SECTION 23 00 00 - MECHANICAL GENERAL REQUIREMENTS

PART 1 - GENERAL
1. THE TERM "TENANT," "TENANT'S CONSTRUCTION MANAGER," "OWNER," OR "OWNER'S CONSTRUCTION MANAGER" SHALL REFER TO SWEETGREEN.
2. THE TERM "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
3. THE GENERAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM AND AS DESCRIBED IN THESE DRAWINGS.
4. THE GENERAL CONTRACTOR SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS. EACH SUB-CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF DRAWINGS ON SITE DURING THE CONSTRUCTION PROCESS.
5. COORDINATE WORK AS REQUIRED WITH THE LANDLORD. THE GENERAL CONTRACTOR SHALL UTILIZE LANDLORD-REQUIRED CONTRACTORS AT THE GENERAL CONTRACTOR'S EXPENSE.

PART 2 - PRODUCTS
1. PRODUCTS SHALL BE AS DESCRIBED IN THE DRAWINGS AND AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.

PART 3 - EXECUTION
1. UNLESS DIMENSIONS HAVE BEEN PROVIDED, THE DRAWINGS ARE DIAGRAMMATIC IN NATURE, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND REQUIRED EQUIPMENT. THEY SHALL NOT BE SCALED. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, TENANT VENDORS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CUTSHEETS AS REQUIRED.
2. COMPLETE ALL WORK IN COMPLIANCE WITH THE CODES LISTED ON THE ARCHITECTURAL SHEETS INCLUDING ALL LOCAL AMENDMENTS, ALL RELEVANT NFPA CODES AND STANDARDS AND SMACNA STANDARDS.
   A. VERIFY ALL CODE REQUIREMENTS AND LOCAL AMENDMENTS WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO BID.
   B. WHEN THERE IS A DISCREPANCY BETWEEN THE ADOPTED CODES AND THESE DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
3. PROVIDE FIRESTOPPING AND SLEEVES AT ALL COMPONENTS PENETRATING RATED WALLS TO MAINTAIN THE FIRE RATING OF THE EXISTING SHELL SYSTEMS.
4. COORDINATE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AS NECESSARY. PURCHASE PERMITS ASSOCIATED WITH THE WORK AND ARRANGE ALL INSPECTIONS AS REQUIRED.
5. COORDINATE WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, THE REQUIREMENTS OF THE OWNER AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
6. MAINTAIN A CLEAN CONSTRUCTION SITE DURING CONSTRUCTION. CLEAN SCRAP MATERIAL AND REMOVE FROM SITE DAILY AND MAINTAIN WORKING AREA IN AN ORDERLY FASHION.
7. PROVIDE SUBMITTALS AS NOTED IN THESE SPECIFICATIONS AND AS REQUESTED BY THE TENANT'S CONSTRUCTION MANAGER.
   A. ALL SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE TENANT'S CONSTRUCTION MANAGER.
   B. SHOP DRAWINGS SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME WITHOUT IMPACT TO THE PROJECT SCHEDULE.
6. PROVIDE REQUESTS FOR INFORMATION TO THE TENANT'S CONSTRUCTION MANAGER.
   A. REQUESTS FOR INFORMATION SHALL PROVIDE A DETAILED DESCRIPTION OF THE SITE CONDITION OR DISCREPANCY AND THE CONTRACTORS PROPOSED REMEDY.
   B. REQUESTS FOR INFORMATION SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME.
7. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER WITH A BOUND RECORD OF ALL MECHANICAL EQUIPMENT UTILIZED IN THE JOB. THE GENERAL CONTRACTOR SHALL PROVIDE THE SAME INFORMATION IN AN ELECTRONIC FORMAT AS DIRECTED BY THE OWNER. THE BINDER SHALL CONTAIN:
   A. COVER SHEET INDICATING THE PROJECT NAME, ADDRESS AND TURNOVER DATE.
   B. COMPANY NAME AND CONTACT INFORMATION OF THE CONTRACTORS UTILIZED FOR THE MECHANICAL SCOPE OF WORK.
   C. CUTSHEETS, INSTALLATION MANUALS AND MAINTENANCE REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT.
8. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER A FULL SET OF DRAWINGS WITH ANY DEVIATIONS FROM THE DRAWINGS INDICATED IN RED INK.

(END OF SECTION 23 00 00)

SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING FOR HVAC

PART 1 - GENERAL
1. QUALITY ASSURANCE: ALL TESTING AND BALANCING WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE, CERTIFIED BY NEBB OR TABB AS A T&B TECHNICIAN. BALANCE THE SYSTEM IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS.

PART 2 - PRODUCTS: N/A

PART 3 - EXECUTION
1. AIR SYSTEMS
   A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.
   B. FAN SYSTEMS SHALL BE ADJUSTED SUCH THAT THE LOWEST FAN SPEED IS UTILIZED TO DELIVER THE REQUIRED CFM TO THE AIR TERMINALS.
   C. ADJUST DAMPERS AS REQUIRED TO BALANCE THE SUPPLY, RETURN AND EXHAUST DEVICES TO 10% OF THE DESIGN RATES. ADJUST THE OUTSIDE AIR DAMPER AS REQUIRED TO OBTAIN THE MINIMUM OUTSIDE AIR REQUIREMENTS AS NOTED IN THE SCHEDULES.
   D. RECORD THE OPERATING VOLTAGE, AMPACITY, SUPPLY/RETURN SYSTEM STATIC PRESSURES, SUPPLY/MIXED AIR TEMPERATURES (BOTH HEATING AND COOLING) AND FINAL FAN RPM.
   E. VERIFY SYSTEM CONTROLS ARE FUNCTIONING AS INTENDED.
2. WATER SYSTEMS
   A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.
   B. ADJUST BALANCING VALVES AS REQUIRED TO ACHIEVE A WATER FLOW WITHIN 5% OF THE DESIGN VALUE.
   C. RECORD THE OPERATING FLOW RATE, WATER SUPPLY/RETURN TEMPERATURE CONDITIONS AND PRESSURE DROP ACROSS THE COIL.
   D. VERIFY SYSTEM CONTROLS ARE FUNCTIONING AS INTENDED.
3. REPORTING
   A. THE TEST AND BALANCE AGENT SHALL PREPARE A REPORT INCLUDING THE FINAL VALUES OF THE AIR AND WATER SYSTEM BALANCING, SYSTEM DIAGRAMS, AND SYSTEM NOTES.
   B. THE GENERAL CONTRACTOR SHALL REVIEW THE FINAL BALANCE REPORT PRIOR TO SENDING TO THE TENANT'S CONSTRUCTION MANAGER.
   C. PROVIDE T&B REPORT TO THE LANDLORD AND THE AUTHORITY HAVING JURISDICTION AS REQUIRED.

(END OF SECTION 23 05 93)

SECTION 23 07 13 - DUCT INSULATION

PART 1 - GENERAL
1. INSULATION SHALL BE PROVIDED ON THE FOLLOWING DUCT SERVICES:
   A. INDOOR, CONCEALED SUPPLY AND OUTDOOR AIR.
   B. INDOOR, CONCEALED RETURN.
   C. INDOOR, CONCEALED OVEN AND WAREWASH EXHAUST FROM AIR TERMINAL TO PENETRATION OF BUILDING EXTERIOR.
   D. INDOOR, CONCEALED GENERAL EXHAUST FROM AIR TERMINAL TO PENETRATION OF BUILDING EXTERIOR.
   E. OUTDOOR, SUPPLY AND RETURN.
2. QUALITY ASSURANCE
   A. INSULATION INSTALLED INDOORS SHALL HAVE A FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
   B. INSULATION INSTALLED OUTDOORS SHALL HAVE A FLAME-SPREAD INDEX OF 75 OR LESS, AND SMOKE-DEVELOPED INDEX OF 150 OR LESS.

PART 2 - PRODUCTS
1. INTERIOR DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE AND AN INSTALLED THICKNESS OF 1-1/2" WITH AN R-VALUE OF 6.0.
2. EXTERIOR DUCTWORK SHALL BE INSULATED WITH 2" THICK RIGID INSULATION WITH A MINIMUM R-VALUE OF 12.0, PROTECTED WITH ROOFING MEMBRANE.

