROM DUCTWORK, PIPING AND THE BUILDING STRUCTURE.

B. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT ALL LOCATIONS WHERE RIGID DUCTWORK CONNECTS TO FANS, AIR HANDLERS, OR OTHER EQUIPMENT CAPABLE OF PRODUCING OBJECTIONABLE VIBRATION. FLEXIBLE CONNECTIONS SHALL BE 30 OZ. NEOPRENE COATED FABRIC SECURED WITH HEAVY DUTY BANDS OR CRIMPS.

C. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT ALL LOCATIONS WHERE PIPING CONNECTS TO PUMPS OR OTHER EQUIPMENT CAPABLE OF PRODUCING OBJECTIONABLE VIBRATION.

D. ALL EQUIPMENT SUPPORTED FROM THE BUILDING STRUCTURE SHALL BE PROVIDED WITH SPRING-TYPE VIBRATION ISOLATORS.

6. SHEET METAL DUCTWORK

A. ALL DUCTWORK, UNLESS OTHERWISE NOTED, SHALL BE BUILT FROM GALVANIZED SHEET STEEL, IN COMPLIANCE WITH CHAPTER 6 OF THE UMC AND THOROUGHLY BRACED & STIFFENED. ALL DUCTWORK DIMENSIONS NOTED ON THE PLANS ARE CLEAR INSIDE DIMENSIONS.

B. FABRICATION OF SHEET METAL DUCTS SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE, LATEST EDITION, OR AS PER SMACNA DUCT CONSTRUCTION MANUAL(S). ALL BRANCH DUCTWORK AND TAKE-OFFS SHALL BE PROVIDED WITH VOLUME DAMPERS.

C. CONTRACTOR SHALL SEAL ALL DUCTWORK JOINTS WITH 3M EC-800 OR APPROVED EQUAL.

D. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE CONCEALED WITHIN CEILINGS, WALLS, FLOORS AND SHAFTS.

E. ALL DUCTWORK GAUGES, AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS.

F. ACCESS DOORS IN DUCTWORK SHALL BE DOUBLE PANEL, NO. 20 GAUGE GALVANIZED STEEL, FILLED WITH 1-1/2" RIGID FIBERGLASS, 3 LB. DENSITY INSULATION, WITH NO. 20 GAUGE GALVANIZED STEEL FRAME, SECURELY FASTENED TO DUCT AND FORMED TO RECEIVE ACCESS DOOR. PROVIDE TWO LATCHES AND TWO HINGES PER DOOR. WHERE SPACE CONDITIONS DO NOT PERMIT HINGING OF DOORS, PROVIDE FOUR LATCHES PER DOOR FOR REMOVAL.

G. FIRE DAMPERS SHALL BE COORDINATED WITH THE LEVEL OF FIRE RATING INDICATED ON THE ARCHITECTURAL DRAWINGS. FIRE DAMPERS SHALL BE AS MANUFACTURED BY POTTORFF, MODEL FSD-172 OR EQUIVALENT.

H. FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S APPROVED INSTALLATION INSTRUCTIONS AND SHALL BE UNDERWRITER'S LABORATORIES (U.L.) APPROVED AND LABELED.

I. CHANGES IN SHAPE AND DIMENSION SHALL CONFORM TO THE FOLLOWING:

I.A. EXCEPT WHERE OTHERWISE NOTED, FOR INCREASES IN CROSS-SECTIONAL AREA, THE SHAPE OF THE TRANSFORMATION SHALL NOT EXCEED 1" IN 7". SPACE CONDITIONS PERMITTING.

I.B. EXCEPT WHERE OTHERWISE NOTED, FOR REDUCTIONS IN AREA, THE SLOPE SHALL NOT BE LESS THAN 1" IN 7". SPACE CONDITIONS PERMITTING.

J. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR FOR EXACT LOCATION AND SIZES OF ROOF OPENINGS.

K. THE CONSTRUCTION FOR LOW PRESSURE RECTANGULAR SHEET METAL DUCTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE GUIDE, LATEST EDITION, OR AS PER SMACNA MANUAL BUT NOT LESS THAN THE FOLLOWING WEIGHTS AND CONSTRUCTION:

DIMENSION OF LONGEST SIDE OF DUCT (INCHES)	MINIMUM GAUGE OF SHEET METAL FOR ALL FOUR SIDES OF DUCT (STEEL) (INCHES)	ALUMINUM THICKNESS (INCHES)	TRANSVERSE REINFORCING AT AND BETWEEN DUCT JOINTS
UP THRU 12	26	0.020	1" POCKET LOCK 24 GAUGE, STANDING SEAM JOINT 24 GAUGE, 1" STANDING S SLIP 24 GAUGE JOINT MAX. ON 8" CENTERS.
13 THRU 18	24	0.025	1" POCKET LOCK 24 GAUGE, STANDING SEAM JOINT 24 GAUGE, 1" STANDING S SLIP 24 GAUGE JOINT MAX. ON 8" CENTERS.
19 THRU 30	24	0.025	1" POCKET LOCK 24 GAUGE, JOINT MAX. ON 8" CENTERS WITH 1" X 1" X 18" ANGLES & FROM JOINT.

L. FLAT AREAS OF DUCT OVER 18 IN. WIDE SHALL BE STIFFENED BY CROSS BREAKING OF BEADING.

M. ALL JOINTS SHALL HAVE CORNER CLOSURES.

N. RECTANGULAR DUCTS WITH A MAXIMUM SIDE NOT EXCEEDING 30" SHALL HAVE 1" WIDE 18-GAUGE METAL STRAPS. SUPPORT DUCT ON OPPOSITE SIDES WITH SHEET METAL SCREWS TO THE SIDES AND BOTTOM. VERTICAL DUCTS SHALL BE SUPPORTED BY GALVANIZED STEEL ANGLES AND SECURED TO THE DUCTS AND WALL SUPPORTS.

O. AIR MOVING SYSTEMS SUPPLYING AIR AT 2000 CFM OR MORE TO ENCLOSED SPACES WITHIN A BUILDING OR AREA MUST BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF AND SMOKE DETECTION SYSTEM.

P. ALL ROUND BRANCH DUCTS TO SUPPLY REGISTERS SHALL HAVE LOCKING MVD @ TAKEOFF.

7. FLEXIBLE DUCTWORK

A. FINAL CONNECTION TO CEILING DIFFUSERS OR REGISTERS SHALL BE PRE-INSULATED ALUMINUM FLEX DUCT WITH VAPOR BARRIER. ALUMINUM FLEX DUCTS SHALL MEET U.L. 181 CLASS 1 AIR DUCT STANDARDS. THE MAXIMUM LENGTH SHALL NOT EXCEED 5 FT. IN LENGTH.

B. ALL FLEXIBLE DUCTWORK SHALL BE SECURED USING HEAVY DUTY, STAINLESS STEEL CLAMPS.

8. PIPING

A. ALL PIPE SHALL BE NEW, FREE FROM SCALE OR RUST, OF THE MATERIAL AND WEIGHT SPECIFIED UNDER THE VARIOUS SERVICES. EACH LENGTH OF PIPE SHALL BE PROPERLY MARKED AT THE MILL FOR PROPER IDENTIFICATION WITH NAME OR SYMBOL OF MANUFACTURER.

B. ALL REFRIGERANT PIPING SHALL BE TYPE ACR COPPER TUBING.

C. ALL CONDENSATE PIPING SHALL BE TYPE M COPPER TUBING.

D. PROVIDE NECESSARY STRUCTURAL MEMBERS, HANGERS AND SUPPORTS OF APPROVED DESIGN TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC. ARE SUPPORTED FROM METAL BEAMING AND/OR CONCRETE CONSTRUCTION, CARE SHALL BE TAKEN NOT TO WEAKEN DECKING AND/OR CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED, BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, WHEN THE SUPPORTED PIPING IS HOT OR CHILLED, AS REQUIRED.

E. ALL VERTICAL PIPING SHALL BE ANCHORED BY MEANS OF HEAVY STEEL CLAMPS SECURELY BOLTED OR WELDED TO THE PIPING AND WITH END EXTENSION BEARING ON THE BUILDING.

F. ALL PIPING SHALL BE ERECTED SO AS TO ENSURE A PERFECT AND NOISELESS CIRCULATION THROUGHOUT THE SYSTEM.

G. ALL VALVES AND SPECIALTIES SHALL BE SO PLACED AS TO PERMIT EASY OPERATION AND ACCESS.

H. PROVIDE PROPER PROVISION FOR EXPANSION AND CONTRACTION IN ALL PORTIONS OF PIPEWORK, TO PREVENT UNLIE STRAINS ON PIPING OR APPARATUS CONNECTED THEREWITH. PROVIDE DOUBLE STRAPS AT RISER TRANSFERS AND OTHER OFFSETS WHEREVER POSSIBLE TO TAKE UP EXPANSION. ARRANGE RISER BRANCHES TO TAKE UP MOTION OF RISER.

I. THE ENDS OF ALL PIPE AND NIPPLES SHALL BE THOROUGHLY REAMED TO THE FULL INSIDE DIAMETER OF THE PIPE AND ALL BURRS FORMED IN THE CUTTING OF THE PIPES SHALL BE REMOVED.

J. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE ASME CODE FOR PRESSURE PIPING.

K. PIPING AT ALL EQUIPMENT AND CONTROL VALVES SHALL BE SUPPORTED TO PREVENT STRAINS OR DISTORTIONS IN THE CONNECTED EQUIPMENT AND CONTROL VALVES. PIPING SHALL BE SUPPORTED TO ALLOW FOR REMOVAL OF EQUIPMENT, VALVES AND ACCESSORIES WITH A MINIMUM OF DISMANTLING AND WITHOUT REQUIRING ADDITIONAL SUPPORTS AFTER THESE ITEMS ARE REMOVED.

L. MISCELLANEOUS DRAINS, VENTS, RELIEFS, AND OVERFLOWS FROM TANKS, EQUIPMENT, PIPING, RELIEF VALVES, PUMPS, ETC., SHALL BE RUN TO THE NEAREST OPEN SIGHT DRAIN. PROVIDE DRAIN VALVES WHENEVER REQUIRED FOR COMPLETE DRAINAGE OF PIPING, INCLUDING THE SYSTEM SIDE OF ALL PUMPS.

9. INSULATION

A. ALL DUCT INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET FACING AND ADHESIVE USED TO ADHERE JACKET OR FACING TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 73. NOT EXCEEDING FLAME SPREAD OF 25, FUEL CONTRIBUTED OF 50 AND SMOKE DEVELOPED OF 50. ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES AND CLOTHS FOR FITTINGS SHALL HAVE COMPONENT RATINGS AS LISTED ABOVE.

B. THE MATERIALS AS SPECIFIED BELOW HAVE BEEN SELECTED FROM THE CATALOG OF OWENS-CORNING FIBERGLASS CORPORATION AND ARE REPRESENTATIVE OF THE QUALITY, DESIGN AND FINISH AS DESIRED. INSULATION AS MANUFACTURED BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE PRODUCTS MEET FULLY IN ALL RESPECTS (SUCH AS DENSITY MOISTURE ABSORPTION, ALKALINITY, THERMAL-CONDUCTIVITY, JACKET, ETC.) TO THE MATERIALS AS DELINEATED BELOW.

C. INSULATE ALL NEW SUPPLY, RETURN AND OUTDOOR AIR INTAKE DUCTWORK EXPOSED IN ATTICS, CRAWL SPACES, BOILER ROOMS, ETC. WITH 1-1/2" FIBERGLASS BLANKET AND VAPOR BARRIER. INSTALL INSULATION AFTER DUCTWORK HAS BEEN INSPECTED AND APPROVED.

D. LINED DUCTS SHALL BE INTERNALLY LINED WITH 1" THICK DUCT LINER.

E. PIPE INSULATION SHALL BE HEAVY DENSITY FIBERGLASS SECTIONAL PIPE INSULATION WITH A MAXIMUM K FACTOR OF 0.23 AT 75 DEGREES F MEAN TEMPERATURE WITH FACTORY APPLIED ALL SERVICE VAPOR BARRIER JACKET. DENSITY SHALL BE NOT LESS THAN 3 LBS. PER CUBIC FEET.

F. INSULATE ALL REFRIGERANT LINES PER SECTION 120.3 OF THE CALIFORNIA ENERGY CODE.

G. INSULATE ALL CONDENSATE LINES WITH 1" FIBERGLASS INSULATION WITH VAPOR BARRIER.

H. DUCT LINES NOT REQUIRED FOR DUCTWORK IN FLOWER/ VEG/ MOTHER ROOMS.

10. SHOP DRAWINGS

A. PRIOR TO ISSUING SHOP DRAWING SUBMITTALS FOR THE ENGINEER'S REVIEW, THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL OF THE SUBMITTAL DATA. THE CONTRACTOR SHALL STAMP EACH SHOP DRAWING CERTIFYING THAT THE CONTRACTOR'S REVIEW HAS BEEN COMPLETED AND THAT COORDINATION HAS BEEN ESTABLISHED.

B. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. ALL SHOP DRAWINGS SHALL ILLUSTRATE THAT COORDINATION HAS BEEN ESTABLISHED. FOR SHEETMETAL, PIPING AND EQUIPMENT LAYOUTS COMPOSITE DRAWINGS SHALL BE SUBMITTED. FIELD RELATED CONFLICTS SHALL BE RESOLVED BY THIS CONTRACTOR.

C. SUBMIT SHOP DRAWINGS (PROVIDE A MINIMUM OF FIVE COPIES TO ARCHITECT FOR ENGINEERS APPROVAL) COVERING THE FOLLOWING ITEMS:

1. DUCTWORK.
2. DUCT INSULATION.
3. PIPING.
4. PIPE HANGERS AND SUPPORTS.
5. PIPE INSULATION.
6. DIFFUSERS, REGISTERS AND GRILLES.
7. FANS.
8. DAMPERS.
9. PACKAGED HEATING AND COOLING EQUIPMENT.
10. AIR HANDLERS.
11. FAN COIL UNITS.
12. CONTROLS.
13. FILTERS.
14. AIR BALANCING REPORT.

D. THE ENGINEER'S SHOP DRAWING APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH ALL OF THE INFORMATION INDICATED IN THE CONTRACT DOCUMENTS (I.E. PLANS, SCHEDULES, DETAILS, NOTES AND SPECIFICATIONS ETC.).

E. EQUIPMENT SUBMITTALS FOR MECHANICAL EQUIPMENT SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR APPROVAL PRIOR TO ORDERING AND SHIPPING OF SUCH EQUIPMENT. ANY SUBSTITUTIONS SHALL BE IN SUBMITTAL FORMS WITHOUT EXCEPTION. SUBSTITUTION SHALL ALSO BE APPROVED BY THE LANDLORD.

F. THREE MANUALS SHALL BE PREPARED INCLUDING PART NUMBERS OF ALL REPLACEMENT PARTS, OILING AND LUBRICATION INSTRUCTIONS, & AIR FLOW AND AIR BALANCE REPORTS. A MAINTENANCE SCHEDULE LISTING ALL REQUIRED MAINTENANCE EQUIPMENT FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL ALSO BE PROVIDED.

11. TESTS AND BALANCING

A. THE WORK OF THIS CONTRACTOR SHALL INCLUDE THE FURNISHING OF ALL TESTING INSTRUMENTS, GAUGES, AND OTHER EQUIPMENT REQUIRED FOR NECESSARY TESTS, REQUIRED BY LAW, RULES AND REGULATIONS AND AS SPECIFIED.

B. NO VISIBLE LEAKS, LOSSES IN PRESSURE, OR INCREASE IN VACUUM SHALL OCCUR DURING TEST PERIOD.

C. PROVIDE ALL OTHER TESTS REQUIRED BY BUILDING DEPARTMENT, FIRE DEPARTMENT AND ALL OTHER PUBLIC AGENCIES HAVING JURISDICTION.

D. TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF THE ARCHITECT AND SUCH OTHER PARTIES AS MAY HAVE LEGAL JURISDICTION.

E. OPERATE THE INSTALLATION AFTER COMPLETION FOR PERIOD NECESSARY TO MAKE ALL REQUIRED ADJUSTMENTS FOR AUTOMATIC CONTROLS, AIR OUTLETS AND FANS, UNTIL ALL PERFORMANCE CHARACTERISTICS ARE MET.

F. ENGAGE THE SERVICES OF APPROVED INDEPENDENT AIR BALANCING COMPANY TO BALANCE THE SYSTEM AND ISSUE AN AIR BALANCING REPORT FOR ENGINEER'S APPROVAL. THE INDEPENDENT AIR BALANCING COMPANY SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. THE TEST SHALL BE PERFORMED BY A PERSON HAVING A MINIMUM OF 5 YEARS EXPERIENCE IN TESTING AND BALANCING AIR SYSTEMS.

G. UPON COMPLETION OF THE INSTALLATION, THE AIR BALANCE AND TESTING SUBCONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS TO BALANCE THE SYSTEM TO WITHIN 5% OF THE INDICATED VALUES. PROVIDE ANY EXTRA MANUAL VOLUME DAMPERS REQUIRED FOR PROPER AIR BALANCE.

H. AT THE COMPLETION OF THE TEST, THE CONTRACTOR SHALL FURNISH THE ARCHITECT SEVEN (7) COPIES OF THE FINAL TEST REPORT.

12. GUARANTEE

A. 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 COMPLETION AND ACCEPTANCE OF WORK.

B. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL MECHANICAL EQUIPMENT INSTALLED WILL BE GUARANTEED BY THE MANUFACTURER FOR A PERIOD OF FIVE YEARS FROM DATE OF COMPLETION AND ACCEPTANCE OF WORK.

C. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL GUARANTEES WILL BE TRANSFERABLE TO THE BUILDING AT THE DATE OF COMPLETION AND ACCEPTANCE OF WORK.

D. AIR MOVING SYSTEMS SUPPLYING AIR AT 2000 CFM OR MORE TO ENCLOSED SPACES WITHIN A BUILDING OR AREA MUST BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF AND SMOKE DETECTION SYSTEM.

13. CONTRACTOR SHALL BE RESPONSIBLE TO RETAIN SERVICES OF A CONTROLS SUBCONTRACTOR TO SATISFY ALL SEQUENCE OF CONTROLS INCLUDING BUT NOT LIMITED TO SENSOR, SYSTEM SHUTDOWNS, T-STAT, FAN CONTROLS, HUMIDIFIERS, FIRE ALARM INTERLOCKS, DUCT DETECTORS, CO2 CONTROLS, MOTORIZED DAMPERS, FLOW SWITCHES & INTERLOCKS. CONTROLS SUBCONTRACTOR SHALL PROVIDE CONTROLS DIAGRAM WITH PRODUCT DATA FOR ENGINEER'S REVIEW & APPROVAL.

14. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AS BUILTS PLANS PER THE FIELD REVISIONS AND THE EXISTING FIELD CONDITIONS. ENGINEER WILL NOT BE RESPONSIBLE FOR PROVIDING AS BUILT PLANS IF SUCH CONDITION DISCOVERED DURING THE CONSTRUCTION.

15. ALL ROOFTOP EQUIPMENT REQUIRING SERVICE & MAINTENANCE SHALL BE INSTALLED @ MIN. 10' AWAY FROM THE ROOF EDGE UNLESS 42" MIN. ROOF PARAPET OR OSHA APPROVED GUARD RAILS ARE PRESENT. CONTRACTOR SHALL INFORM ENGINEER IF OTHERWISE SHOWN ON PLANS.

16. TEMPERATURE CONTROLS
EACH HVAC SYSTEM SHALL BE PROVIDED WITH AT LEAST ONE AUTOMATIC TEMPERATURE CONTROL DEVICE FOR THE REGULATION OF TEMPERATURE. THESE AUTOMATIC TEMPERATURE CONTROL DEVICES SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FROM 55 DEGREES F TO 85 DEGREES F. SHALL BE CAPABLE OF OPERATING THE SYSTEM HEATING AND/OR COOLING IN SEQUENCE. EXCEPT AS ALLOWED, THESE CONTROLS SHALL BE ADJUSTABLE TO PROVIDE A DEAD BAND OF 5 DEGREES F BETWEEN FULL HEATING AND FULL COOLING. CONTROLS SHALL HAVE THE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 70 DEGREES F AND OF TERMINATING ALL COOLING AT A TEMPERATURE NOT LESS THAN 78 DEGREES F.

17. CONTRACTOR SHALL NOT INSTALL OR PURCHASE ANY PORTIONS OF THE MECHANICAL SYSTEMS UNTIL ALL PLANS WERE APPROVED BY ALL DEPARTMENTS AND JURISDICTIONS HAVING AUTHORITY OVER THIS PROJECT AND ALL EQUIPMENT ARE PRIORLY APPROVED BY THE ENGINEER.

APPLICABLE CODES

BUILDING CODES:

APPLICABLE CODES AS OF JANUARY 1, 2023:

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R. ;

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R. ;

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. ;

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R. ;

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R. ;

2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R. ;

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R. ;

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGreen), PART 11, TITLE 24 C.C.R. ;

CALIFORNIA GREEN BUILDING STANDARDS

TESTING AND ADJUSTING

THE TESTING AND ADJUSTING RESPONSIBILITIES FOR THE MECHANICAL CONTRACTOR ARE AS FOLLOWS:

1. THE HVAC SYSTEMS AND CONTROLS SHALL BE TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH ONE OF THE FOLLOWING STANDARDS:
 - TESTING AND BALANCING BUREAU'S (TABB) CONSTRUCTION SPECIFICATION INSTITUTE MASTER FORMAT (SECTION 23 05 90 AND SECTION 15990)
 - NATIONAL ENVIRONMENTAL BALANCING BUREAU'S (NEBB) STANDARDS FOR TESTING, ADJUSTMENT, AND BALANCING OF ENVIRONMENTAL SYSTEMS (7TH EDITION)
 - ASSOCIATED AIR BALANCE COUNCIL'S (AABC) NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCING (6TH EDITION)
 - ASHRAE'S STANDARD 11-2008
- FUNCTIONAL PERFORMANCE TESTING REPORT SCOPE AND CONTENT SHALL BE CONSISTENT WITH CALGREEN COMPLIANCE FORM "FUNCTIONAL PERFORMANCE TESTING" OR APPROVED EQUALS AND MAY INCORPORATE ACCEPTANCE FORMS REQUIRED UNDER THE CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS.

2. REPORT REQUIRED
A FINAL REPORT FOR THE TESTING AND ADJUSTING OF ALL NEW SYSTEMS SHALL BE COMPLETED AND PROVIDED TO THE CITY INSPECTOR PRIOR TO FINAL INSPECTION APPROVAL. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.

3. OPERATIONS AND SYSTEMS MANUAL
AN OPERATIONS AND SYSTEMS MANUAL SHALL BE PROVIDED TO THE FIELD INSPECTOR AT THE TIME OF FINAL INSPECTION.

ENVIRONMENTAL QUALITY

THE ENVIRONMENTAL RESPONSIBILITIES FOR THE MECHANICAL CONTRACTOR ARE AS FOLLOWS:

1. CONSTRUCTION PHASE
IF THE NEW HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MERV VALUE OF 13 OR GREATER. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY. ALL DUCT AND OTHER RELATED DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, VENTIL

OWNER INFORMATION:

FREDDY'S FROZEN CUSTARD
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:



JOB NO: PRA-SD-004-001b

REVISION:

DATE:	DESCRIPTION:	STAFF
02/11/2022	City Submittal	
	City Re-submittal	
	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:

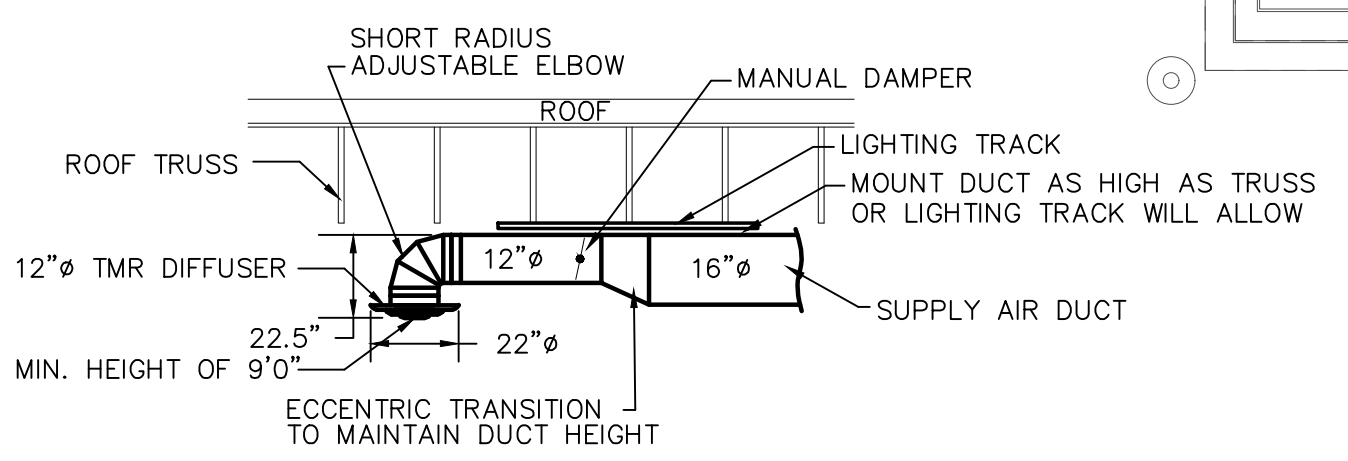
MECHANICAL FLOOR PLAN

SHEET NUMBER:

M-2

MECHANICAL SYMBOLS

- (SD) NEW SUPPLY DIFFUSER
- (RG) NEW RETURN AIR GRILLE
- EXHAUST GRILLE/FAN
- REMOTE TEMPERATURE/HUMIDITY SENSORS
- THERMOSTAT, MOUNTED AT 48" AFF
- DUCT-MOUNTED SMOKE DETECTOR
- NEW DUCTWORK
- 32"x14" SIZE OF RECTANGULAR DUCT
- 6"ø SIZE OF ROUND DUCT
- FLEXIBLE DUCTWORK
- FLOOR PLAN NOTE DESIGNATION
- S.A. SUPPLY AIR
- R.A. RETURN AIR
- EXH. EXHAUST AIR
- TRANSITION IN DUCT SIZE
- ELBOW WITH TURNING VANES
- MANUAL VOLUME DAMPER
- MANUAL VOLUME DAMPER
- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW
- RTU-1 SCHEDULED MECHANICAL EQUIPMENT



DINING ROOM DIFFUSER DETAIL
SCALE: NONE

AIR BALANCE SCHEDULE

SUPPLY AIR UNIT	OUTSIDE AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	SUPPLY AIRFLOW (CFM)	OA/SA %	EXHAUST AIR UNIT	EXHAUST AIRFLOW (CFM)
RTU-1	720	3280	4000	18.0%	KEF-1	1800
RTU-2	720	3280	4000	18.0%	KEF-2	775
MUA-1	2250	0	2250	100.0%	KEF-3	525
					EF-1, EF-2, EF-3	300
TOTAL	3,690	6,560	10,250	36.2%	TOTAL	3,400
RESULTING BUILDING PRESSURIZATION						+ 290 CFM

THE BUILDING HVAC SYSTEM SHALL BE BALANCED BY NATIONAL TAB HIRED BY THE OWNER. CONTACT Dan Hertenstein - National TAB at: 816-215-1593 - DAN@NATIONALTAB.COM

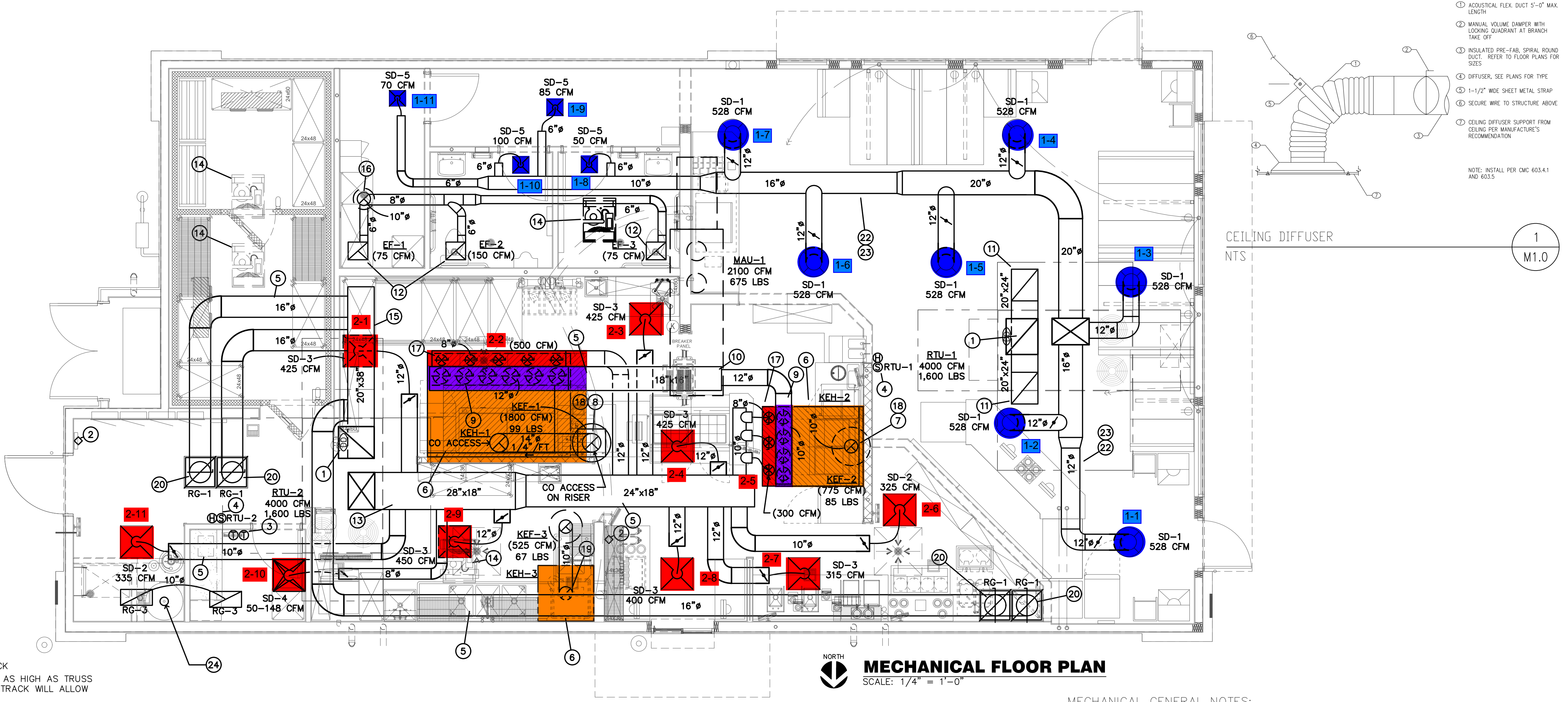
THE RTU SUPPLY FANS SHALL OPERATE IN SINGLE ZONE VAV MODE WITH 2 STAGES OF FAN CONTROL. LOW SPEED SHALL BE USED DURING PERIODS OF LOW COOLING LOAD AND VENTILATION ONLY OPERATION PER 2018 IECC REQUIREMENTS.