PART 3 - EXECUTION
1. PREPARATION: CLEAN AND DRY SURFACES. REMOVE MATERIALS THAT WILL ADVERSELY AFFECT INSULATION APPLICATION.
2. GENERAL INSTALLATION REQUIREMENTS:
   A. INSTALL INSULATION ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   B. INSTALL INSULATION AND ACCESSORIES AND FINISHES WITH SMOOTH, STRAIGHT AND EVEN SURFACES; FREE OF VOIDS THROUGHOUT THE LENGTH OF DUCT AND FITTINGS.
   C. INSTALL ACCESSORIES COMPATIBLE WITH INSULATION MATERIALS AND SUITABLE FOR THE SERVICE. ACCESSORIES SHALL NOT CORRODE, SOFTEN OR OTHERWISE ATTACK INSULATION OR JACKET IN EITHER WET OR DRY STATE.
   D. INSTALL INSULATION WITH LONGITUDINAL SEAMS AT TOP OF HORIZONTAL RUNS. LONGITUDINAL SEAMS AND END JOINTS SHALL BE TIGHT. BOND SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER TO MAINTAIN VAPOR BARRIER INTEGRITY.
   E. APPLY ADHESIVES, MASTICS AND SEALANTS AT MANUFACTURER'S RECOMMENDED COVERAGE RATE.
   F. CUT INSULATION IN A MANNER TO AVOID COMPRESSING INSULATION MORE THAN 75 PERCENT ITS NOMINAL THICKNESS.
3. PENETRATIONS
   A. ROOF PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH ROOF PENETRATIONS. FOR APPLICATIONS REQUIRING ONLY INDOOR INSULATION, TERMINATE INSULATION ABOVE ROOF SURFACE AND SEAL WITH JOINT SEALANT. FOR APPLICATIONS REQUIRING INDOOR AND OUTDOOR INSULATION, INSTALL INSULATION FOR OUTDOOR APPLICATIONS TIGHTLY JOINED TO INDOOR INSULATION ENDS. SEAL JOINT WITH JOINT SEALANT.
   B. WALL PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH WALL PENETRATIONS. FOR APPLICATIONS REQUIRING ONLY INDOOR INSULATION, TERMINATE INSULATION OUTSIDE OF WALL SURFACE AND SEAL WITH JOINT SEALANT. FOR APPLICATIONS REQUIRING INDOOR AND OUTDOOR INSULATION, INSTALL INSULATION FOR OUTDOOR APPLICATIONS TIGHTLY JOINED TO INDOOR INSULATION ENDS. SEAL JOINT WITH JOINT SEALANT.
   C. INTERIOR WALLS: INSTALL INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS THAT ARE NOT FIRE RATED. TERMINATE INSULATION AT FIRE DAMPER SLEEVES FOR FIRE-RATED WALL AND PARTITION PENETRATIONS. EXTERNALLY INSULATE THE DAMPER SLEEVES TO MATCH ADJACENT INSULATION AND OVERLAP DUCT INSULATION AT LEAST 2 INCHES.

(END OF SECTION 23 07 13)

SECTION 23 31 13 - METAL DUCTS

PART 1 - GENERAL
1. SECTION INCLUDES
   A. RECTANGULAR DUCTS AND FITTINGS
   B. ROUND DUCTS AND FITTINGS
   C. DOUBLE-WALL DUCTWORK AND FITTINGS
   D. FLAT-OVAL DUCTS AND FITTINGS
   E. SHEET METAL MATERIALS
   F. SEALANTS AND GASKETS
   G. HANGERS AND SUPPORTS
2. PERFORMANCE REQUIREMENTS
   A. DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESS, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS AND HANGERS/SUPPORTS SHALL COMPLY WITH THE LATEST VERSION OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
   B. DUCT HANGERS AND SUPPORTS SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS UNDER CONDITIONS DESCRIBED IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
   C. SURFACES IN CONTACT WITH THE AIRSTREAM SHALL COMPLY WITH REQUIREMENTS IN ANSI/ASHRAE 62.1.
3. SECTION REQUIREMENTS
   A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS
1. RECTANGULAR DUCTS AND FITTINGS:
   A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" BASED ON INDICATED STATIC-PRESSURE CLASS UNLESS NOTED OTHERWISE.
   B. TRAVERSE JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-1 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
   C. LONGITUDINAL SEAMS: SELECT SEAM TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-2 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
   D. ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER DUCT CONSTRUCTION: SELECT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 4 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
2. ROUND DUCTS AND FITTINGS:
   A. SPIRAL LOCK SEAM, WITHOUT INSULATION.
   B. BASIS OF DESIGN: LINDAB SAFE SINGLE WALL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW. ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
3. FLAT-OVAL DUCTS AND FITTINGS
   A. SPIRAL LOCK SEAM, WITHOUT INSULATION.
   B. BASIS OF DESIGN: LINDAB FOSR FLAT-OVAL SPIRAL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW. ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
4. DOUBLE-WALL DUCTWORK AND FITTINGS
   A. SPIRAL LOCK SEAM, WITH 1" INSULATION THICKNESS.
   B. BASIS OF DESIGN: LINDAB SAFE DOUBLE WALL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW.ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
4. MATERIALS: GALVANIZED SHEET STEEL. COMPLY WITH ASTM A 653/A 653M. G90 COATING DESIGNATION.
5. SEALANTS AND GASKETS:
   A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).
   B. MAXIMUM SMOKE-DEVELOPED INDEX: 50 (WHEN TESTED ACCORDING TO UL 723).
   C. TWO-PART TAPE SEALING SYSTEM: PROVIDE 3" TAPE CONSTRUCTED OF WOVEN COTTON FIBER IMPREGNATED WITH MINERAL GYPSUM AND MODIFIED ACRYLIC/SILICONE TO FORM A HARD, DURABLE AIRTIGHT SEAL. SEALANT SHALL BE A MODIFIED STYRENE ACRYLIC. COMPATIBLE WITH GALVANIZED SHEET STEEL. WATER, MOLD AND MILDEW RESISTANT. VOC CONTENT OF 250g/L OR LESS.
   D. WATER BASED JOINT AND SEAM SEALANT: BRUSH ON WITH MINIMUM OF 65% SOLIDS CONTENT. MINIMUM SHORE A HARDNESS OF 20. COMPATIBLE WITH GALVANIZED SHEET STEEL. WATER, MOLD AND MILDEW RESISTANT. VOC CONTENT OF 75g/L (LESS WATER).
6. HANGERS AND SUPPORT:
   A. RECTANGULAR DUCTWORK: HANGER RODS SHALL BE CADMIUM-PLATED STEEL RODS AND NUTS. STRAP AND ROD SIZE SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1. SECURE TO DUCT WITH SHEET METAL SCREWS COMPATIBLE WITH DUCT MATERIALS.
   B. ROUND DUCTWORK: SUPPORT WITH AIRCRAFT CABLE COMPLYING WITH ASTM A 603. CONNECT ENDS WITH CADMIUM-PLATED STEEL ASSEMBLIES WITH BRACKETS, SWIVEL AND BOLTS DESIGNED FOR DUCT HANGER SERVICE.
   C. EXTERIOR DUCTWORK SHALL BE PROVIDED WITH DUCT SUPPORTS, SPACED PER THE MANUFACTURER'S RECOMMENDATIONS.

PART 3 - EXECUTION
1. INSTALLATION
   A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
   B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
   C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
   D. UNLESS NOTED OTHERWISE, INSTALL DUCTS PARALLEL AND PERPENDICULAR TO BUILDING LINES.
   E. INSTALL DUCTS WITH CLEARANCES AS REQUIRED TO ACCOMMODATE THE INSTALLATION OF INSULATION.
   F. INSTALLATION OF EXPOSED DUCTWORK: PROTECT DUCTWORK FROM DAMAGE. REPAIR/REPLACE ALL DAMAGED SECTIONS AND FINISHED WORK. TRIM SEALANTS FLUSH WITH METAL. CREATE A SMOOTH AND UNIFORM EXPOSED BEAD. DO NOT USE TWO-PART TAPING SYSTEM. MAINTAIN CONSISTENCY, SYMMETRY AND UNIFORMITY IN THE INSTALLATION.
2. ALL DUCT COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL START-UP OF THE HEATING COOLING AND VENTILATION EQUIPMENT.
3. DUCT SEALING: CONSTRUCT DUCTS WITH 2 INCH POSITIVE AND NEGATIVE DUCT PRESSURE CLASSIFICATIONS. CONSTRUCT TO SMACNA SEAL CLASS A.
4. HANGER AND SUPPORT INSTALLATION: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 5. HANGERS EXPOSED TO VIEW SHALL BE AIRCRAFT IN ACCORDANCE WITH THE MECHANICAL DETAILS.
5. CONNECTIONS: MAKE CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTORS COMPLYING WITH SECTION 23 33 00 "AIR DUCT ACCESSORIES." COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR BRANCH, OUTLET AND INLET, AND TERMINAL UNIT CONNECTIONS.
6. CLEANING: CLEAN ALL EXISTING DUCTWORK TO REMAIN PRIOR TO TESTING, ADJUSTING AND BALANCING. REMOVE ALL SURFACE CONTAMINANTS AND DEPOSITS ON AIR OUTLETS AND INLETS PRIOR TO PUNCH.
7. PROVIDE AIR BALANCE IN ACCORDANCE WITH SECTION 23 05 93 "TESTING, ADJUSTING, AND BALANCING FOR HVAC."
8. DUCT ELBOWS
   A. RECTANGULAR: PROVIDE MITERED ELBOWS WITH HOLLOW-FORMED, DOUBLE-THICKNESS TURNING VANES OR RADIUSED ELBOWS WITH INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
   B. ROUND DUCT ELBOWS: PROVIDE RADIUSED ELBOWS WITH AN INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
9. BRANCH CONFIGURATION
   A. RECTANGULAR: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 4-6. RECTANGULAR MAIN TO RECTANGULAR BRANCH SHALL BE A 45-DEGREE ENTRY. RECTANGULAR MAIN TO ROUND BRANCH SHALL BE A SPIN-IN FITTING.
   B. ROUND: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-5 AND FIGURE 3-6. PROVIDE 90 DEGREE TAP.