THE ECONOMIZER DAMPERS SHALL HAVE TWO POSITIONS DEPENDENT ON THE FAN SPEED TO MAINTAIN CONSTANT OUTDOOR AIR VOLUME AND BUILDING PRESSURE. REFER TO THE BUILDING AIR BALANCE SCHEDULE ON SHEET M2.

THE UNIT SHALL HAVE ITS FRESH AIR HEATING OPTION ENABLED TO HEAT VENTILATION AIR TO A NEUTRAL VALUE DURING COLD WEATHER OPERATION. REFER TO THE MANUFACTURERS PROGRAMMING DOCUMENTATION FOR SETUP INSTRUCTIONS.

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
RTU-1	884	Dining rooms	70	7.5	0.18		623	0.8	779
RTU-2	173	Corridors	0	0	0.06		10	0.8	13
Total									792



MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

MECHANICAL PLAN NOTES:

- LOCATION OF DUCT MOUNTED SMOKE DETECTOR. PROVIDE REMOTE ENUNCIATOR AUDIO/VISUAL. VERIFY LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. REFER TO SPEC SHEET MPO FOR ADDITIONAL INFORMATION.
- LOCATION OF MANUAL PULL STATION. INSTALL PER THE MANUFACTURERS REQUIREMENTS.
- LOCATION OF RTU THERMOSTATS. GC TO LABEL EACH THERMOSTAT.
- LOCATION OF RTU TEMPERATURE/HUMIDITY SENSORS MOUNTED 7'-0" AFF.
- ALL KITCHEN DUCTWORK IS INTENDED TO BE ROUTED THROUGH OR BETWEEN TRUSSES. COORDINATE EXACT ROUTING WITH TRUSSES DURING INSTALLATION.
- EXHAUST HOOD PROVIDED BY OTHERS. INSTALLED BY THIS CONTRACTOR PER THE MANUFACTURERS INSTRUCTIONS.
- TRANSITION AND CONNECT 10"ø GREASE DUCT TO EXHAUST HOOD WITH AS SHOWN. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- TRANSITION AND CONNECT 14"ø GREASE DUCT TO COLLAR ON EXHAUST HOOD. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. REFER TO DETAIL ON SHEET M2. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AND ACCESS DOORS AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- TRANSITION AND CONNECT MAKE-UP AIR DUCT TO EXHAUST HOOD SUPPLY PLENUM PER THE MANUFACTURERS REQUIREMENTS. SEE SHEET M3 FOR CONNECTION SIZE AND SUPPLY CFM.
- ROUTE 12"x14" MAKE UP AIR SUPPLY DUCT DOWN FROM MUA-1. TRANSITION AND CONNECT TO 18"x16" SUPPLY DUCT. VERIFY THE EXACT SIZE AND LOCATION OF STRUCTURE BEFORE INSTALLING DUCTWORK.
- RETURN AIR DUCT LOCATED BETWEEN ROOF TRUSSES. OPEN END OF DUCTWORK TURNED UP TOWARD STRUCTURE WITH A MINIMUM 8" CLEARANCE TO DECK.
- SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- COORDINATE WITH STRUCTURAL TO BLOCK OUT JOISTS AS REQUIRED TO RUN DUCT THROUGH STRUCTURE.
- MOUNT CONDENSING UNIT ON ROOF AS DETAILED AND AS REQUIRED BY THE MANUFACTURER. CONNECT REFRIGERANT PIPING AS REQUIRED BY THE MANUFACTURER. SEE ARCHITECTURAL PLANS FOR MOUNTING DETAIL.
- RETURN DUCT TO BE ROUTED BETWEEN JOISTS, AS HIGH AS STRUCTURE WILL ALLOW.
- ROUTE 10"ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES.
- TRANSITION AND CONNECT AIR CONDITIONING DUCT TO EXHAUST HOOD A/C SUPPLY PLENUM PER THE MANUFACTURERS REQUIREMENTS. SEE SHEET M3 FOR CONNECTION SIZE AND SUPPLY CFM.
- INSTALL CAPTIVE AIRE WBE WINDBAND EXTENSION FOR KEF-1 AND KEF-2 PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.
- TRANSITION AND CONNECT 10"ø ALUMINUM DUCT TO CONDENSATE HOOD. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND 5' FROM PARAPET WALLS.
- PROVIDE LOCKING QUADRANT DAMPER AND ROUND TO SQUARE TRANSITION FOR RETURN GRILLE CONNECTION.
- HOOD SHALL BE PROVIDED WITH FACTORY PRE-WIRE PACKAGE AND A PRE-ENGINEERED UL-300 FIRE SUPPRESSION SYSTEM. SEE HOOD DRAWINGS FOR DETAILS.
- EXPOSED DUCTWORK SHALL BE OF PAINTLOCK CONSTRUCTION AND PAINTED PER THE DIRECTION OF ARCHITECT.
- COORDINATE DUCT ROUTING WITH LIGHTING.
- OFFSET ABOVE CEILING AS NECESSARY TO MAINTAIN COMPLIANCE WITH ROOF PARAPET AND HEIGHT.

MECHANICAL GENERAL NOTES:

- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
- DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE A 1/2 INCH ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- ALL EXPOSED DUCT WORK SHALL BE PAINTED. REFER TO ARCHITECTURAL PLANS FOR DETAILS.
- DUCT LEAKAGE TEST WILL BE PROVIDED PER TO COMPLY WITH CMC 603.10.1

APPLICABLE CODES

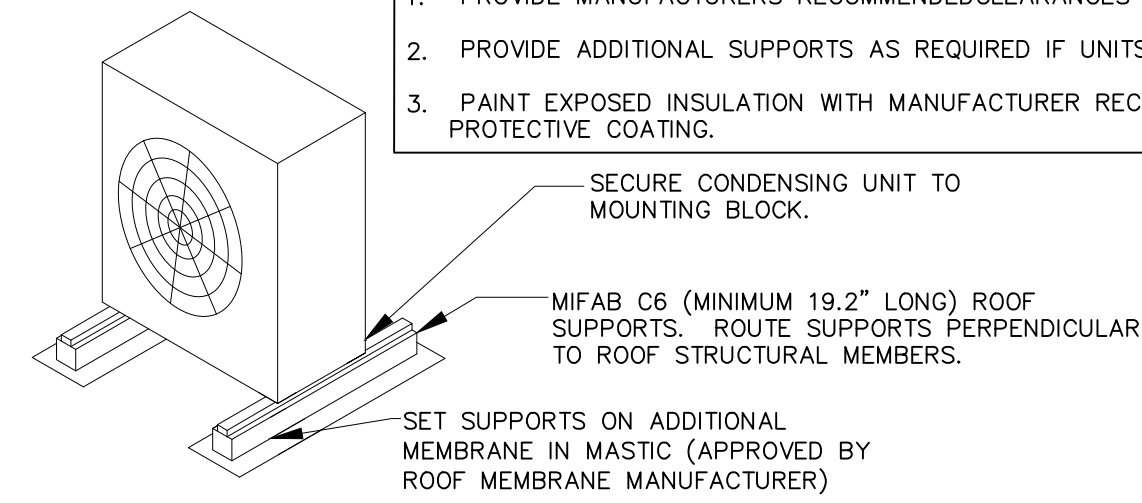
- BUILDING CODES:**
- APPLICABLE CODES AS OF JANUARY 1, 2020:
- 2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R. ;
 - 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R. ; (2015 INTERNATIONAL BUILDING CODE & 2016 CALIFORNIA AMENDMENTS)
 - 2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. ; (2014 NATIONAL ELECTRICAL CODE & 2016 CALIFORNIA AMENDMENTS)
 - 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R. ; (2015 UNIFORM MECHANICAL CODE & 2016 CALIFORNIA AMENDMENTS)
 - 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R. ; (2015 UNIFORM PLUMBING CODE & 2016 CALIFORNIA AMENDMENTS)
 - 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R. ;
 - 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R. ; (2015 INTERNATIONAL FIRE CODE & 2016 CALIFORNIA AMENDMENTS)
 - 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGreen), PART 11, TITLE 24 C.C.R. ;
 - 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R. ;
 - TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

ROOFTOP UNIT SCHEDULE																			
MARK	MFR	MODEL NO.	NOM. TONS	EVAP. CFM	EXT. STATIC P. IN. WG. (NOTE 2)	COOLING				HEATING		ELECTRICAL			MINIMUM OUTDOOR AIR (CFM)	TOTAL WEIGHT (LBS)	IEER	FREON	REMARKS
						TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH OUTPUT	VOLT/ø/HZ	BLOWER MOTOR	MIN. MCA (AMPS)	MIN. MOCP (AMPS)					
RTU-1	RHEEM	RACDZT120ACH	10	4000	1.0"	120,000	88,000	95	80/67	40KW	208/3/60	2 HP	54	70	720	791	12.9	R-410a	1,2,3,4,5,6,7
RTU-2																	12.2		1,2,3,4,5,6,7

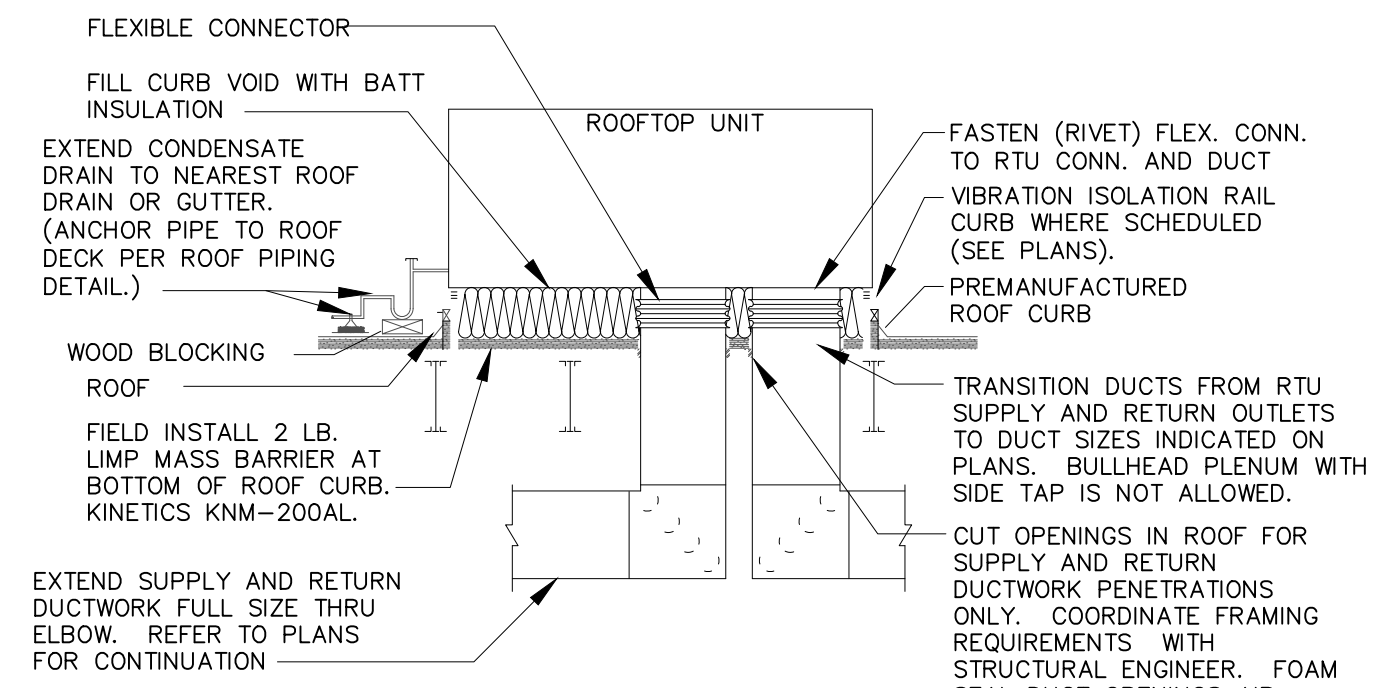
CONTRACTOR SHALL INSTALL ALL CONTROL WIRING AS PROVIDED BY THE MANUFACTURER

- NOTES:
1. PROVIDE DIGITAL CONTROLS, OUTDOOR AIR ECONOMIZER WITH DRY BULB CONTROL, BAROMETRIC RELIEF DAMPER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, HOT GAS REHEAT FOR DEHUMIDIFICATION, DRAIN PAN OVERFLOW SWITCH, DISCHARGE AIR TEMPERATURE SENSING, HINGED ACCESS DOORS, SMOKE DETECTOR MOUNTED IN RETURN, AND STANDARD COOLING DOWN TO 0°F FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR ALL UNITS.
 2. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.
 3. PROVIDE COMMERCIAL 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT WITH ECONOMIZER OUTPUT AND REMOTE, COMBINATION TEMPERATURE AND HUMIDITY SENSOR FOR EACH UNIT (HONEYWELL VISION PRO 8000 OR EQUAL), ECONOMIZER/OUTDOOR AIR DAMPER IS TO CLOSE DURING UNOCCUPIED HOURS.
 4. PROVIDE 18" HIGH (AT LOWEST POINT) PRE-FABRICATED INSULATED ROOF CURB.
 5. PROVIDE HAIL GUARDS FOR EACH UNIT.
 6. PROVIDE FACTORY INSTALLED UNIT MOUNTED CIRCUIT BREAKERS
 7. MECHANICAL SUBCONTRACTOR SHOULD CLEAN OR PROVIDE ALL NEW MERV13 FILTERS ON DAY OF TURNOVER.
 8. RTU1 AND RTU2 SHALL BE INTERLOCKED WITH KITCHEN HOOD EXHAUST FAN
 9. ELECTRIC HEAT OUTPUT TO BE DETERMINES AND PROVIDED AT VOLTAGE SHOWN

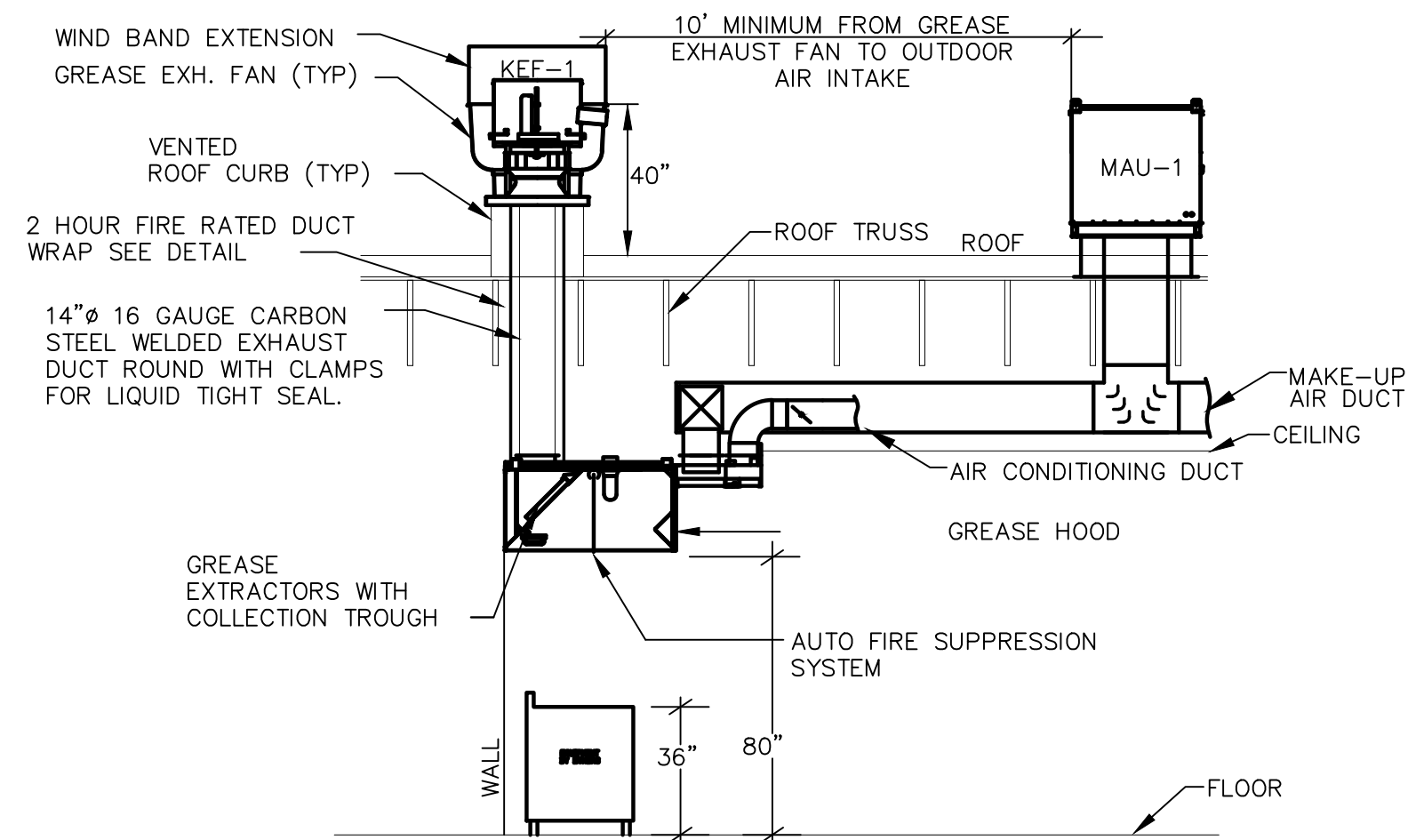
- NOTES:
1. PROVIDE MANUFACTURERS RECOMMENDED CLEARANCES BETWEEN CU & HP UNITS
 2. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED IF UNITS ARE NOT SAME WIDTH.
 3. PAINT EXPOSED INSULATION WITH MANUFACTURER RECOMMENDED ULTRAVIOLET PROTECTIVE COATING.