(END OF SECTION 23 31 13)

SECTION 23 33 00 - AIR DUCT ACCESSORIES

PART 1 - GENERAL
1. SECTION INCLUDES
   A. BACKDRAFT AND PRESSURE RELIEF DAMPERS
   B. MANUAL VOLUME DAMPERS
   C. CONTROL DAMPERS
   D. FIRE DAMPERS
   E. TURNING VANES
   F. FLEXIBLE CONNECTORS
   G. DUCT ACCESSORY HARDWARE
2. SECTION REQUIREMENTS
   A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND WITH NFPA 90B.
2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. SHEET METAL MATERIALS SHALL BE FREE FROM PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS AND OTHER IMPERFECTIONS.
3. GALVANIZED SHEET STEEL: COMPLY WITH ASTM A 653/A 653M. G90 COATING DESIGNATION.
4. BACKDRAFT AND PRESSURE RELIEF DAMPERS: GRAVITY BALANCED. AS SPECIFIED ON THE PLANS.
5. MANUAL VOLUME DAMPERS: STANDARD LEAKAGE RATING WITH LINKAGE OUTSIDE OF AIRFRAME. SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS
   A. FRAME: HAT SHAPED WITH MITERED AND WELDED CORNERS. FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
   B. BLADES: RECTANGULAR DAMPERS SHALL BE MULTIPLE BLADES WITH OPPOSED-BLADE DESIGN. ROUND DAMPERS SHALL BE SINGLE BLADE.
   C. BLADE AXLES: GALVANIZED STEEL.
   D. BEARINGS: MOLDED SYNTHETIC.
   E. TIE BARS AND BRACKETS: GALVANIZED STEEL.
   F. JACKSHAFT: 1/2" DIAMETER CONSTRUCTED OF GALVANIZED STEEL WITHIN PIPE-BEARING ASSEMBLY WITH SUPPORTS. LENGTH AND NUMBER OF MOUNTINGS AS REQUIRED.
   G. HARDWARE: ZINC-PLATED, DIE CAST CORE WITH DIAL HANDLE AND A LOCKING NUT.
6. CONTROL DAMPERS
   A. FRAME: HAT SHAPED WITH MITERED AND WELDED CORNERS. FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
   B. BLADES: RECTANGULAR DAMPERS SHALL BE MULTIPLE BLADES WITH OPPOSED-BLADE DESIGN. ROUND DAMPERS SHALL BE SINGLE BLADE. BLADE EDGING SHALL BE REPLACEABLE RUBBER SEALS.
   C. BLADE AXLES: 1/2" DIAMETER. BLADE LINKAGE HARDWARE OF ZINC-PLATED STEEL AND BRASS; ENDS SEALED AGAINST BLADE BEARING.
   D. BEARINGS: MOLDED SYNTHETIC.
7. FIRE DAMPERS
   A. TYPE: DYNAMIC; RATED AND LABELED ACCORDING TO UL 555.
   B. CLOSING RATINGS IN DUCTS UP TO 4" STATIC PRESSURE CLASS AND MAXIMUM 2,000 FPM VELOCITY.
   C. FIRE RATING: 1-1/2 HOURS, OR AS NOTED IN THE SCHEDULES.
   D. FRAME: CURTAIN TYPE WITH BLADES INSIDE AIRSTREAM. CONSTRUCTED OF GALVANIZED STEEL.
   E. MOUNTING SLEEVE: FACTORY FURNISHED.
   F. MOUNTING ORIENTATION: AS NOTED ON PLANS.
   G. BLADES: INTERLOCKING, CONSTRUCTED OF GALVANIZED STEEL.
   H. HEAT-RESPONSIVE DEVICE: 165 DEGREE F RATED FUSIBLE LINK OR AS NOTED IN THE SCHEDULES.
8. TURNING VANES: CURVED BLADES OF GALVANIZED SHEET STEEL. PROVIDED WITH SUPPORT BARS PERPENDICULAR TO BLADE SET SUITABLE FOR DUCT MOUNTING. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE." SINGLE WALL CONSTRUCTION.
9. FLEXIBLE CONNECTORS: CONSTRUCTED OF FLAME-RETARDANT OR NONCOMBUSTIBLE FABRIC. FABRIC SHALL BE A GLASS FABRIC, DOUBLE COATED WITH NEOPRENE. COMPLY WITH UL 181 CLASS 1. FACTORY-FABRICATED WITH A FABRIC STRIP 3-1/2 INCHES WIDE ATTACHED TO TWO STRIPS OF 2-3/4 INCH THICK GALVANIZED SHEET STEEL.

PART 3 - EXECUTION
1. INSTALLATION
   A. INSTALL DUCT ACCESSORIES ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE."
   B. INSTALL VOLUME DAMPERS AT POINTS NOTED ON PLANS AND AS REQUIRED FOR SYSTEM BALANCING. WHERE DAMPERS ARE INSTALLED IN DUCTS WITH DUCT LINER, INSTALL DAMPERS WITH HAT CHANNELS OF SAME DEPTH AS LINER AND TERMINATE LINER WITH NOSING AT HAT CHANNEL.
   C. WHERE DAMPERS ARE INSTALLED IN WRAPPED DUCT, PROVIDE INSULATION STAND-OFF'S AS REQUIRED.
   D. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
   E. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
   F. INSTALL FIRE DAMPERS ACCORDING TO UL LISTING.
   G. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.
2. TESTS AND INSPECTIONS
   A. OPERATE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT.
   B. OPERATE FIRE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT AND VERIFY THAT PROPER HEAT-RESPONSE DEVICE IS INSTALLED.
   C. INSPECT TURNING VANES FOR PROPER AND SECURE INSTALLATION.

(END OF SECTION 23 33 00)

SECTION 23 33 46 - FLEXIBLE DUCTS

PART 1 - GENERAL
1. SECTION REQUIREMENTS
   A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND NFPA 90B.
2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE.
3. COMPLY WITH ASTM E 96/E 96M.
4. INSULATED, FLEXIBLE DUCT UL 181, CLASS 1. FACTORY FABRICATED AND INSULATED. PROVIDED WITH INTERIOR LINER, FIBROUS-GLASS INSULATION AND VAPOR-BARRIER FILM.
   A. PRESSURE RATING: 10" W.G. POSITIVE.
   B. MAXIMUM VELOCITY: 4,000 FPM
   C. INSULATION R-VALUE: R6.0
5. FLEXIBLE DUCT CONNECTORS SHALL BE NYLON STRAPS IN SIZES 3 THROUGH 18 INCHES TO SUIT DUCT SIZE.

PART 3 - EXECUTION
1. INSTALLATION
   A. INSTALL FLEXIBLE DUCTS ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
   B. INSTALL IN INDOOR APPLICATIONS ONLY. FLEXIBLE DUCTWORK IS ONLY PERMITTED TO CONNECT TO SUPPLY-AIR GRILLES, REGISTERS AND DIFFUSERS. MAXIMUM LENGTH SHALL BE 60 INCHES.
   C. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS AND TAPE.
   D. INSTALL DUCTS FULLY EXTENDED.
   E. DO NOT BEND DUCTS ACROSS SHARP CORNERS.
   F. BENDS OF FLEXIBLE DUCTING SHALL NOT EXCEED A MINIMUM OF ONE DUCT DIAMETER.
   G. AVOID CONTACT WITH METAL FIXTURES, WATER LINES, PIPES, ADJACENT DUCTWORK OR CONDUIT.
   H. INSTALL FLEXIBLE DUCTS IN A DIRECT LINE, WITHOUT SAGS, TWISTS OR TURNS.
   I. SUSPEND FLEXIBLE DUCTS WITH BANDS 1-1/2 INCHES WIDE AND SPACED A MAXIMUM OF 48 INCHES APART. PROVIDE ADDITIONAL SUPPORT AT BENDS. DUCTS MAY REST ON CEILING JOISTS OR TRUSS SUPPORTS. SPACING BETWEEN THESE ELEMENTS SHALL NOT EXCEED 48 INCHES.

(END OF SECTION 23 33 46)

SECTION 23 34 02 - POWER VENTILATORS

PART 1 - GENERAL
1. SECTION REQUIREMENTS
   A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, ELECTRICAL CHARACTERISTICS, CFM, STATIC PRESSURE AND FAN CURVE.
   B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF FANS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN THE MANUFACTURER'S STANDARD WARRANTY PERIOD.