ROOF CONDENSING UNIT MOUNTING DETAIL
SCALE: NONE



DOWNFLOW ROOF TOP UNIT DETAIL
SCALE: NONE



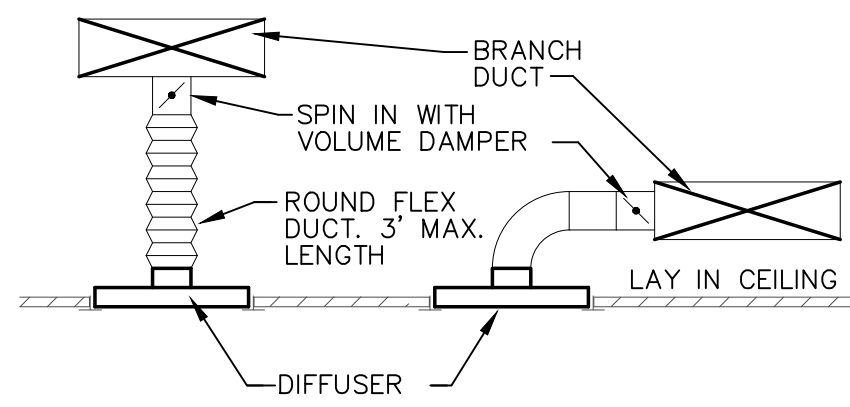
GREASE HOOD DETAIL
SCALE: NONE

EXHAUST FAN SCHEDULE									
MARK	MFR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	NOTES
						VOLT/ø/HZ	PWR		
EF-1	COOK	GC-146	75	0.25	900	120/1/60	30.3 W	CEILING EXH.	1
EF-2		GC-168	150		1099		50.4 W		1
EF-3		GC-146	75		900		30.3 W		

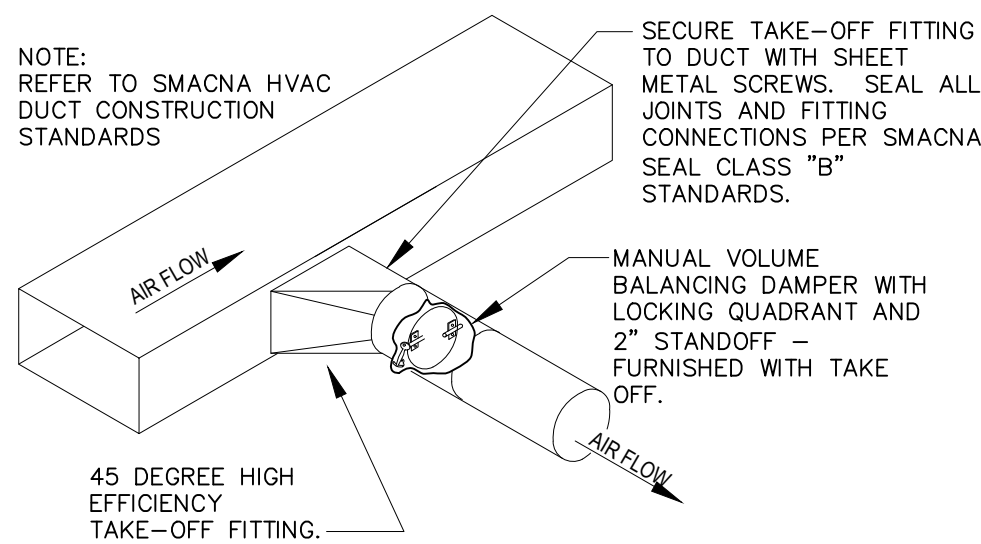
NOTES: 1. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, AND ROOF CAP.

DIFFUSER SCHEDULE						
MARK	MFR	MODEL	NECK SIZE	FACE SIZE	FINISH	REMARKS
SD-1	TITUS	TMR	12"ø	22"ø	WHITE	FIELD PREP FOR PAINTING
SD-2		TMS/3	12"ø	24"x24"		
SD-3		PAR/3				RETURN - NO DEFLECTOR
SD-4		T3SQ4	8"ø			THERMAL VAV DIFFUSER
SD-5		TMS/3	6"ø	12"x12"		WITH O.B. DAMPER AND TRM KIT
SD-6			8"ø	12"x12"		WITH TRM KIT
RG-1	AMER. LOUVER CO.	STRATUS	20"x20"	24"x24"		SEE NOTE 1.
RG-2	TITUS	35ORL	8"x8"			
RG-3		PAR/3	10"x22"	12"x24"		

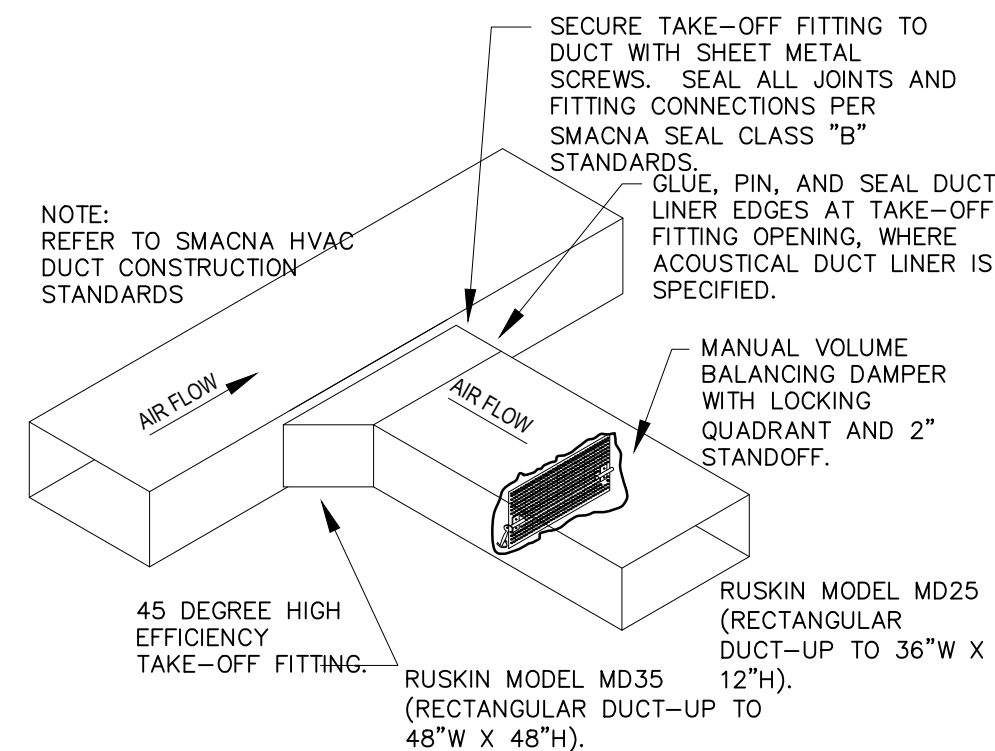
NOTES: 1. RETURN GRILLE TO BE PLASTIC FILTER RETURN, FILTER TO BE AMERICAN AIR FILTER (AAF) FRONTLINE GREEN 1", WITH AAF AMERIFRAME SIZE 20x20x1.



DIFFUSER DETAIL
SCALE: NONE



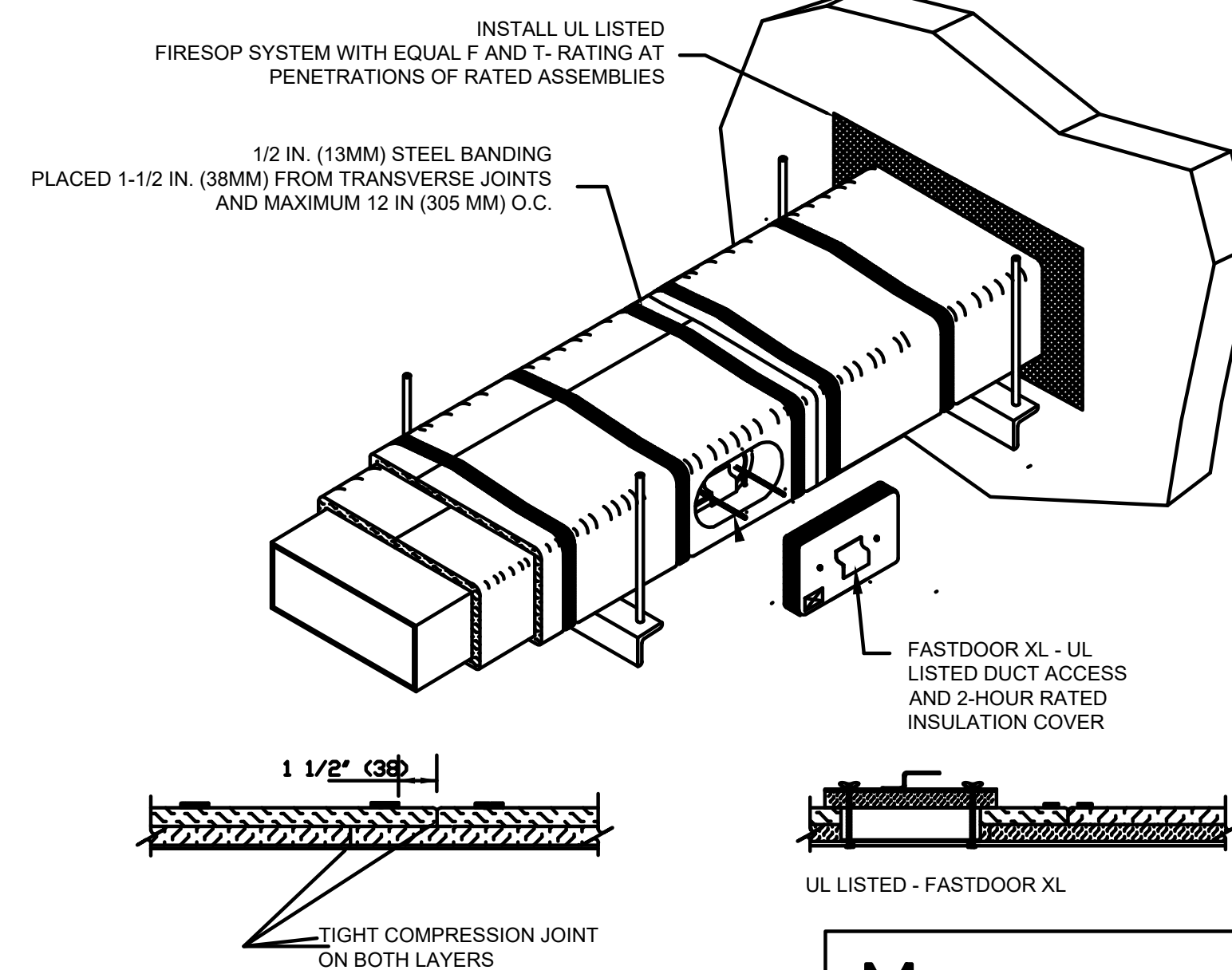
ROUND DUCT TAKE OFF DETAIL
SCALE: NONE



RECTANGULAR DUCT TAKE OFF DETAIL
SCALE: NONE

FIRE RATED ENCLOSURE - GREASE DUCTS

1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNK7.G18 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1- OR 2- HOUR ENCLOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC-ES APPROVAL PER REPORT ESR 2213 OR ESR 2832.
2. COMPLIANT TO THE FOLLOWING CODES:
NFPA 96
INTERNATIONAL MECHANICAL CODES
UNIFORM MECHANICAL CODE
CALIFORNIA MECHANICAL CODE
3. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
4. MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
5. INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT IN HORIZONTAL RUNS.
6. SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8 IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
7. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
8. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.