PART 2 - PRODUCTS
1. DESCRIPTION
   A. CENTRIFUGAL ROOF EXHAUSTER. UPBLAST OR DOWNBLAST.
2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
3. CHARACTERISTICS. PROVIDED WITH:
   A. CURB: CONSTRUCTED OF GALVANIZED STEEL WITH FULLY WELDED CORNERS AND AS NOTED IN THE MECHANICAL SCHEDULES.
   B. FAN: CONSTRUCTED OF SPUN ALUMINUM AND GALVANIZED STEEL, CENTRIFUGAL AND DIRECT DRIVE. FAN SHALL BEAR A PERMANENTLY ATTACHED NAMEPLATE DISPLAYING THE MODEL AND SERIAL NUMBER OF THE UNIT.
   C. HOUSING: THE BASE SHALL BE CONSTRUCTED OF GALVANIZED STEEL WITH WELDED CORNERS AND SUPPORT FOR HINGING AND CLEANING AND TO PREVENT LEAKAGE INTO THE BUILDING. FAN WINDBAND SHALL BE CONSTRUCTED OF HEAVY GAUGE ALUMINUM OR GALVANIZED STEEL, SECURELY FASTENED TO THE WINDBAND WITH HORIZONTAL AND VERTICAL SUPPORTS .
   D. WHEEL: CENTRIFUGAL, BACKWARD-INCLINED AND NON-OVERLOADING.,WHEEL SHALL BE BALANCED IN TWO PLANES AND COMPLETED IN ACCORDANCE WITH AMCA STANDARD 204-96. WHEEL BLADES SHALL BE DESIGNED TO MINIMIZE TURBULANCE AND REDUCE NOISE. BLADES SHALL BE WELDED TO THE WHEEL INLET CONE. BALANCING WEIGHTS SHALL BE RIVETED TO THE BLADES OR WHEEL. WHEEL SHALL BE ATTACHED TO THE MOTOR SHAFT WITH TWO SET SCREWS.
   E. MOTOR: PERMANENTLY LUBRICATED, RATED FOR CONTINUOUS DUTY, THERMALLY PROTECTED AND MOUNTED OUTSIDE THE AIRSTREAM. MOTOR MOUNTING PLATE SHALL BE CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL. THE MOTOR COMPARTMENT SHALL BE COOLED BY OUTSIDE AIR. THE MOTOR COMPARTMENT SHALL BE OF A TWO-PIECE CONSTRUCTION WITH THE CAP HAVING QUICK RELEASE CLIPS.
   F. ACCESSORIES: AS NOTED ON THE MECHANICAL SCHEDULES.

PART 3 - EXECUTION
1. INSTALLATION
   A. ROOF CURB: INSTALL ON ROOF STRUCTURE, LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   B. UNIT SUPPORT: INSTALL UNIT LEVEL ON STRUCTURAL CURBS PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. CONNECTIONS
   A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
   B. INSTALL DUCTS TO TERMINATION TO TOP OF ROOF CURB. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB. CONNECT TO FANS WITH FLEXIBLE DUCT CONNECTORS.
   C. WHERE INSTALLING PIPING ADJACENT TO FANS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
   D. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
   E. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
3. FIELD QUALITY CONTROL
   A. AFTER INSTALLING FANS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
   B. INSPECT OR AND REMOVE SHIPPING BOLTS, BLOCKS AND TIE-DOWN STRAPS.
   C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
   D. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
   E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.

(END OF SECTION 23 34 02)

sg

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CHECKED BY:	XXX
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX
TEMPLATE VERSION: 12/31/2024	

REVISIONS

REV.	DATE	DESCRIPTION

MECHANICAL SPECIFICATIONS

M-010

12/13/2024 2:10:38 PM

SECTION 23 34 33 - AIR CURTAINS

PART 1 - GENERAL
1. SECTION REQUIREMENTS
   A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE HEATING WATTAGE, ELECTRICAL CHARACTERISTICS, AIRFLOW CHARACTERISTICS, DIMENSIONS, WEIGHTS AND ACCESSORIES.
   B. WARRANTY: PROVIDE MANUFACTURER'S WARRANTY EFFECTIVE FOR FIVE YEARS FOR UNHEATED UNITS, AND TWO YEARS FOR HEATED UNITS. THE GENERAL CONTRACTOR SHALL PROVIDE A 12 MONTH WARRANTY ON ALL WORKMANSHIP.

PART 2 - PRODUCTS
1. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES.
2. CHARACTERISTICS. PROVIDED WITH:
   A. CABINET: ALUMINIZED STEEL CABINET WITH STAINLESS STEEL RIVETED CONSTRUCTION AND WHITE POWDER COATED FINISH.
   B. MOUNTING: PROVIDE WALL OR SUSPENDED MOUNTING AS REQUIRED.
   C. SERVICE ACCESS: REMOVABLE SCREEN AND REMOVABLE BOTTOM ACCESS PANEL.
   D. MOTORS: DIRECT DRIVE, RESILIENT MOUNTED, RATED FOR CONTINUOUS DUTY WITH INTERNAL THERMAL-OVERLOAD PROTECTION AND PERMANENTLY LUBRICATED SEALED BALL BEARINGS.
   E. FANS: BALANCED, FORWARD CURVED CROSS FLOW MADE OF ALUMINUM.
   F. DISCHARGE NOZZLES: PROVIDE UNIFORM VELOCITY ACROSS WIDTH OF AIR CURTAIN.
   G. INLET: PROVIDED WITH PERFORATED PATTERN SCREEN.
   H. HEATING ELEMENTS (WHEN NOTED ON PLANS): UL-APPROVED, FACTORY-MOUNTED, FACTORY WIRED, THERMALLY PROTECTED, IN GALVANIZED STEEL FRAME. HELICAL COIL DESIGN WITH THERMAL CUTOUT.
   I. PROVIDE ALL ACCESSORIES AS NOTED IN THE SCHEDULES.
3. CONTROLS:
   A. MANUAL SWITCH: FACTORY INSTALLED "FAN-OFF-FAN & HEAT" AND "HIGH-LOW" SWITCHES.
   B. CONTROL PACKAGE: AIR CURTAIN SHALL TURN ON WHEN DOOR IS OPENED AND SHUT OFF WHEN DOOR IS CLOSED.
   C. OUTDOOR AIR TEMPERATURE SENSOR (WHEN PROVIDED WITH A HEATING ELEMENT AND INDICATED ON PLANS).

PART 3 - EXECUTION
1. INSTALLATION
   A. INSTALL AIR CURTAIN WHERE INDICATED ON DRAWINGS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE CLEARANCE TO PERMIT SERVICING AND MAINTENANCE.
   B. INSTALL LEVEL, PLUMB AND AS CLOSE AS PRACTICAL TO TOP OF OPENING AND FACE OF WALL.
   C. INSTALL ALL ACCESSORIES
2. CONNECTIONS
   A. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
   B. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
3. FIELD QUALITY AND CONTROL
   A. TEST AND OPERATE AIR CURTAIN TO VERIFY PERFORMANCE AS INDICATED.
4. ADJUSTING
   A. ADJUST MOTOR AND FAN SPEED TO PERFORM AS INDICATED.
   B. ADJUST NOZZLES TO DEFLECT AIR OUTWARD UNLESS NOTED OTHERWISE.

(END OF SECTION 23 34 33)

SECTION 23 37 13 - GRILLES, REGISTERS & DIFFUSERS

PART 1 - GENERAL
1. SECTION REQUIREMENTS
   A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS
1. GRILLES: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
2. REGISTERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
3. DIFFUSERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED. UNLESS OTHERWISE NOTED, ALL CEILING DIFFUSERS SHALL BE FOUR-WAY.

PART 3 - EXECUTION
1. INSTALLATION
   A. INSTALL GRILLES, REGISTERS & DIFFUSERS LEVEL AND PLUMB.
   B. INSTALL GRILLES, REGISTERS & DIFFUSERS AS INDICATED. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION.
   C. INSTALL GRILLES, REGISTERS & DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, EXTRACTORS AND OTHER ACCESSORIES.
   D. ALL AIR DEVICE COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL START-UP OF THE HEATING COOLING AND VENTILATION EQUIPMENT
   E. WHEN INDICATED ON THE PLANS, PAINT THE GRILLES, REGISTERS & DIFFUSERS PER THE MANUFACTURER/S INSTALLATION INSTRUCTIONS WITH AN ENAMEL PAINT, COLOR AS INDICATED.
   F. AFTER INSTALLATION, ADJUST REGISTERS & DIFFUSERS TO AIR PATTERNS (IF NOTED) OR AS DIRECTED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO STARTING AIR BALANCING.

(END OF SECTION 23 37 13)