Morgan Thermal Ceramics
P.O. Box 923
Augusta, Georgia 30903-0923
Phone: (706) 560-4038



5912 BOLSA AVENUE | SUITE 212
HUNTINGTON BEACH CA 92649
PH 714-840-2100 | FX 714-840-2101

OWNER INFORMATION:

FREDDY'S FROZEN CUSTARD
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:



JOB NO: PRA-SD-004-001b

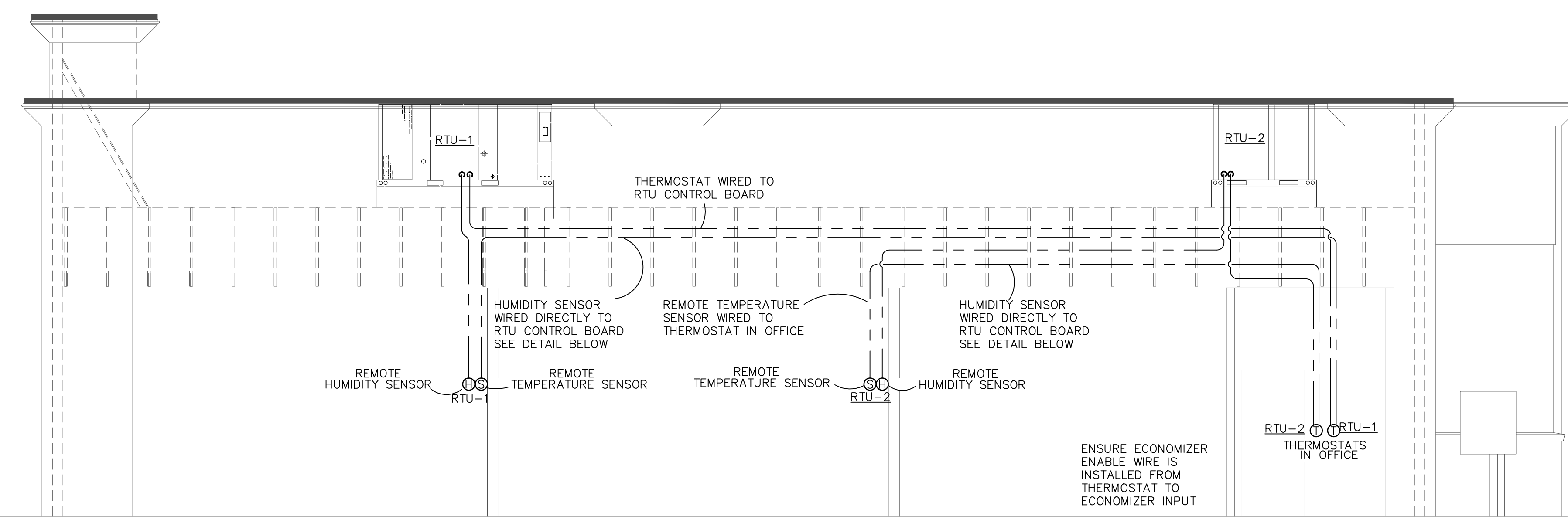
REVISION:

DATE:	DESCRIPTION:	STAFF
02/11/2022	City Submittal	
	City Re-submittal	
	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:
**MECHANICAL
DETAILS AND
SCHEDULE**

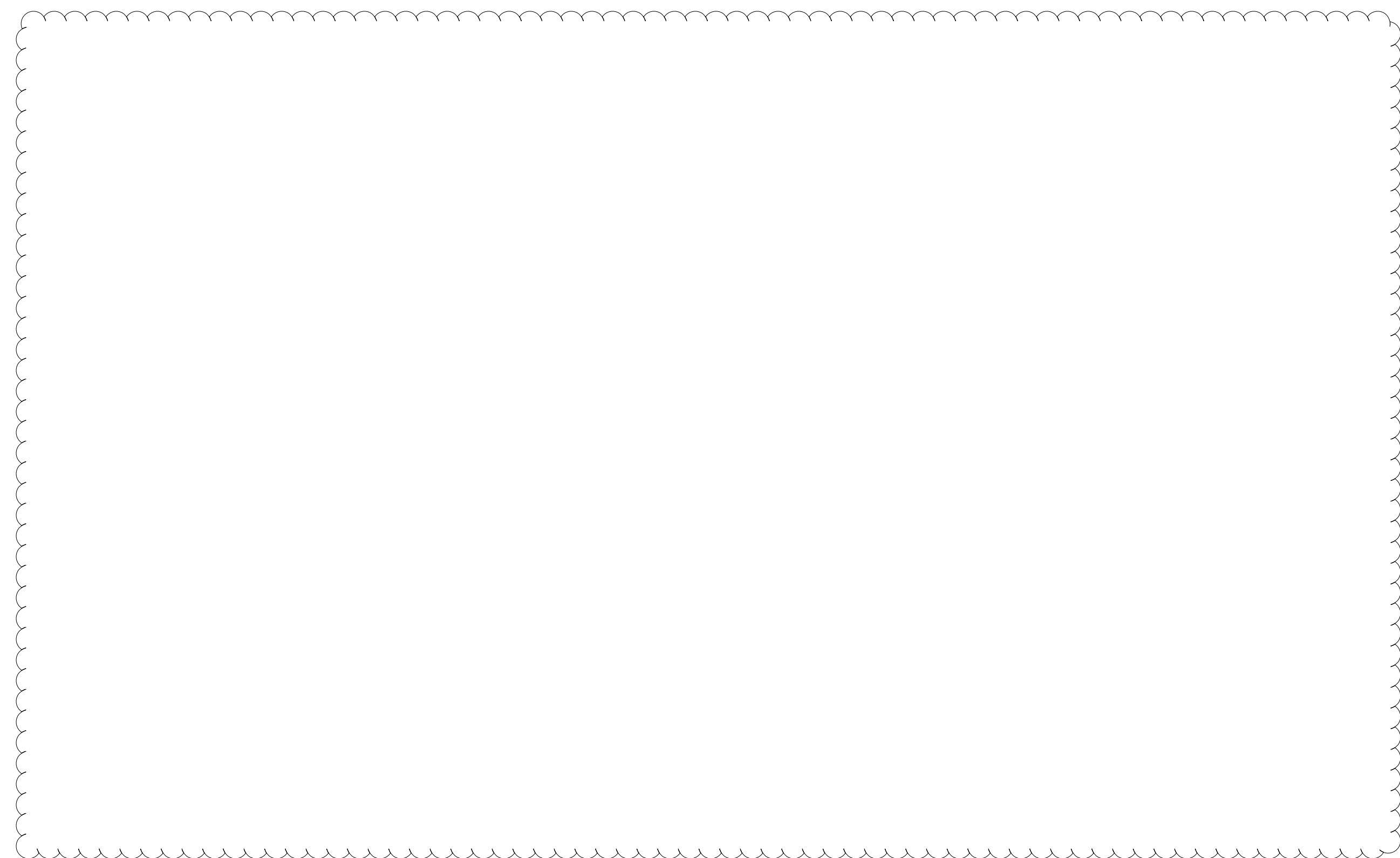
SHEET NUMBER:

M-2.1



REMOTE TEMPERATURE AND HUMIDITY SENSOR WIRING

ALL LOW VOLTAGE WIRING FOR THE HVAC SYSTEM IS TO BE PROVIDED AND INSTALLED BY THE HVAC CONTRACTOR. CONTRACTOR SHALL INSTALL ALL CONTROL WIRING AS PROVIDED BY THE MANUFACTURER



OWNER INFORMATION:

FREDDY'S
FROZEN CUSTARD
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:



JOB NO: PRA-SD-004-001b

REVISION:

DATE:	DESCRIPTION:	STAFF:
	City Submittal	
02/11/2022	1 City Re-submittal	
	1a Health Dept	
05/10/2022	2 City 2nd Re-submittal	
10/31/2022	CB1 Change Bulletin 1	
	CB2 Change Bulletin 2	
02/08/2023	CB3 Change Bulletin 3	

SHEET TITLE:

**REMOTE
SENSOR
WIRING**

SHEET NUMBER:

M-2.2



5912 BOLSA AVENUE | SUITE 212
 HUNTINGTON BEACH CA 92649
 PH 714.840.2100 | FX 714.840.2101

OWNER INFORMATION:

FREDDY'S
FROZEN CUSTARD
 APN # 0421-313-21-0000
 2567 COMMERCE PARKWAY
 BARSTOW CA 92311

LICENSER:



JOB NO: PRA-SD-004-001b

REVISION:

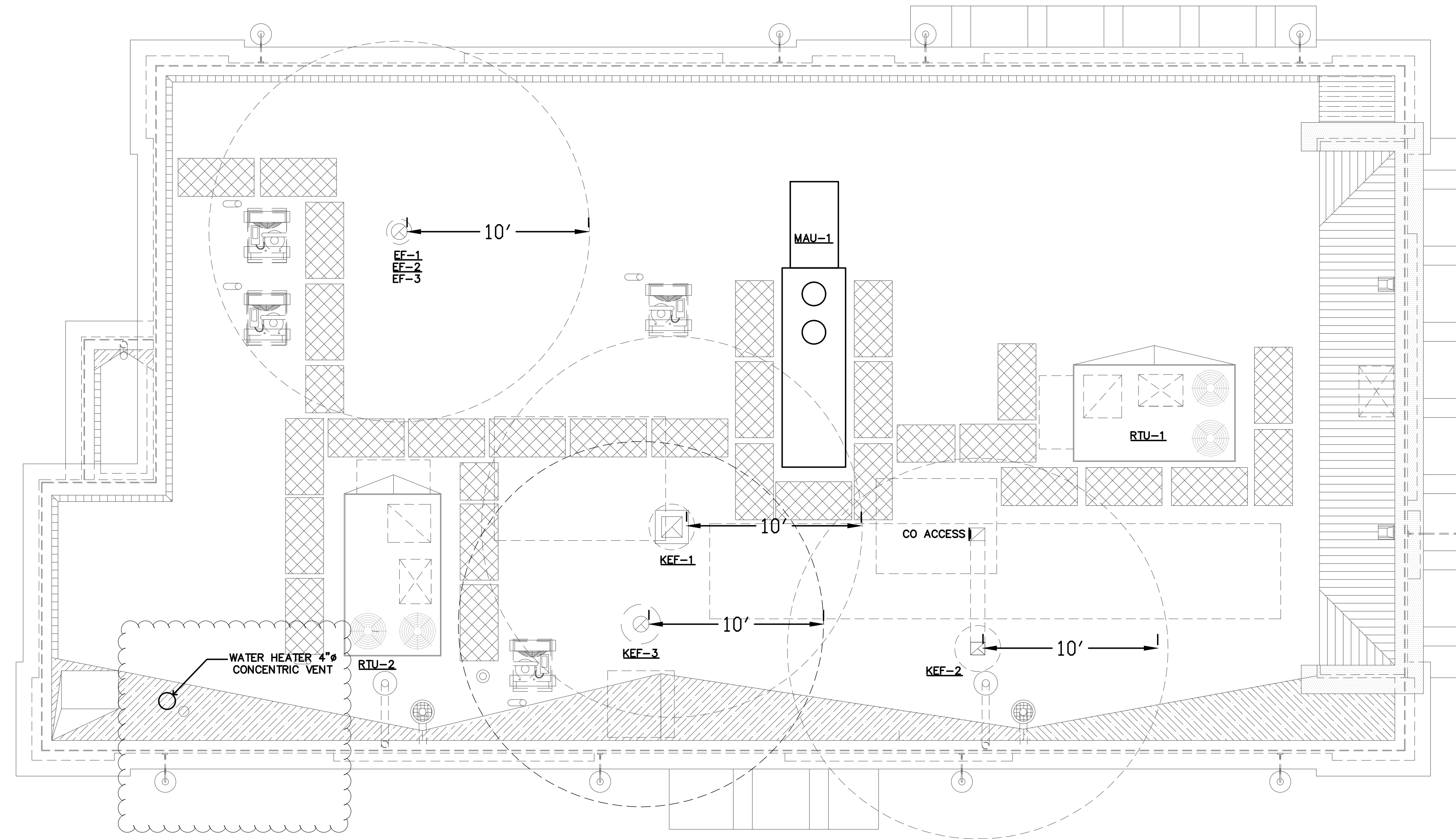
DATE:	DESCRIPTION:	STAFF
	City Submittal	
02/11/2022	1 City Re-submittal	
	1a Health Dept	
05/10/2022	2 City 2nd Re-submittal	
10/31/2022	CB1 Change Bulletin 1	
	CB2 Change Bulletin 2	
02/08/2023	CB3 Change Bulletin 3	

SHEET TITLE:

**MECHANICAL
 ROOF PLAN**

SHEET NUMBER:

M-2R



CEASE EXHAUST FANS ON ROOF TO BE INSTALLED
 MIN 5' CLEARANCE FROM ANY COMBUSTIBLE
 PORTION OF THE ROOF CMC 510.9



MECHANICAL ROOF PLAN

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

1/2" DIA. ALL THREAD ROD CONNECTED TO ROOF JOIST THROUGH ANOTHER HANGING ANGLE

HOOD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR. HANGING ANGLE IS PRE-FINISHED AT FACTORY.

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"

EXHAUST CFM=LENGTH OF HOOD X CFM/UNFT. (LOAD)
 SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED CFM
 TOTAL DUCT AREA=144 X CFM(C)
 DUCT LENGTH= TOTAL DUCT AREA
 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.

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

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

INSTALLATION

- ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
- ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
- HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
- ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTOR'S PLANS.
- COOKING EQUIPMENT TO SHUT-OFF IN EVENT OF FIRE.
- EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
- ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
- SEMI-CONDUCTING RESISTORS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
- INSTALLING CONTRACTORS ASSUME ALL RELATED RESPONSIBILITY 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

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

ADDITIONAL

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

FILTER COLLECTION EFFICIENCY

2" CaptiveAire Solo Filter

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

HOOD INFORMATION - JOB#5195411

HOOD NO.	TAG	MODEL	MANUFACTURER	LENGTH	MAX. COOKING TEMP.	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH. CFM	EXHAUST PLENUM (RISERS)				HOOD CONFIG.		PATENT NUMBERS			
										WIDTH	LENG.	HEIGHT	DIA.	CFM	VEL.		SP.	MUA	AC
1	ITEM 33A	5424	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	800	1600	4"	14"	1600	1497	-0.734"	1280	505	430 SS WHERE EXPOSED	ALDNE	FRONT
2	ITEM 33B	5424	CAPTIVEAIRE	5' 0"	450 DEG	I	MEDIUM	155	775	4"	10"	775	1421	-0.436"	620	309	430 SS WHERE EXPOSED	ALDNE	ALDNE
3	ITEM 75	4224	VHB-G	3' 6"	700 DEG	II	N/A	150	525	4"	10"	525	963	-0.069"	0	0	304 SS 100%	ALDNE	ALDNE

HOOD INFORMATION

HOOD NO.	TAG	TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	DUTY	TYPE	WIRE GAUGE	LOCATION	SIZE	UTILITY CABINETS		ELECTRICAL	SWITCHES	FIRE HOOD SYSTEM/HANGING PIPING WEIGHT
												TYPE	SIZE			
1	ITEM 33A	CAPTRATE SOLID FILTER	5	16"	16"	95% SEE FILTER SPEC	8	RECESSED ROUND	ND	LEFT	12"X54"X24"	ANSUL R-102	3/0/3/0	DCV-2111	1 LIGHT 1 FAN	YES 698 LBS
2	ITEM 33B	CAPTRATE SOLID FILTER	3	16"	16"	95% SEE FILTER SPEC	8	RECESSED ROUND	ND	LEFT	12"X54"X24"	ANSUL R-102	3/0/3/0	DCV-2111	1 LIGHT 1 FAN	YES 423 LBS
3	ITEM 75						0									NO 161 LBS

HOOD OPTIONS

HOOD NO.	TAG	FIELD WRAPPER	1800" HIGH FRONT, LEFT, RIGHT.	OPTION
		RIGHT QUARTER END PANEL	23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH	430 SS.
2	ITEM 33B	FIELD WRAPPER	1800" HIGH FRONT, LEFT, RIGHT.	
		RIGHT END PANEL	54" TOP WIDTH, 54" BOTTOM WIDTH, 45" HIGH	430 SS.
		LEFT QUARTER END PANEL	23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH	430 SS.
3	ITEM 75	FIELD WRAPPER	1800" HIGH FRONT, LEFT, RIGHT.	

PERFORATED SUPPLY PLENUM(S)

HOOD NO.	TAG	POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)			
							WIDTH	LENG.	DIA.	
1	ITEM 33A	Front	108'	24"	6"	AC	MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							MUA	10"	194	0.047"
							MUA	10"	194	0.047"
2	ITEM 33B	Front	60'	22"	6"	AC	MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							MUA	12"	295	0.084"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							AC	8"	101	0.033"
							MUA	10"	194	0.047"
							MUA	10"	194	0.047"

SPECIFICATION: CAPTRATE GREASE-STOP SOLID FILTER

THE CAPTRATE GREASE-STOP SOLID 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" DEEP HOOD CHANNELS.

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 70% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 95% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 10 INCHES OF WATER GAUGE.

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

EFFICIENCY VS. PARTICLE DIAMETER

PRESSURE DROP VS. FLOW RATE

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

SECTION VIEW - MODEL 5424ND-2-ACPS-P HOOD - #1 (ITEM 33A)

SECTION VIEW - MODEL 5424ND-2-ACPS-P HOOD - #2 (ITEM 33B)

SECTION VIEW - MODEL 4224VHB-G HOOD - #3 (ITEM 75)

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 HOOD HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

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 HOOD HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

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PLAN VIEW - HOOD #1 (ITEM 33A)
 8' 0.00" LONG 5424ND-2-ACPS-P

PLAN VIEW - HOOD #2 (ITEM 33B)
 5' 0.00" LONG 5424ND-2-ACPS-P

PLAN VIEW - HOOD #3 (ITEM 75)
 3' 6.00" LONG 4224VHB-G

ACPSHIPS LOOSE FOR FIELD INSTALLATION

ACPSHIPS LOOSE FOR FIELD INSTALLATION

ACPSHIPS LOOSE FOR FIELD INSTALLATION

RECESSED ROUND LED FIXTURE AND LED LIGHT, 3500 K WARM OUTPUT.

FIELD WRAPPER 1800" HIGH (SEE HOOD OPTIONS TABLE).

EXHAUST RISER.

HANGING ANGLE.

SEE HOOD TABLE.

16" CAPTRATE SOLID FILTER WITH HOOD.

3" INTERNAL STANDOFF.

23" MAX.

48" MAX.

80"

EQUIPMENT BY OTHERS.

IT IS THE RESPONSIBILITY OF THE ARCHITECT/OWNER TO ENSURE THAT THE HOOD CLEARANCE FROM LIMITED-COMBUSTIBLE AND COMBUSTIBLE MATERIALS IS IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS.

RECESSED ROUND LED FIXTURE AND LED LIGHT, 3500 K WARM OUTPUT.

FIELD WRAPPER 1800" HIGH (SEE HOOD OPTIONS TABLE).

EXHAUST RISER.

HANGING ANGLE.

SEE HOOD TABLE.

16" CAPTRATE SOLID FILTER WITH HOOD.

3" INTERNAL STANDOFF.

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RECESSED ROUND LED FIXTURE AND LED LIGHT, 3500 K WARM OUTPUT.

FIELD WRAPPER 1800" HIGH (SEE HOOD OPTIONS TABLE).

EXHAUST RISER.

HANGING ANGLE.

SEE HOOD TABLE.

16" CAPTRATE SOLID FILTER WITH HOOD.

3" INTERNAL STANDOFF.

23" MAX.

48" MAX.

80"

EQUIPMENT BY OTHERS.

IT IS THE RESPONSIBILITY OF THE ARCHITECT/OWNER TO ENSURE THAT THE HOOD CLEARANCE FROM LIMITED-COMBUSTIBLE AND COMBUSTIBLE MATERIALS IS IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS.

REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

www.captiveaire.com

CAPTIVEAIRE
 REGOFFICE ADDRESS

DWGNAME LOCATION

DATE: DATE

DWG.#: DWG#

DRAWN BY: DRAWNBY

SCALE: SCALE

SHEETTYPE

SHEET NO. SHEET#

OWNER INFORMATION:

FREDDY'S FROZEN CUSTARD
 APN # 0421-313-21-0000
 2567 COMMERCE PARKWAY
 BARSTOW CA 92311

LICENSER:

JOB NO: PRA-SD-004-001b

REVISION:

DATE	DESCRIPTION	STAFF
02/11/2022	City Submittal	STAFF
	City Re-submittal	
	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:

HOOD PLANS

SHEET NUMBER:

M-3

pacific rim architects

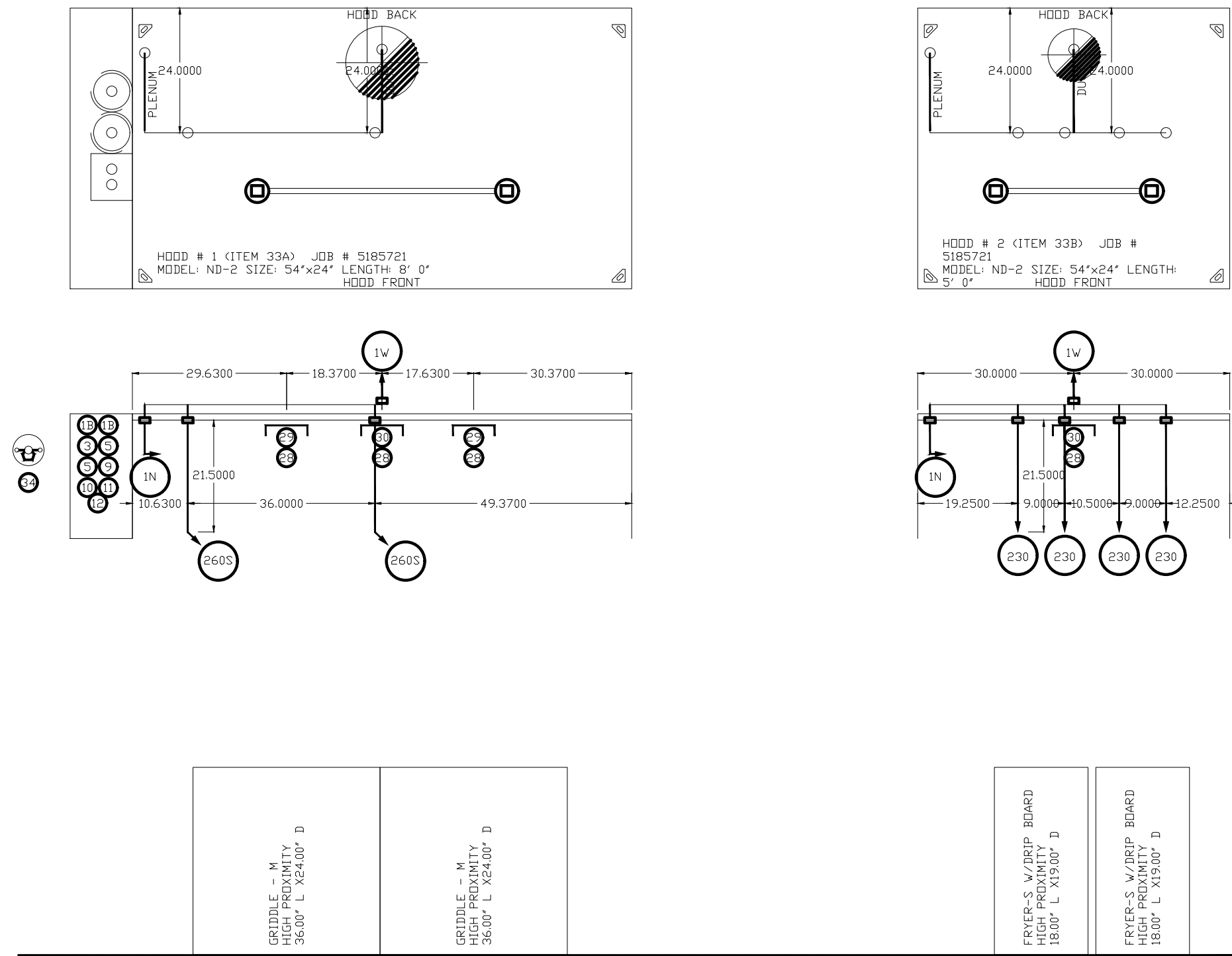
5912 BOLSA AVENUE | SUITE 212
 HUNTINGTON BEACH CA 92649
 PH 714.840.2100 | FX 714.840.2101

FOR REFERENCE ONLY

FIRE SYSTEM INFORMATION - JOB#5195411				
FIRE SYSTEM NO.	TAG	TYPE	SIZE	FLOW POINTS
1		ANSUL R102	3.0/3.0	16

GAS VALVES(S)				
FIRE SYSTEM NO.	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	1.000	CAPTIVE/FARE SYSTEMS

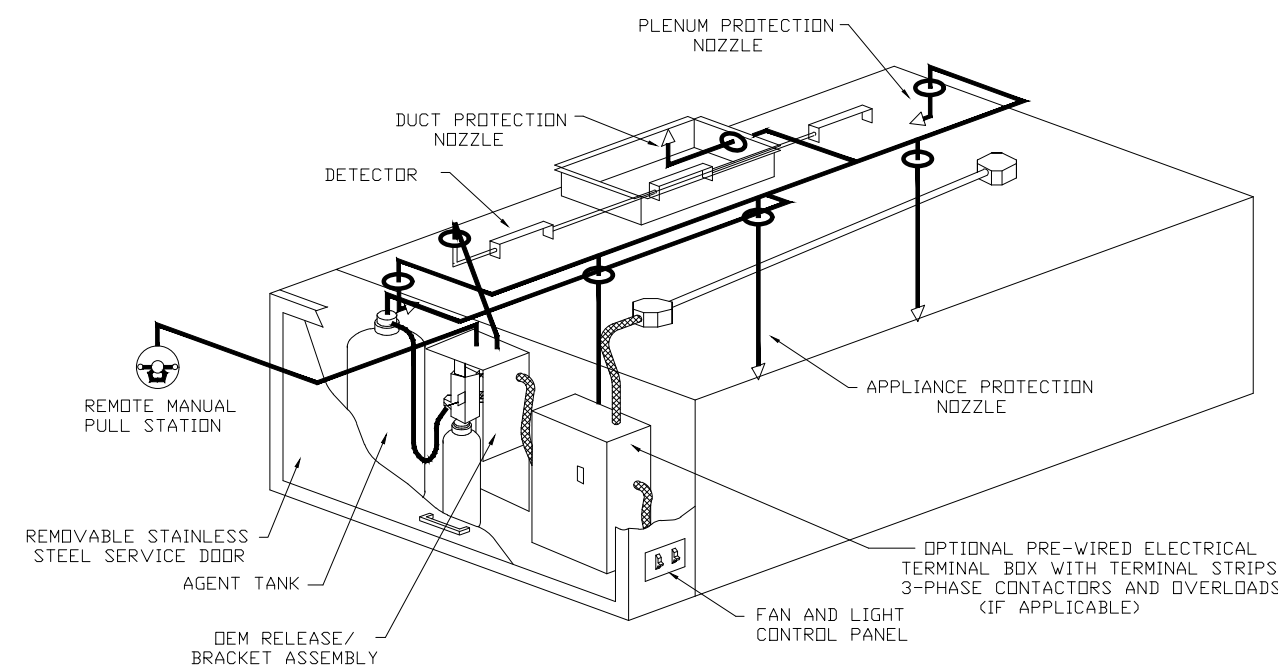
FIRE SYSTEM PARTS LIST KEY				
FIRE SYSTEM NO.	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
		0 - 0 - TANK STRAP TANK STRAP - USED FOR ANSUL TANKS.	2	0
		0 - 0 - UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS.	2	0
		1 - 1 - AT - 3.0 TANK(18") - 3.0 GALLON TANK (FOR USE WITH AUTOMAN RELEASE, ACTUATOR, DR SS ENCLOSURE (UL/ULC) MACOLA # 01-429862.	2	0
		3 - 3 - ANS-DEM REGULATED RELEASE - ANSUL REGULATED MECHANICAL RELEASE/BRAKET ASSEMBLY, DEM R-100, CARTRIDGE DETECTION INCLUDED, ANSUL PART # 79453.	1	0
		5 - 5 - LID-30 AGENT - ANSULEX LDW PH WET CHEMICAL AGENT, 3 GALLON (UL) 79372.	0	2
		9 - 9 - 101-30 CARTRIDGE - CARBON DIOXIDE, 101-30, CARTRIDGE (R-100) 19-15851.	0	1
		10 - 10 - TLINK LINK - TEST LINK (3 TEST LINK) ANSUL PART # 24916, MACOLA # 20-24916.	0	1
		11 - 11 - MICRO-SDA MICROSWITCH KIT - INCLUDES 2 SWITCHES & MOUNTING HARDWARE, SINGLE DUAL ELECTRIC SWITCH, ONE STANDARD SWITCH, ONE ALARM DUTY SWITCH ANSUL PART # 437155, MACOLA # 08-437155.	1	0
		12 - 12 - HOSE HOSE - RUBBER HOSE.	1	0
		27 - 27 - OPSA-1/2 PULLEY SEAL - 1/2" HOOD SEAL (UL) ANSUL PART # 423253, MACOLA # 32-79768.	5	0
		24 - 24 - OPS-A REMOTE PULL STATION - RED COMPOSITE (WITHOUT WIRE ROPE) 434618 (OLD) MACOLA #06-48351.	1	0
		35 - 35 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART # 415670, MACOLA # 11-415670.	5	0
		36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART # 423251, MACOLA # 10-45771.	4	0



NOTES

- FIELD PIPE DROPS AS SHOWN.
- SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- MAXIMUM 9 ELBOWS IN SUPPLY LINE.
- MINIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPING REQUIREMENTS.
- IF APPLICABLE, PRE-PIPED CHARBROILER 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 FIRE SYSTEM COMPLIES WITH UL 300 REQUIREMENTS.

JOB # 5185721
 JOB NAME: FREDDY'S - BARSTOW, CA.
 SYSTEM SIZE: ANSUL-3.0/3.0 TOTAL FP REQUIRED: 16.
 HOOD # 1 8' 0"00" LONG x 54" WIDE x 24" HIGH.
 ROSSER # 1 SIZE: 14" DIA.
 HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
 HOOD # 2 5' 0"00" LONG x 54" WIDE x 24" HIGH.
 ROSSER # 1 SIZE: 10" DIA.
 HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.



INCLUDED FIELD INSTALLATION AND HOODUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE. TWO SITE VISITS ONLY ONE VISIT TO SET PULL STATION & SYSTEM HOODUP AND ONE VISIT FOR ONE TEST. ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES. ONE MECHANICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 1" PERMIT, AND SYSTEM TEST.

EXCLUDED UNLESS LATER & PREVAILING WAGE CLAUSE & WAGES WILL BE ADDED IF APPLICABLE. GAS VALVE INSTALLATION, ELECTRICAL HOODUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHIRT TRIP, HANDHELD EXTINGUISHERS, ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.

NOTES

- FIELD PIPE DROPS AS SHOWN.
- SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- MAXIMUM 9 ELBOWS IN SUPPLY LINE.
- MINIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPING REQUIREMENTS.
- IF APPLICABLE, PRE-PIPED CHARBROILER 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.

SPECIFICATIONS

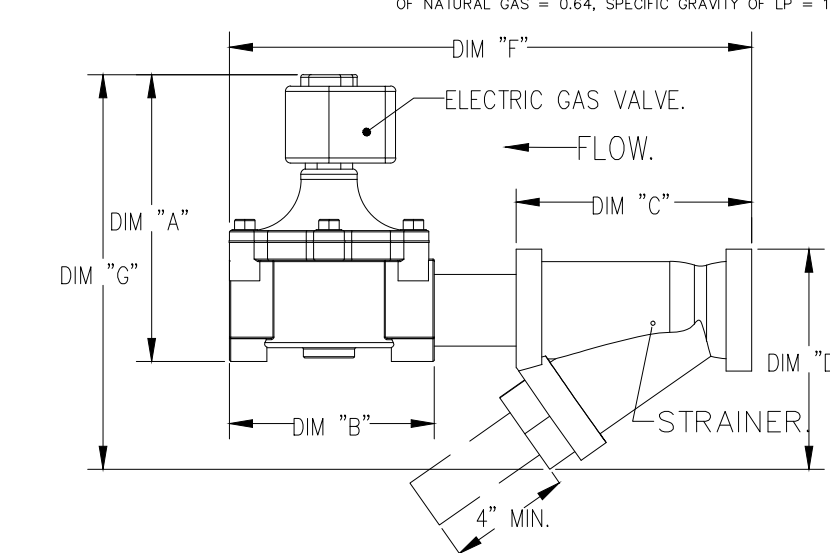
THE RESTAURANT FIRE SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC. (UL)

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTUATION. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS.

THE EXTINGUISHING AGENT SHALL BE A POTASSIUM CARBONATE, POTASSIUM ACETATE-BASED FORMULATION DESIGNED FOR FLAME INHIBITION AND SMOOTHERING OF GREASE RELATED FIRES. IT SHALL BE AVAILABLE IN PLASTIC CONTAINERS WITH INSTRUCTIONS FOR LIQUID AGENT HANDLING AND USAGE.