SECTION 23 74 16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS

PART 1 - GENERAL
1. SECTION REQUIREMENTS
   A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, EFFICIENCIES, CAPACITIES, ELECTRICAL CHARACTERISTICS AND LOCATION AND SIZE OF EACH FIELD CONNECTION FOR EACH RTU.
   B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF RTUS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN 5 YEARS OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS
1. DESCRIPTION
   A. ASHRAE COMPLIANCE: COMPLY WITH ASHRAE 15 FOR REFRIGERATION SAFETY.
   B. ENERGY COMPLIANCE: COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE ENERGY CODE LISTED ON THE COVER SHEET.
   C. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES SHALL BE LABELED AND LISTED AS DEFINED IN NFPA 70 BY A QUALIFIED TESTING AGENCY.
2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. ALTERNATES BY YORK OR CARRIER. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL STRUCTURAL, ELECTRICAL AND OTHER REQUIREMENTS RESULTING FROM THE SUBSTITUTION. ALL CHANGE ORDERS RESULTING IN THE USE OF AN ALTERNATE SHALL BE PAID FOR BY THIS CONTRACTOR.
3. CHARACTERISTICS. PROVIDED WITH:
   A. CASING: GALVANIZED STEEL AND FACTORY-PAINTED FINISH. LINED WITH NEOPRENE-COATED FIBERGLASS. HINGED DOORS WITH TOOLLESS OPERATION.
   B. SUPPLY AIR FAN: BELT DRIVEN, FORWARD CURVED CENTRIFUGAL.
   C. CONDENSER-COIL FAN: PROPELLER, MOUNTED ON SHAFT OF PERMANENTLY LUBRICATED MOTOR.
   D. SUPPLY-AIR REFRIGERANT COIL: ALUMINUM-PLATE FIN AND SEAMLESS COPPER TUBE IN STEEL CASING. CAPACITIES AS NOTED IN MECHANICAL SCHEDULES.
   E. OUTDOOR-AIR REFRIGERANT COIL: ALUMINUM-PLATE FIN AND SEAMLESS COPPER TUBE IN STEEL CASING. AMBIENT TEMPERATURE AS NOTED IN MECHANICAL SCHEDULES.
   F. ELECTRIC HEATING COIL: FACTORY PROVIDED, CAPACITY AND STEPS AS NOTED IN THE MECHANICAL SCHEDULES.
   G. COMPRESSORS: HERMETIC, SCROLL MOUNTED ON VIBRATION ISOLATORS. REFER TO MECHANICAL SCHEDULES FOR NUMBER OF CIRCUITS.
   H. GAS FURNACE: NATURAL GAS FIRED WITH CONTROLS, ELECTRONIC IGNITION, HIGH LIMIT CUTOUT AND PROVING SWITCH. CAPACITIES AS NOTED IN THE MECHANICAL SCHEDULES.
   I. DAMPERS: PROVIDE WITH OUTDOOR AIR, RETURN AIR AND BAROMETRIC RELIEF DAMPERS. MODULATING MOTORS WITH ADJUSTABLE MINIMUM POSITION. COMPLY WITH ENERGY CODE REQUIREMENTS.
   J. FILTERS: FILTER RACK WITH MERV 13 FILTERS.
   K. ELECTRICAL CONNECTIONS: SINGLE POINT OF CONNECTION WITH UNIT-MOUNTED DISCONNECT SWITCH AND CONTROL-CIRCUIT TRANSFORMER WITH BUILT-IN OVERCURRENT PROTECTION.
   L. ECONOMIZER: AS NOTED IN THE MECHANICAL SCHEDULES.
   M. ACCESSORIES: AS NOTED IN THE MECHANICAL SCHEDULES.
4. CONTROLS:
   A. SCHEDULED OPERATION: OCCUPIED AND UNOCCUPIED PERIODS ON SEVEN-DAY CLOCK WITH A MINIMUM OF TWO PROGRAMMABLE PERIODS PER DAY.
   B. SUPPLY FAN OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
   C. REFRIGERANT CIRCUIT OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
   D. GAS FURNACE / ELECTRIC HEATING COIL OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
   E. OUTDOOR-AIR DAMPER OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.

PART 3 - EXECUTION
1. INSTALLATION
   A. ROOF CURB: INSTALL ON ROOF STRUCTURE, LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   B. UNIT SUPPORT: INSTALL UNIT LEVEL ON STRUCTURAL CURBS PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   C. PROVIDE LABELING FOR ALL HVAC EQUIPMENT USING ENGRAVED PHENOLIC PLATES OR AS REQUIRED BY THE LANDLORD.
2. CONNECTIONS
   A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
   B. INSTALL DUCTS TO TERMINATION TO TOP OF ROOF CURB. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB. CONNECT SUPPLY AND RETURN DUCTS TO RTUS WITH FLEXIBLE DUCT CONNECTORS.
   C. INSTALL CONDENSATE DRAIN WITH TRAP AND INDIRECT CONNECTION AS NOTED ON THE PLANS.
   D. WHERE INSTALLING PIPING ADJACENT TO RTUS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
   E. CONNECT GAS PIPING TO BURNER, FULL SIZE OF GAS TRAIN INLET. CONNECT WITH UNION, SHUTOFF VALVE AND DIRT LEG WITH SUFFICIENT CLEARANCE FOR BURNER REMOVAL AND SERVICE.
   F. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
   G. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
3. FIELD QUALITY CONTROL
   A. AFTER INSTALLING RTUS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
   B. INSPECT AND REMOVE SHIPPING BOLTS, BLOCKS, TIE-DOWN STRAPS AND ANY OTHER SHIPPING RELATED MATERIALS INSIDE OR OUTSIDE OF THE UNIT PRIOR TO OPERATION.
   C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
   D. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
   E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
   F. CLEAN FILTER HOUSINGS AND CHANGE FILTERS PRIOR TO AIR BALANCE AND IMMEDIATELY PRIOR TO TURNOVER.

(END OF SECTION 23 74 16)

sg

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SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

REVISIONS

REV.	DATE	DESCRIPTION

MECHANICAL SPECIFICATIONS

M-011

12/13/2024 2:10:40 PM

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
RTU-2 / RTU-3	2	Single zone	Alteration		☐

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
RTU-1	Furnace + AC	AC, air cooled, single pkg + warm-air central furnace, gas-fired	Yes	162	162	0	81	120	147.4	79.2
RTU-2 / RTU-3	Furnace + AC	AC, air cooled, single pkg + warm-air central furnace, gas-fired	Yes	97.2	97.2	0	53.3	60	72.9	49

[1] FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.
[2] It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
[4] Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4I	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND		COMPLIES with Exceptional Conditions
Mandatory Measures Compliance (See Table Q for Details)										COMPLIES					

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

The permit applicant has indicated on Table J that ventilation calculations have been attached or included elsewhere on the plans.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
RTU-1	1	Single zone	Alteration		☐

This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.

A. GENERAL INFORMATION

01	Project Location (city)	Laguna Niguel	04	Total Conditioned Floor Area	2879.7
02	Climate Zone	6	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

● Restaurant

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
☒ Heating Air System	☐ Water Economizer	☒ Air Economizer
☒ Cooling Air System	☐ Pumps	☐ Electric Resistance Heat
Mechanical Controls	☐ System Piping	☒ Fan Systems
☒ Mechanical Controls (existing to remain, altered or new)	☐ Cooling Towers	☒ Ductwork (existing to remain, altered or new)
	☐ Chillers	☒ Ventilation
	☐ Boilers	☐ Zonal Systems/ Terminal Boxes

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU-2 / RTU-3	Quantity	2	Fan System Status	Alteration	System Zoning	Multi-zone VAV systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,400	Site Elevation	380	Economizer	Differential Enthalpy
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
RTU-2 / RTU-3	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.13	0.43	Default per Table 140.4-D/141.0-D	<1	0.96
			Reheat Coil for Dehumidification	100		0.04				
			Economizer Return Damper	100		0.04				
			Gas heat	100		0.06				
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.13				
Supply Fan Base Allowance (watt/cfm)			Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)			Fan System Allowance (kW)[3]		Fan System Electrical Input Power (kW)		0.96

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35
[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
[3] Fan system allowance includes fan system base allowance.
[4] Filter pressure loss can only be counted once per fan system.
[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..

H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	RTU-1	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	4,000	Site Elevation	380	Economizer	Differential Enthalpy
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
RTU-1	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.13	0.428	Default per Table 140.4-D/141.0-D	>=2 and <3	2.57
			Reheat Coil for Dehumidification	100		0.04				
			Economizer Return Damper	100		0.04				
			Gas heat	100		0.05				
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.13				
Supply Fan Base Allowance (watt/cfm)		0.232	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0	Fan System Allowance (kW)[3]		2.64	Fan System Electrical Input Power (kW)	2.57

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode		
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
RTU-1	>=65kBtuh cooling/ <225kBtuh heating		AFUE	0.8	0.81	EER IEER	11 14.6	11 14.6
RTU-2 / RTU-3	>=65kBtuh cooling/ <225kBtuh heating		AFUE	0.8	0.81	EER IEER	11 14.6	11 14.6

G. PUMPS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

		for the kitchen/dining spaces	**Dwelling Units:** Total duct leakage of duct system shall not exceed 15% or duct system to outside shall not exceed 10% per RA3.1.4 required for systems?	---
			Duct leakage testing per CMC Section 603.9.2 required for these systems?	No
11	No	The scope of the project includes only duct systems serving healthcare facilities		
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.		
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.		
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:		
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.		
16	Yes	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.		
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A		
18	Yes	All ductwork is an extension of an existing duct system		
19	No	Ductwork serving individual dwelling unit		
20	No	< 25 ft of new or replacement space conditioning ducts installed		
21	R-6	Duct Insulation R-value		
22	Yes	Ductwork Existing To Remain		
23	Yes	Duct System Connected To Altered Space Conditioning System		

M. COOLING TOWERS

This section does not apply to this project.