THE REGULATED RELEASE MECHANISM SHALL BE COMPATIBLE WITH A FUSIBLE LINK DETECTION SYSTEM. THE FUSIBLE LINK SHALL BE SELECTED AND INSTALLED ACCORDING TO THE OPERATING TEMPERATURE IN THE VENTILATING SYSTEM. THE FUSIBLE LINK SHALL BE SUPPORTED BY A DETECTOR BRACKET/LINKAGE ASSEMBLY.

GAS VALVES AND STRAINERS														
TYPE	SIZE	GAS VALVE SIZING			GAS VALVE DIMENSIONS						INSTALLATION	PART NUMBERS		
		MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"		DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER
ELECTRICAL	1"	120 VAC (0 IN.W.C.)	5 PSI (1.38 IN.W.C.)	1,130,000 BTU/HR	3.74/33	6-15/16"	5-15/16"	4-7/8"	5-3/16"	32-13/16"	10-11/16"	HORIZONTAL/VERTICAL	824250	4417868 (C23E0V1)



REVISIONS	
DESCRIPTION	DATE

CAPTIVE
 REGOFFICE ADDRESS
 www.captivefire.com

pacific rim architects

5912 BOLSA AVENUE | SUITE 212
 HUNTINGTON BEACH CA 92649
 PH 714.840.2100 | FX 714.840.2101

OWNER INFORMATION:

FREDDY'S FROZEN CUSTARD
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:

SAID A. BANDI
 No. M26499
 Exp. 03/31/24
 MECHANICAL
 STATE OF CALIFORNIA

JOB NO: PRA-SD-004-001b

REVISION:		
DATE:	DESCRIPTION:	STAFF
02/11/2022	City Submittal	
	City Re-submittal	
	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:

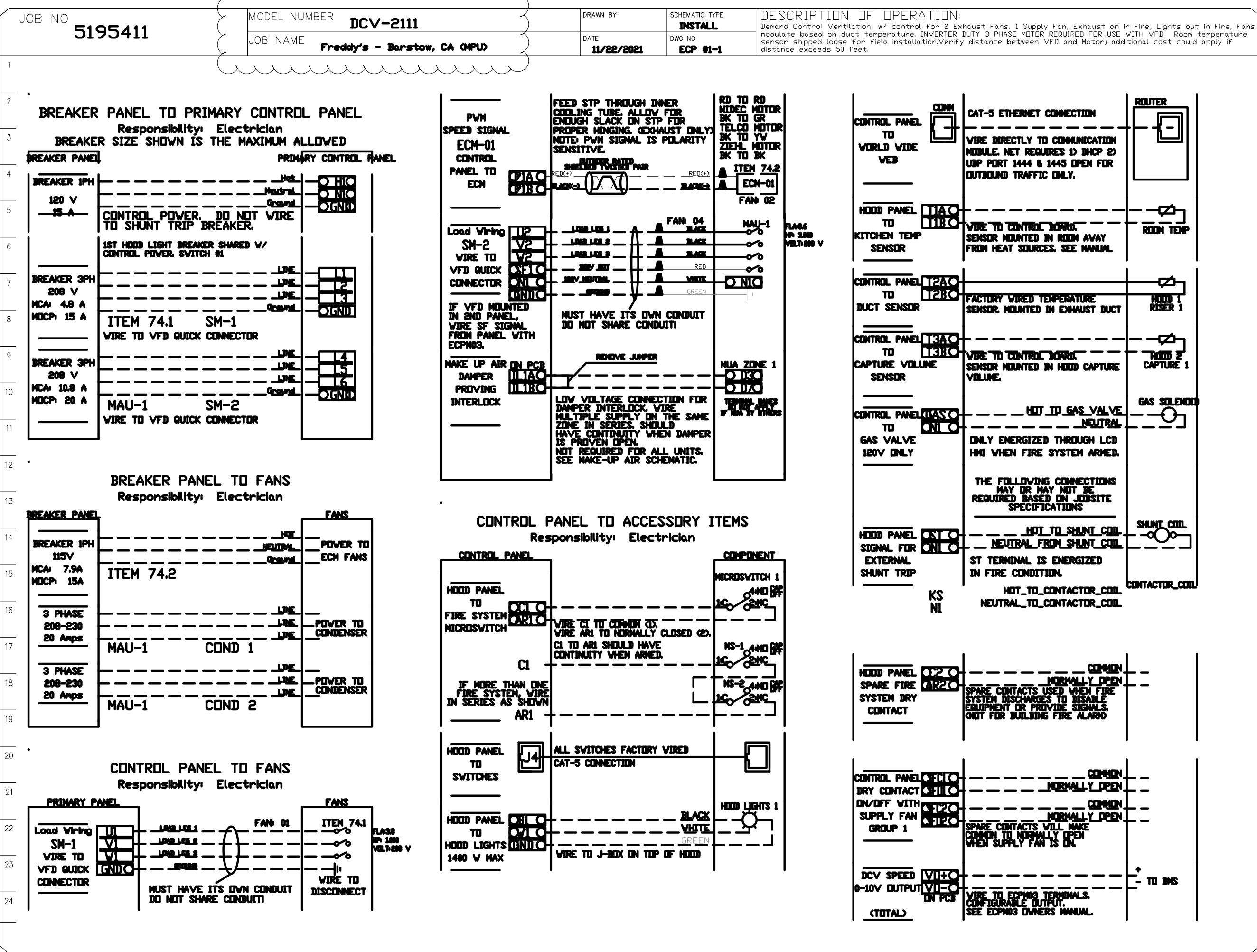
HOOD PLANS

SHEET NUMBER:

M-4

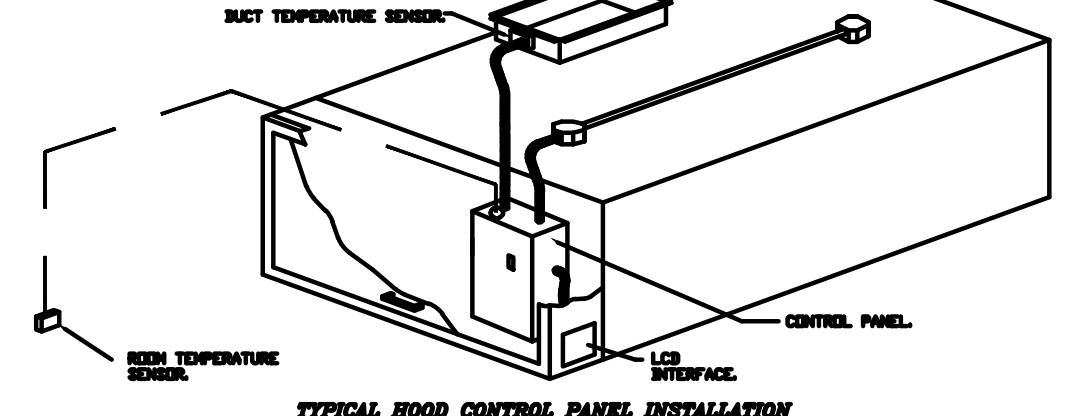
FOR REFERENCE ONLY

ELECTRICAL PACKAGE - JOB#195411													
NO	TAG	PACKAGE	LOCATION	SWITCHES	QUANTITY	OPTION	FANS CONTROLLED						
							FAN TAG	TYPE	1	2	3	4	5
1	ECP-1	DCV-2111	UTILITY CABINET LEFT	HOOD #1	1 FAN	SMART CONTROLS DCV	ITEM 741	EXHAUST	3	1000	208	3A	
							ITEM 742	EXHAUST	1	2500	115	6.3	
							MAU-1	SUPPLY	3	1000	208	8A	

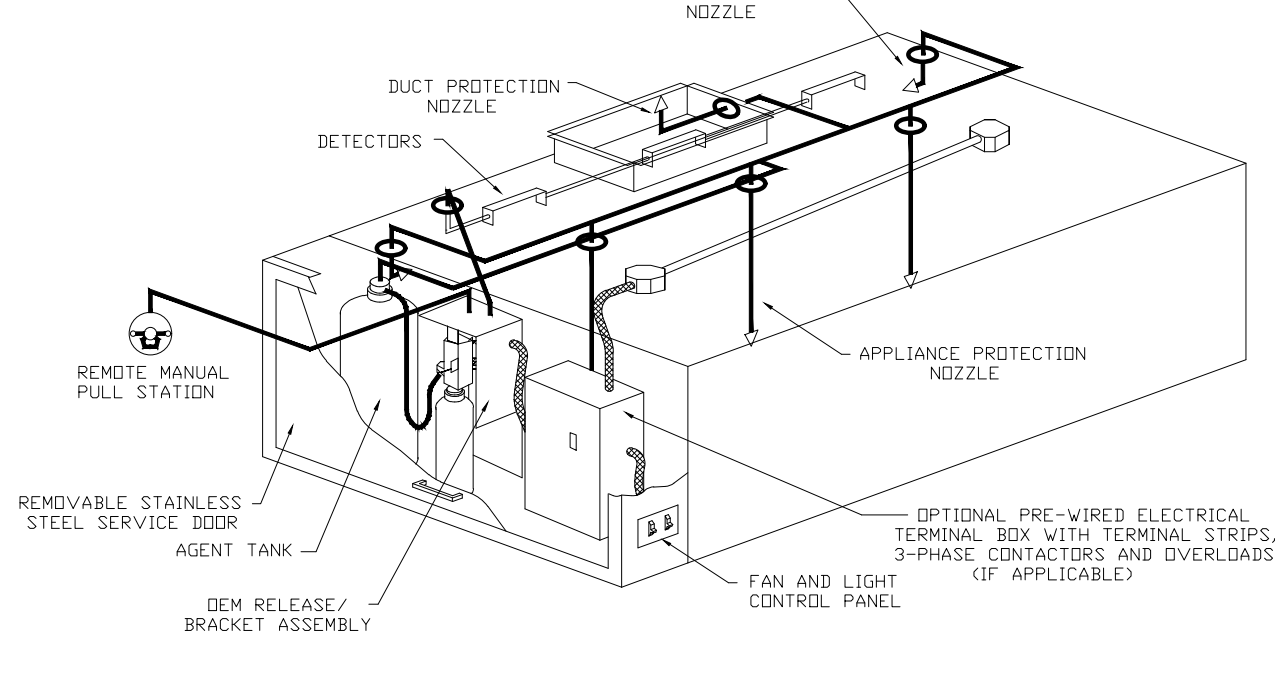


DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:
CONTROLS SHALL BE LISTED BY ETL GL 50940 AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2022).

- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBES (LOCATED IN THE EXHAUST DUCT RISERS) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IBC 507.11.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFD) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDs BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT EXTERNAL CONTROL. SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE.
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES OR RESET RELAY REQUIRED.
C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
E. MS-VIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED kWh FROM THE VFDs.



- SEQUENCE OF OPERATIONS:**
THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:
- **MANUAL:** THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
 - **SCHEDULE:** A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PRESSURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
 - **TEMP:** THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SENSOR (OCC, BMS OR HARD-WIRED INTERLOCK).
 - **TEMP:** UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTIVATED BY THE HOOD FIRE SUPPRESSION SYSTEM.



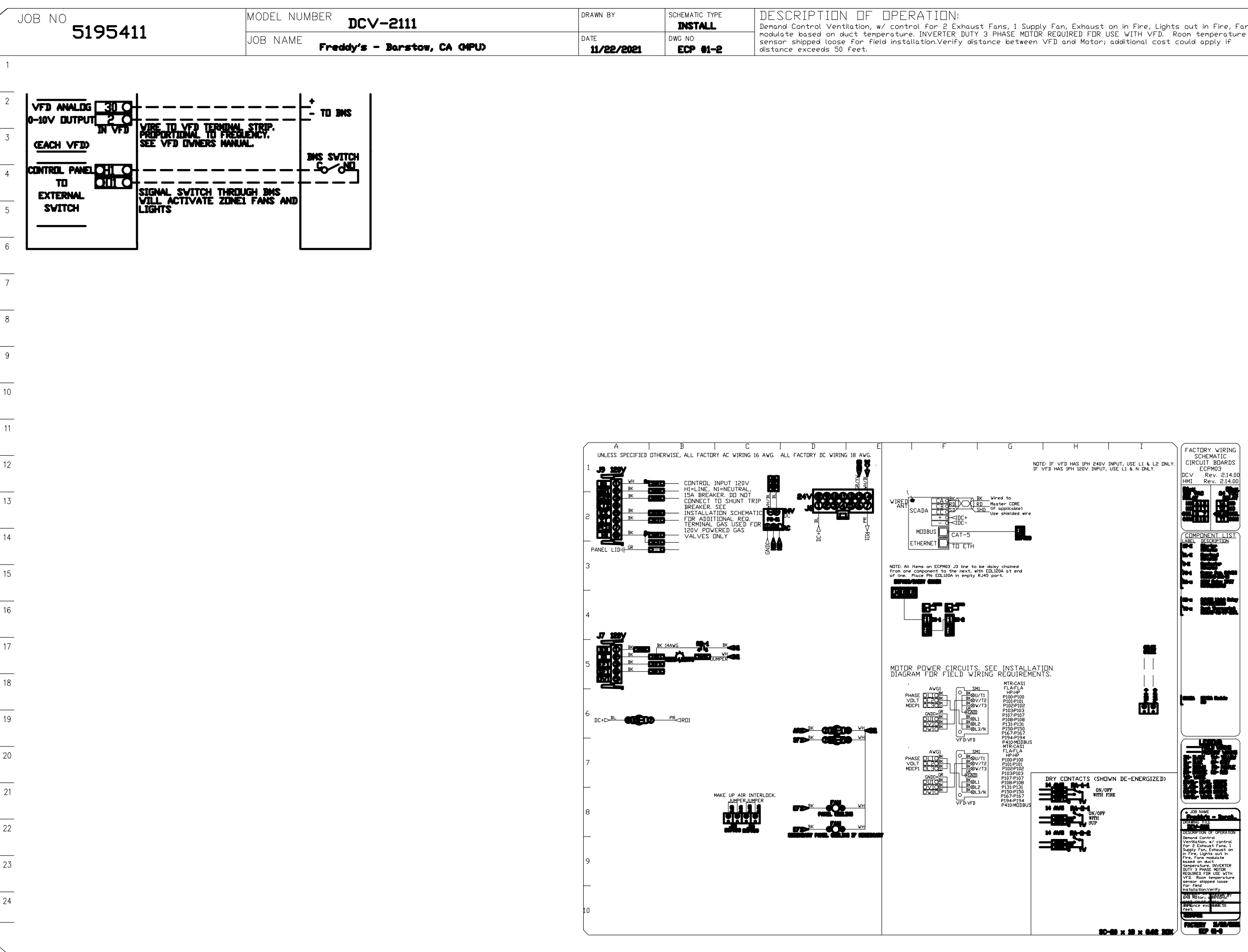
SPECIFICATIONS

THE RESTAURANT HOOD SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC. (UL).

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTUATION. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS.

THE EXTINGUISHING AGENT SHALL BE A POTASSIUM CARBONATE, POTASSIUM ACETATE-BASED FORMULATION DESIGNED FOR FLAME KNOCKDOWN AND SECUREMENT OF GREASE RELATED FIRES. IT SHALL BE AVAILABLE IN PLASTIC CONTAINERS WITH INSTRUCTIONS FOR LIQUID AGENT HANDLING AND USAGE.

THE REGULATED RELEASE MECHANISM SHALL BE COMPATIBLE WITH A FUSIBLE LINK DETECTION SYSTEM. THE FUSIBLE LINK SHALL BE SELECTED AND INSTALLED ACCORDING TO THE OPERATING TEMPERATURE IN THE VENTILATING SYSTEM. THE FUSIBLE LINK SHALL BE SUPPORTED BY A DETECTOR BRACKET/LINKAGE ASSEMBLY.