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	Modified duct systems	**NR/ Common Use:** Duct leakage testing shall not exceed 15% per NA7.5.3 required for these systems?	No

Fan Energy Index (FEI)

01	02	03
Name or Item Tag	FEI Exception	FEI
RTU-1	Embedded Fan Regulated under 110.2 or 110.1	
RTU-2 / RTU-3	Embedded Fan Regulated under 110.2 or 110.1	

I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09	10
System Name	System Zoning	Conditioned Floor Area Being Served (ft^2)	Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2	Shut-Off Controls 120.2(e) & 160.3(a)2D	Isolation Zone Controls 120.2(g) & 160.3(a)2F	Demand Response 110.12 120.2(b) & 160.3(a)2B	Supply Air Temp. Reset 140.4(f) & 170.2(c)4D	Window Interlocks per 140.4(n) & 170.2(c)4D	Direct Digital Control (DDC) per 120.2
RTU-1, RTU-2, RTU-3	Single zone	<= 25,000 ft^2	Setback	NA: 7 day per 120.2(e)1	NA: Single Zone	DR Tstat per 110.12	NA: Single Zone	NA: Auto-closing doors	NA: Single Zone

[1] FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:\24\refolink\160.2, 160.3(a)3D, 170.2(e)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☒	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☐	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.

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3101 W. EXPOSITION BLVD.
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www.everjengineering.com

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PROFESSIONAL ENGINEER
JOSHUA ADAM EVERETT
M 40567
MECHANICAL
STATE OF CALIFORNIA

11/18/2024

PROJECT INFORMATION:
LAGUNA NIGUEL

PROJECT INFORMATION:
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SUITE K
LAGUNA NIGUEL, CA 92677

DRAWN BY:	Author
CHECKED BY:	Checker
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

REVISIONS

REV.	DATE	DESCRIPTION

ENERGY COMPLIANCE FORMS

M-020

12/13/2024 2:10:42 PM

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: sweetgreen - Laguna Niguel	**Report Page:**	**(Page 12 of 12)**
Project Address: 27221 La Paz Road, Suite K, Laguna Niguel, CA 92677	**Date Prepared:**	2024-07-31T15:19:10-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Joshua Everett	Documentation Author Signature:
Company: Everj Engineering, Inc.	Signature Date: 07/31/2024
Address: 1509 Buck trail lane	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Worthington / OH / 43085	Phone: 614-349-8054

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 (responsible designer)
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 Designer Name: Joshua Everett	Responsible Designer Signature:
Company: Everj Engineering, Inc.	Date Signed: 07/31/2024
Address: 1509 Buck trail lane	License: 40567
City/State/Zip: Worthington / OH / 43085	Phone: 614-349-8054

STATE OF CALIFORNIA
Mechanical Systems CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: sweetgreen - Laguna Niguel	**Report Page:**	**(Page 11 of 12)**
	Date Prepared:	2024-07-31T15:19:10-04:00

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	No	Plan sheet or construction document location
03		04
Mandatory Measure		**Plan sheet or construction document location**
Heating Equipment Efficiency per 110.1		M-300
Cooling Equipment Efficiency per 110.1		M-300
Furnace Standby Loss Control per 110.2(d)		N/A
Duct Insulation per 120.4		M-010
Heat Pump with Supplemental electric Resistance Heater Controls per 110.2(b)		N/A
The air duct and plenum system is designed per 120.4(a)-(f)		M-010
Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2		N/A

STATE OF CALIFORNIA
Mechanical Systems CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: sweetgreen - Laguna Niguel	**Report Page:**	**(Page 10 of 12)**
	Date Prepared:	2024-07-31T15:19:10-04:00

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4

Form/Title
NRCI-MCH-01-E - Must be submitted for all buildings

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	
NRCA-MCH-05-A - Air Economizer Controls	RTU-1; RTU-2 / RTU-3
NRCA-MCH-07-A Supply Fan Variable Flow Controls	RTU-2 / RTU-3
NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance	RTU-1; RTU-2 / RTU-3

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

sg

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SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