REVISIONS	
DESCRIPTION	DATE

REGOFFICE
ADDRESS

www.captiveire.com

pacific rim architects

5912 BOLSA AVENUE | SUITE 212
HUNTINGTON BEACH CA 92649
PH 714.840.2100 | FX 714.840.2101

OWNER INFORMATION:

FREDDY'S FROZEN CUSTARD
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:

PROFESSIONAL REGISTERED MECHANICAL ENGINEER
SAID A. BANDI
No. 826499
Exp. 03/31/24
STATE OF CALIFORNIA

JOB NO: PRA-SD-004-001b

REVISION:		
DATE:	DESCRIPTION:	STAFF
02/11/2022	City Submittal	STAFF
02/11/2022	City Re-submittal	
05/10/2022	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
10/31/2022	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:
HOOD PLANS

SHEET NUMBER:
M-5.2

FOR REFERENCE ONLY



5912 BOLSA AVENUE | SUITE 212
HUNTINGTON BEACH CA 92649
PH 714.840.2100 | FX 714.840.2101

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Input File Name:	Barstow freddys 2.cibd19x		

A. GENERAL INFORMATION			
1 Project Location (city)	Barstow	8 Standards Version	Compliance2019
2 CA Zip Code	92311	9 Compliance Software (version)	EnergyPro 8.3
3 Climate Zone	14	10 Weather File	DAGGETT-BARSTOW_723815_CZ2010.epw
4 Total Conditioned Floor Area in Scope	2,440 ft ²	11 Building Orientation (deg)	(N) 0 deg
5 Total Unconditioned Floor Area	0 ft ²	12 Permitted Scope of Work	NewComplete
6 Total # of Stories (Habitable Above Grade)	1	13 Building Type(s)	Nonresidential
7 Total # of dwelling units	0	14 Gas Type	NaturalGas

B. PROJECT SUMMARY			
Table Instructions: Table B shows which building components are included in the performance calculation. If indicated as not included, the project must show compliance prescriptively if within permit application.			
Building Components Complying via Performance		Building Components Complying Prescriptively	
Envelope (see Table G)	<input checked="" type="checkbox"/> Performance <input type="checkbox"/> Not Included	Covered Process: Commercial Kitchens	<input type="checkbox"/> Performance <input checked="" type="checkbox"/> Not Included
Mechanical (see Table H)	<input checked="" type="checkbox"/> Performance <input type="checkbox"/> Not Included	Covered Process: Computer Rooms	<input type="checkbox"/> Performance <input checked="" type="checkbox"/> Not Included
Domestic Hot Water (see Table I)	<input checked="" type="checkbox"/> Performance <input type="checkbox"/> Not Included	Covered Process: Laboratory Exhaust	<input type="checkbox"/> Performance <input checked="" type="checkbox"/> Not Included
Lighting (Indoor Conditioned, see Table K)	<input checked="" type="checkbox"/> Performance <input type="checkbox"/> Not Included		
Solar Thermal Water Heating (see Table L)	<input checked="" type="checkbox"/> Performance <input type="checkbox"/> Not Included		

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G1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)			
1	2	3	4
Opaque Surfaces & Orientation	Total Gross Surface Area (ft ²)	Total Fenestration Area (ft ²)	Window to Wall Ratio (%)
North-Facing ¹	3,060 ft ²	68 ft ²	02.2%
East-Facing ²	0 ft ²	0 ft ²	00.0%
South-Facing ³	660 ft ²	14 ft ²	02.1%
West-Facing ⁴	0 ft ²	0 ft ²	00.0%
Total	3,720 ft ²	82 ft ²	02.2%
Roof	2,440 ft ²	0 ft ²	00.0%

Notes:
¹North-Facing is oriented to within 45 degrees of true north, including 45°00'00" east of north (NE), but excluding 45°00'00" west of north (NW).
²East-Facing is oriented to within 45 degrees of true east, including 45°00'00" south of east (SE), but excluding 45°00'00" north of east (NE).
³South-Facing is oriented to within 45 degrees of true south, including 45°00'00" west of south (SW), but excluding 45°00'00" east of south (SE).
⁴West-Facing is oriented to within 45 degrees of true west, including 45°00'00" north of due west (NW), but excluding 45°00'00" south of west (SW).

G3. OPAQUE SURFACE ASSEMBLY SUMMARY									
1	2	3	4	5	6	7	8	9	10
Surface Name	Surface Type	Area (ft ²)	Framing Type	Cavity R-Value	Continuous R-Value	Units	Value	Description of Assembly Layers	U-Factor
R-13 Wall9	ExteriorWall	3720	Wood	13	NA	U-Factor	0.102	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Wood framed wall, 16in. OC, 3.5in., R-13 Gypsum Board - 1/2 in.	N
Slab On Grade12	UndergroundFloor	2440	NA	0	NA	F-Factor	0.73	Slab Type = UnheatedSlabOnGrade Insulation Orientation = None Insulation R-Value = R0	N

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H6. SYSTEM SPECIAL FEATURES			
1	2	3	4
System Name	Equipment Type	Window Interlocks per §140.4(n)	Other Special Features and Controls
RTU-1AND RTU-2	SZAC	NA	Zones With CO2Sensor Vent. Control Fixed Drybulb Economizer
Undefined Plant1 - SHW	Service Hot Water, Primary Only	NA	Fixed Temperature Control

H7. NONRESIDENTIAL VENTILATION						
1	2	3	4	5	6	7
Zone Name	Mechanical Ventilation	Ventilation Function	# of people	Supply OA CFM	Exhaust CFM	Conditioned Area (sf)
1-SALES	Food Service - Kitchen (cooking)		12.20	366	1860	2440

H8. HIGH-RISE RESIDENTIAL DWELLING UNIT AND HOTEL/MOTEL VENTILATION
This Section Does Not Apply

H9. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY													
1	2	3	4	5	6	7	8	9	10	11	12	13	
System ID	Zone Name	System Type	Qty	Rated Capacity (kBtu/h)	Airflow (cfm)			Fan					
1-SALES-Trm	1-SALES	Uncontrolled	2	NA	Heating	Cooling	Design	Min.	Min. Ratio	Power	Power Units	Cycles	VSD
					NA	NA	8000	NA	0.00	2.700	bhp	NA	<input type="checkbox"/>

H10. EVAPORATIVE COOLER SUMMARY
This Section Does Not Apply

H11. HEAT RECOVERY SUMMARY
This Section Does Not Apply

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C1. COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft ² -yr)			
COMPLIES			
Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV) ¹
Space Heating	0.04	0.00	0.04
Space Cooling	1,388.04	1,445.61	-57.57
Indoor Fans	509.76	406.18	103.58
Heat Rejection	--	--	--
Pumps & Misc.	--	--	--
Domestic Hot Water	16.09	1.65	14.44
Indoor Lighting	132.65	132.65	--
ENERGY STANDARDS COMPLIANCE TOTAL	2,046.58	1,986.09	60.49 (3.0%)

¹ Notes: The number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.

C2. RESULTS FOR 'ABOVE CODE' QUALIFICATIONS ¹			
<input type="checkbox"/> This project is pursuing CalGreen Tier 1		<input type="checkbox"/> This project is pursuing CalGreen Tier 2	
Miscellaneous Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV) ¹
Receptacle	222.52	222.52	--
Process	6,918.84	6,918.84	--
Other Ltg	--	--	--
Process Motors	--	--	--
COMPLIANCE TOTAL PLUS MISCELLANEOUS COMPONENTS	9,187.94	9,127.45	60.5 (0.7%)

¹ Notes: This table is used to document compliance with programs OTHER THAN Title 24 Part 6, if applicable.

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G3. OPAQUE SURFACE ASSEMBLY SUMMARY									
1	2	3	4	5	6	7	8	9	10
Surface Name	Surface Type	Area (ft ²)	Framing Type	Cavity R-Value	Continuous R-Value	Units	Value	Description of Assembly Layers	U-Factor
R-19 Roof Attic14	Roof	2440	Wood	19	NA	U-Factor	0.052	Asphalt shingles - 1/4 in. Vapor permeable felt - 1/8 in. Plywood - 1/2 in. Air - Cavity - Wall Roof Ceiling - 4 in. or more Wood framed roof, 24in. OC, 3.5in., R-19	N

¹ Status: N - New, A - Altered, E - Existing

G5. FENESTRATION ASSEMBLY SUMMARY								
1	2	3	4	5	6	7	8	9
Fenestration Assembly Name / Tag or I.D.	Fenestration Type / Product Type / Frame Type	Certification Method ¹	Assembly Method	Area ft ²	Overall U-factor	Overall SHGC	Overall VT	U-Factor
Double Thermal Break Clear	VerticalFenestration FixedWindow MetallFramingWithThermalBreak	Default Performance	SiteBuilt	14	0.55	0.69	0.77	N
Double Metal Clear	VerticalFenestration FixedWindow MetallFraming	Default Performance	Manufactured	68	0.71	0.73	0.77	N

¹ Newly installed fenestration shall have a certified NFRC Label Certificate or use the CEC default tables found in Table 110.6-A and Table 110.6-B. Center of Glass (COG) values are for the glass only, determined by the manufacturer, and are shown for ease of verification. Site-built fenestration values are calculated per Nonresidential Appendix NAB and are used in the analysis.
² Status: N - New, A - Altered, E - Existing

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H1. WATER HEATER EQUIPMENT SUMMARY													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name	Heater Element Type	Tank Type	Qty	Tank Vol (gal)	Rated Input	Efficiency	Efficiency Unit	Tank Insulation R-Value (In/Ext)	Standby Loss Fraction	1st Hour Rating or Flow Rate (gal)	Heat Pump Type	Tank Location or Ambient Condition	
Standard Gas2	Gas	Storage	1	60.00	0	kBtu/h	0.81	UEF	NA	NA	80	NA	NA

K1. INDOOR CONDITIONED LIGHTING GENERAL INFO					
1	2	3	4	5	6
Occupancy Type ¹	Conditioned Floor Area ² (ft ²)	Installed Lighting Power (Watts)	Lighting Control Credits (Watts)	Additional (Custom) Allowance	Tailored Method (Watts)
Kitchen/Food Preparation Area	2,440	2,318	0	0	0
Building Totals:	2,440	2,318	0	0	0

¹ See Table 140.6-C
² See NRCC-471-01-01 for unconditioned spaces
³ Lighting information for existing spaces modeled is not included in the table

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C3. ENERGY USE SUMMARY						
Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	--	--	--	0.0	--	--
Space Cooling	95.0	100.4	-5.4	--	--	--
Indoor Fans	42.4	35.1	7.3	--	--	--
Heat Rejection	--	--	--	--	--	--
Pumps & Misc.	--	--	--	--	--	--
Domestic Hot Water	--	--	--	21.7	2.2	19.5
Indoor Lighting	11.0	11.0	0.0	--	--	-->
Compliance Total	148.4	146.5	1.9	21.7	2.2	19.5
Receptacle	18.5	18.5	0.0	--	--	--
Process	576.4	576.4	0.0	--	--	--
Other Ltg	--	--	--	--	--	--
Process Motors	--	--	--	--	--	--
TOTAL	743.3	741.4	1.9	21.7	2.2	19.5

D. EXCEPTIONAL CONDITIONS
 This project uses the Simplified Geometry Performance Modeling Approach which is not capable of modeling daylighting controls and assumes the prescriptive Secondary Daylit Control requirements are met. PRESCRIPTIVE COMPLIANCE documentation (form NRCC-LTI-02-E) for the requirements of section 140.6(d) Automatic Daylighting Controls in Secondary Daylit Zones is required.
 The user model includes space(s) that are designed to be served by mechanical cooling systems, but the cooling systems were not included in the simulation model. A cooling system has been modeled for both the proposed and standard cases.
 The user model includes space(s) without sufficient cooling equipment. Cooling equipment has been added to the model to meet cooling loads.

E. HERS VERIFICATION
 This Section Does Not Apply

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H1. DRY SYSTEM EQUIPMENT (furnaces, air handling units, heat pumps, VRF, economizers, etc.)											
1	2	3	4	5	6	7	8	9	10	11	12
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status
RTU-1AND RTU-2	SZAC (Packaged1Phase)	2	136	0	NA	Elec. Res.	115	EER	12.0	FixedDryBulb	N

¹ Status: N - New, A - Altered, E - Existing

H2. FAN SYSTEMS SUMMARY													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name or Item Tag	Qty	Design OA	CFM	Modeling Method	Power	Power Units	Control	CFM	Modeling Method	Power	Power Units	Control	Status
RTU-1AND RTU-2	2	183	4000	BrakeHorsePower	2.700	bhp	ConstantVolume	NA	NA	NA	NA	NA	N

¹ Status: N - New, A - Altered, E - Existing

H3. EXHAUST FAN SUMMARY							
1	2	3	4	5	6	7	8
System ID	Zone Name	Qty	CFM	Motor BHP	Power Per Flow (W/cfm)	Total Static Pressure (in. H ₂ O)	Status
SALES3	1-SALES	1	1,860	0.300	0.141	0.67	N

¹ Status: N - New, A - Altered, E - Existing

H4. Wet System Equipment(boilers,chillers,cooling towers,etc.)
 This Section Does Not Apply

H5. PUMPS
 This Section Does Not Apply

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K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROLS									
Building Level Controls									
1					2				
Mandatory Demand Response §110.12(c)					Shut-				

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L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online at: https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Building Component	Form/Title
Envelope	NRCI-ENV-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-01-E - Must be submitted for all buildings
Plumbing	NRCI-PLB-01-E - Must be submitted for all buildings
Indoor Lighting	NRCI-LTI-01-E - Must be submitted for all buildings

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M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration
Indoor Lighting	NRCA-LTI-02-A - Occupancy Sensors and Automatic Time Switch Controls
Mechanical	NRCA-MCH-02-A Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap
	NRCA-MCH-03-A Constant Volume Single Zone HVAC
	NRCA-MCH-05-A Air Economizer Controls
	NRCA-MCH-06-A Demand Control Ventilation Systems Acceptance must be submitted for all systems required to employ demand controlled ventilation (refer to §120.1(c)(3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints
	NRCA-MCH-11-A Automatic Demand Shed Controls
	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units
	NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Saeed Bandi	Signature:
Company: AMPS Engineering	Signature Date: 2023-01-13
Address: PO Box 17424	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Irvine CA 92623	Phone: 949-614-9582

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
 1. The information provided on this Certificate of Compliance is true and correct.
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Envelope Designer Name: PACIFIC RIM ARCHITECTS	Signature:	License #:
Company:	Date Signed:	
Address:		
City/State/Zip:		
Phone:	Title:	License #:
Responsible Lighting Designer Name:	Signature:	License #:
Company:	Date Signed:	
Address:		
City/State/Zip:		
Phone:	Title:	License #:
Responsible Mechanical Designer Name: said bandi	Signature:	License #:
Company: BEE	Date Signed: 2023-01-13	
Address: po box 17424		
City/State/Zip: irvine ca 92623		
Phone: 9496149582	Title:	License #: M26499




5912 BOLSA AVENUE / SUITE 212
 HUNTINGTON BEACH CA 92649
 PH 714.840.2100 | FX 714.840.2101

OWNER INFORMATION:

**FREDDY'S
 FROZEN CUSTARD**
APN # 0421-313-21-0000
2567 COMMERCE PARKWAY
BARSTOW CA 92311

LICENSER:



JOB NO: PRA-SD-004-001b

REVISION:

DATE:	DESCRIPTION:	STAFF
	City Submittal	
02/11/2022	City Re-submittal	
	Health Dept	
05/10/2022	City 2nd Re-submittal	
10/31/2022	Change Bulletin 1	
	Change Bulletin 2	
02/08/2023	Change Bulletin 3	

SHEET TITLE:

**ENERGY
 COMPLIANCE**

SHEET NUMBER:

M-6.1