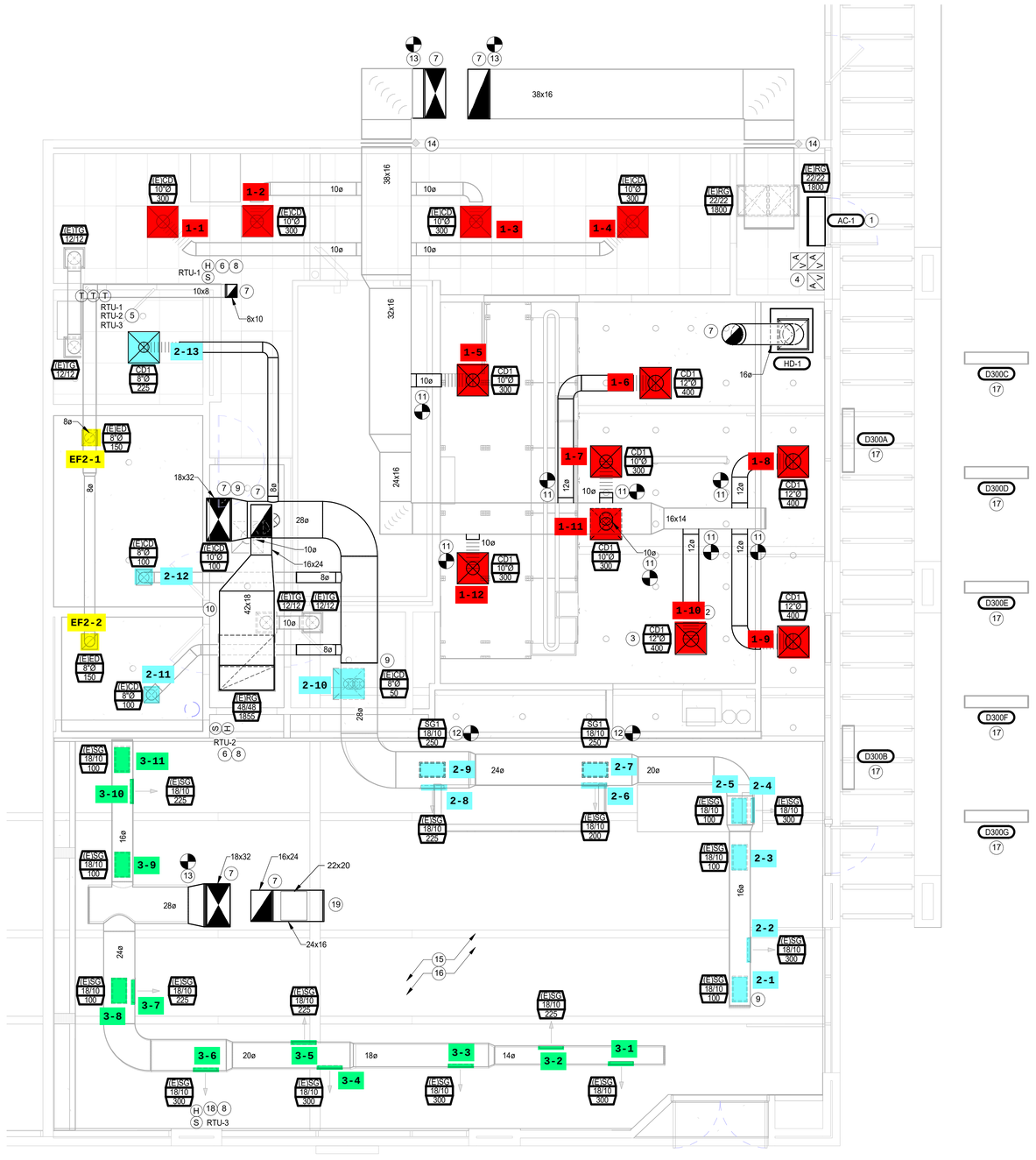
REVISIONS

REV.	DATE	DESCRIPTION

ENERGY COMPLIANCE FORMS

M-021

12/13/2024 2:10:44 PM



1 HVAC PLAN
1/4" = 1'-0"

CODED NOTES

1. INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTION AND PER THE STRUCTURAL DETAILS.
2. PROVIDE SUPPLY DIFFUSER CONNECTION PER DETAIL 1/SHEET M-400.
3. REFER TO THE ARCHITECTURAL RCP FOR CEILING MOUNTED EQUIPMENT LOCATION. TYPICAL.
4. PROVIDE AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET. WIRE A UNIT BACK TO EACH SMOKE DETECTOR. MOUNT UNIT 60" AFF. TYPICAL.
5. PROVIDE HONEYWELL TH8321R1001 THERMOSTATS WITH LOCKABLE COVERS (HONEYWELL CG511A1000 OR EQUAL) FOR THE MECHANICAL EQUIPMENT AT THIS LOCATION AT 48" AFF. COORDINATE WITH ELECTRICAL SWITCHING IN THE AREA AND EXTEND WIRING TO REMOTE TEMPERATURE SENSOR AND UNITS. LABEL EACH THERMOSTAT ACCORDINGLY. COORDINATE THERMOSTAT LOCATION WITH WALL-MOUNTED EQUIPMENT SO THAT THE THERMOSTATS ARE NOT BLOCKED BY SHELVING, COAT RACKS OR DOORS.
6. INSTALL THE TEMPERATURE SENSOR FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION AT 5'-0" AFF. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED.
7. DUCTWORK TO/FROM ROOF. REFER TO SHEET M-200 FOR CONTINUATION.
8. INSTALL THE REMOTE HUMIDISTAT FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION IMMEDIATELY ABOVE THE TEMPERATURE SENSOR. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED. ADJUST THE SENSOR FOR A DEADBAND TO ENERGIZE HOT GAS REHEAT WHEN THE HUMIDITY EXCEEDS 60% RELATIVE HUMIDITY AND TO DE-ENERGIZE WHEN THE HUMIDITY DROPS BELOW 50%
9. RELOCATE THE EXISTING DUCTWORK AND DIFFUSERS TO LOCATION SHOWN. PROVIDE ADDITIONAL DUCTWORK FROM THE UNIT AS NECESSARY. FIELD-VERIFY INITIAL LOCATION AND COORDINATE WITH SITE CONDITIONS AS NECESSARY.
10. PROVIDE DUCTWORK FROM THE ROOFTOP UNIT AND CONNECT TO THE EXISTING RETURN GRILLE. FIELD-VERIFY EXACT LOCATION.
11. CONNECT TO THE EXISTING SUPPLY-AIR DUCTWORK IN APPROXIMATE LOCATION SHOWN. FIELD-VERIFY EXACT LOCATION.
12. PROVIDE DUCT-MOUNTED DIFFUSER ON EXISTING DUCTWORK. FABRICATE THE CONNECTION TO MATCH THE EXISTING GRILLE CONNECTIONS. PAINT TO MATCH EXISTING DUCTWORK/AIR DEVICES.
13. CONNECT TO THE EXISTING SUPPLY/RETURN AIR DUCTWORK. PROVIDE ALL DUCTWORK, TRANSITIONS AND ALL MATERIAL AND LABOR AS NECESSARY TO CONNECT TO THE EXISTING SYSTEM. FIELD-VERIFY EXACT LOCATION.
14. EXISTING FIRE DAMPER TO REMAIN. FIELD-VERIFY THAT THE INSTALLATION MEETS THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND THE CONDITION OF THE FUSIBLE LINK. REPAIR/REPLACE AS NECESSARY.
15. EXISTING AIR DEVICES THROUGHOUT TO REMAIN WHERE INDICATED WITH HALFTONE LINEWEIGHT. CLEAN FACEPLATES AND VERIFY ALL DAMPER FUNCTION. ENSURE AIRFLOW IS AS NOTED. REPAIR/REPLACE AS REQUIRED.
16. EXISTING DUCTWORK TO REMAIN WHERE INDICATED IN HALFTONE LINEWEIGHT. CLEAN ALL EXPOSED DUCTWORK.
17. EXISTING PATIO HEATER TO REMAIN. VERIFY THE CONDITION OF THE BURNER AND VALVE-TRAIN. REPAIR/REPLACE ALL DEFECTIVE PARTS TO RETURN TO A "LIKE NEW" STATE.
18. INSTALL THE TEMPERATURE SENSOR FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION, IN AN INSULATED BOX, AT 5'-0" AFF. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED.
19. PROVIDE DUCTWORK HELD TIGHT TO STRUCTURE ABOVE. PROVIDE OPENING, SIZED AS INDICATED ON THE TOP OF THE DUCTWORK AND PROVIDE 1"x1" WIRE MESH COVERING. BALANCE AS INDICATED IN THE SCHEDULES.

SYMBOLS & ABBREVIATIONS

HVAC SYMBOLS

- MITERED CORNER WITH TURNING VANES
- DUCTWORK INTERNAL FREE DIMENSIONS (WIDTH/HEIGHT)
- RECTANGULAR TO ROUND DUCT TRANSITION
- DUCT-MOUNTED SMOKE DETECTOR
- MOTOR-OPERATED DAMPER
- MANUAL VOLUME DAMPER
- MITERED CORNER WITHOUT TURNING VANES
- CEILING DIFFUSER
- CEILING-MOUNTED RETURN OR EXHAUST REGISTER
- SUPPLY REGISTER
- RETURN REGISTER
- FLEXIBLE DUCT
- THERMOSTAT
- REMOTE TEMPERATURE SENSOR
- PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
- CONNECT TO EXISTING
- EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET M-300 FOR EQUIPMENT INFORMATION
- AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET
- TAG, NECK SIZE, AIRFLOW [CFM]

HVAC ABBREVIATIONS

(E)	EXISTING
(R)	RELOCATED
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
BC	BLOWER COIL
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EXT'G	EXISTING
GC	GENERAL CONTRACTOR
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
KES	TENANT'S KITCHEN EQUIPMENT SUPPLIER
OBD	BLADE DAMPER
PL	PLENUM
RG	RETURN GRILLE
RTU	ROOFTOP UNIT
SD	SLOT DIFFUSER
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
VSC	VARIABLE SPEED CONTROL
WSHP	WATER SOURCE HEAT PUMP

sg

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11/18/2024

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PROJECT INFORMATION:
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DRAWN BY:	XXX
CHECKED BY:	XXX
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

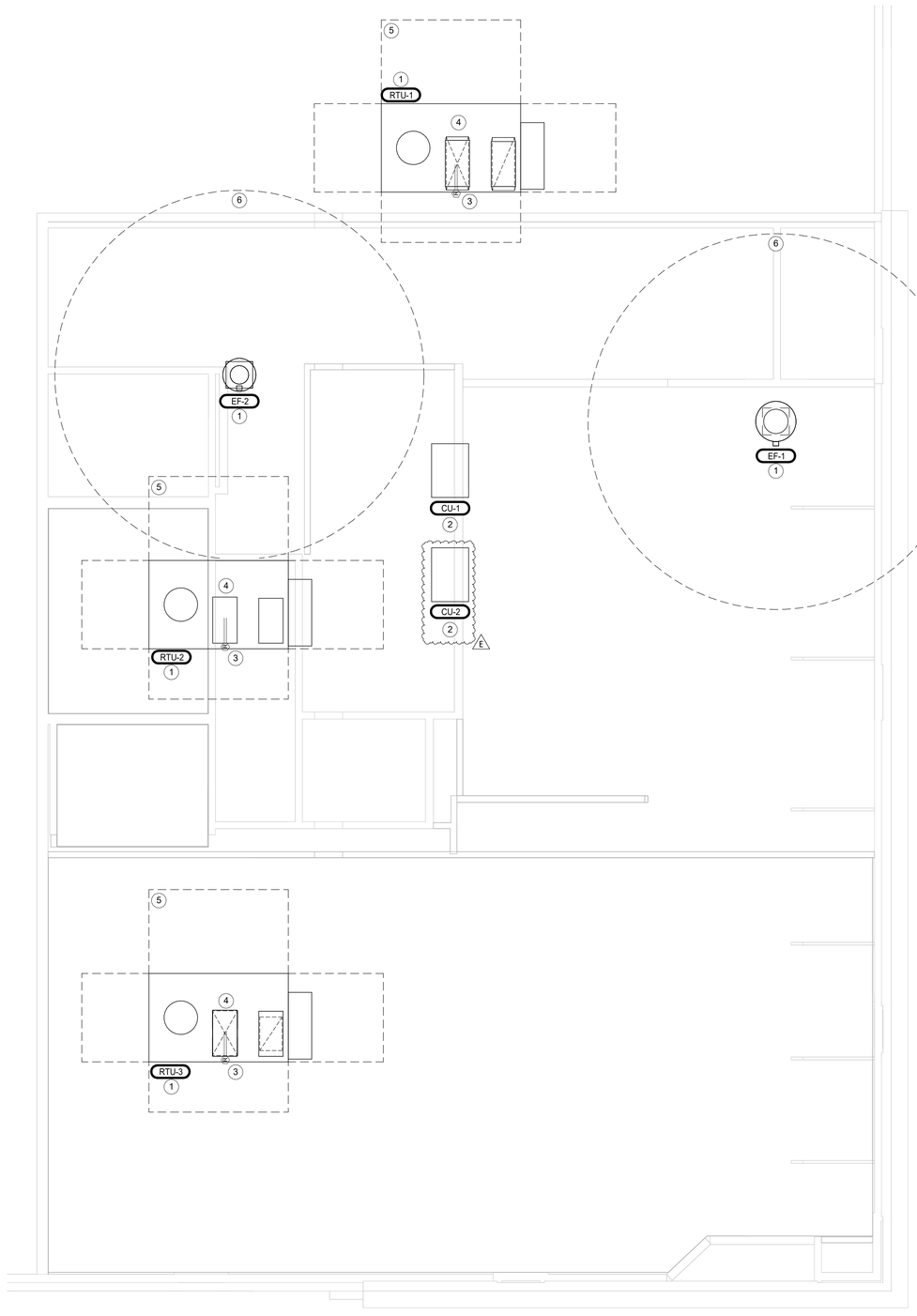
REVISIONS

REV.	DATE	DESCRIPTION

HVAC PLAN

M-100

12/13/2024 2:10:49 PM



TRUE NORTH

PLAN NORTH

1 **HVAC ROOF PLAN**
1/4" = 1'-0"

GENERAL NOTES

1. REPLACE THE EXISTING HVAC UNIT IN PLACE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE CURBS, AND MODIFY ROOFING AS REQUIRED. WHEN REQUIRED BY THE LANDLORD, ROOFING SHALL BE COMPLETED BY THE LANDLORD'S ROOFER AT THE GENERAL CONTRACTOR'S EXPENSE.
2. COORDINATE MOUNTING LOCATION FOR WALK-IN COOLER CONDENSING UNIT, CU-1 ON THE ROOF WITH THE KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. ENSURE ALL CLEARANCE REQUIREMENTS FOR THE UNIT ARE MAINTAINED THROUGH CONSTRUCTION. PROVIDE ROOF RAILS AND INSTALL THE UNIT ON THE ROOF AS REQUIRED BY THE KITCHEN EQUIPMENT SUPPLIER. KITCHEN EQUIPMENT SUPPLIER SHALL PROVIDE LINESET, SPECIALTIES AND MAKE ALL FINAL CONNECTIONS BETWEEN THE CONDENSING UNIT AND EVAPORATOR COIL. COORDINATE WITH THE EQUIPMENT SUPPLIER AND PROVIDE PENETRATIONS AS NECESSARY.
3. THE GENERAL CONTRACTOR SHALL FURNISH A REME HALO AIR PURIFICATION SYSTEM AND REQUIRED TRANSFORMER, PURCHASED THROUGH SWEETGREEN'S VENDOR (NATIONAL TAB, CONTACT WILL TURNBOUGH [855-682-6822, EXT 4,2] [WILL@NATIONALTAB.COM]) AND INSTALL SYSTEM IN THE SUPPLY AIR PLENUM AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ADJUST AS REQUIRED FOR THE SUPPLY AIRFLOW.
4. THE HVAC EQUIPMENT SHALL BE FURNISHED WITH AN INTEGRAL SMOKE DETECTOR MOUNTED IN THE SUPPLY AIR STREAM. UPON DETECTION OF SMOKE, THE SUPPLY AIR FAN SHALL DE-ENERGIZE. COORDINATE ALL REQUIREMENTS WITH THE LANDLORD AND ALARM PROVIDER
5. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE ZONES. NO DUCTWORK, PIPING, CONDUIT OR OTHER SYSTEMS SHALL BER PERMITTED IN THIS AREA. COORDINATE WITH SITE CONDITIONS AND WORK OF OTHER TRADES AS REQUIRED. TYPICAL.
6. MAINTAIN A MINIMUM OF 10' CLEARANCE FROM THE DISCHARGE OF THE EXHAUST FAN AND ALL VENTILATION-AIR INTAKES.

SYMBOLS & ABBREVIATIONS

HVAC SYMBOLS

- MITERED CORNER WITH TURNING VANES
- DUCTWORK INTERNAL FREE DIMENSIONS (WIDTH/HEIGHT)
- RECTANGULAR TO ROUND DUCT TRANSITION
- S — DUCT-MOUNTED SMOKE DETECTOR
- M — MOTOR-OPERATED DAMPER
- MANUAL VOLUME DAMPER
- GREASE DUCT CLEANOUT
- MITERED CORNER WITHOUT TURNING VANES
- CEILING DIFFUSER
- CEILING-MOUNTED RETURN OR EXHAUST REGISTER
- SUPPLY REGISTER
- RETURN REGISTER
- FLEXIBLE DUCT
- T — THERMOSTAT
- S — REMOTE TEMPERATURE SENSOR
- X — PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
- CONNECT TO EXISTING
- XX-# — EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET M-300 FOR EQUIPMENT INFORMATION
- AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET
- CD-1 — TAG
- 12/6 — NECK SIZE
- 350 — AIRFLOW [CFM]

HVAC ABBREVIATIONS

(E)	EXISTING
(R)	RELOCATED
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
BC	BLOWER COIL
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EXT'G	EXISTING
GC	GENERAL CONTRACTOR
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
KES	TENANT'S KITCHEN EQUIPMENT SUPPLIER
OBD	BLADE DAMPER
PL	PLENUM
RG	RETURN GRILLE
RTU	ROOFTOP UNIT
SD	SLOT DIFFUSER
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
VSC	VARIABLE SPEED CONTROL
WSHP	WATER SOURCE HEAT PUMP

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DRAWN BY:	XXX
CHECKED BY:	XXX
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

REVISIONS

REV.	DATE	DESCRIPTION
E	12/12/2024	IFC

HVAC ROOF PLAN

M-200

12/13/2024 2:10:52 PM

TRANE NATIONAL ACCOUNT - HVAC SYSTEM INFORMATION

EQUIPMENT SHALL BE PROCURED THROUGH A TRANE NATIONAL ACCOUNT. CONTACT THE TRANE NATIONAL ACCOUNT TEAM FOR HVAC SYSTEM INFORMATION:

TIM SMITH
(920)-455-9261
TIM.SMITH@TRANE.COM

- HVAC EQUIPMENT IS OWNER PURCHASED AND ASSIGNED TO THE INSTALLING CONTRACTOR.

- INSTALLING CONTRACTOR RESPONSIBLE TO: VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH TRANE, RECEIVE & UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD INSTALLED ITEMS, STARTUP, AND 1ST YEAR LABOR WARRANTY & ADMINISTRATION.

- ANY CHANGES OR VARIATION TO THE EQUIPMENT PACKAGE THAT WOULD AFFECT THE HVAC EQUIPMENT PACKAGE SHOULD BE BROUGHT TO THE ATTENTION OF THE TRANE NATIONAL ACCOUNT TEAM AT THE TIME OF QUOTATION.

AIR BALANCE SCHEDULE

TAG	SUPPLY AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	SUBTOTAL (CFM)
EF-1	0	0	0	1090	-1090
EF-2	0	0	0	300	-300
RTU-1	4000	3600	400	0	400
RTU-2	2400	1855	545	0	545
RTU-3	2400	1855	545	0	545
NET PRESSURIZATION (CFM):					100

MATERIAL SCHEDULE

CATEGORY	APPLICATION	ALLOWABLE MATERIAL
DUCT	EXPOSED, SUPPLY	ROUND AS SHOWN. PAINTED TO MATCH ROOF DECK.
	EXPOSED, RETURN	ROUND AS SHOWN. PAINTED TO MATCH ROOF DECK.
	EXPOSED, VENTILATION AIR	DOUBLE-WALL INSULATED ROUND AS SHOWN. PAINTED TO MATCH ROOF DECK.
	CONCEALED, SUPPLY	RECTANGULAR OR ROUND AS SHOWN. INSULATED.
	CONCEALED, RETURN	RECTANGULAR OR ROUND AS SHOWN. INSULATED.
	CONCEALED, GEN. EXHAUST	RECTANGULAR OR ROUND AS SHOWN. INSULATED.
	CONCEALED, VENTILATION AIR	RECTANGULAR OR ROUND AS SHOWN. INSULATED

EXHAUST CALCULATIONS
(PER TABLE 403.7 OF THE 2022 CALIFORNIA MECHANICAL CODE)

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	FIXTURE BASED			AREA BASED			
			NUMBER OF FIXTURES	EXHAUST AIRFLOW RATE (CFM)	REQUIRED EXHAUST (CFM)	AREA (SF)	Ra	REQUIRED EXHAUST (CFM)	PROVIDED EXHAUST (CFM)
112	NORTH RR	RESTROOM	2	-50	-100	116.7	0	0	-150
113	SOUTH RR	RESTROOM	2	-50	-100	65.2	0	0	-150
115, 117, 120	KITCHEN	KITCHEN (COOKING)	0	0	0	1094	-0.7	-765.8	-1050

VENTILATION CALCULATIONS, RTU-2 & RTU-3
(PER TABLE 402.1 OF THE 2022 CALIFORNIA MECHANICAL CODE)

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION		OCCUPANT BASED			AREA BASED			
			ROOM AREA (SF)	OCCUPANT DENSITY	OCCUPANTS	Rp	VENTILATION (CFM)	Ra	VENTILATION (CFM)	EFFECITVENESS	ZONE OUTDOOR AIRFLOW (CFM)
116	DINING	DINING ROOM	1203.5	70	85	7.5	637.5	0.18	216.6	0.8	1067.7
118	OPERATIONS ROOM	STORAGE	44.9	2	1	5	5.0	0.06	2.7	0.8	9.6
121	RR VESTIBULE	CORRIDOR	82.7	0	0	0	0.0	0.06	5.0	0.8	6.2
									REQUIRED AIRFLOW (CFM)		1083.5
									PROVIDED AIRFLOW (CFM)		1090.0

VENTILATION CALCULATIONS, RTU-1
(PER TABLE 402.1 OF THE 2022 CALIFORNIA MECHANICAL CODE)

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION		OCCUPANT BASED			AREA BASED			
			ROOM AREA (SF)	OCCUPANT DENSITY	OCCUPANTS	Rp	VENTILATION (CFM)	Ra	VENTILATION (CFM)	EFFECITVENESS	ZONE OUTDOOR AIRFLOW (CFM)
115	WAREWASH PANEL AREA	STORAGE	212.6	2	1	5	5.0	0.06	12.8	0.8	22.2
114	OFFICE	OFFICE (ENCLOSED)	60.1	5	1	5	5.0	0.06	3.6	0.8	10.8
115, 117, 120	KITCHEN	KITCHEN (COOKING)	1094.0	20	22	7.5	165.0	0.12	131.3	0.8	370.4
									REQUIRED AIRFLOW (CFM)		370.4
									PROVIDED AIRFLOW (CFM)		400.0

PATIO HEATER SCHEDULE

TAG	DESCRIPTION	GAS INPUT (BTU/H)	FURNISHED BY	INSTALLED BY	MANUFACTURER	MODEL	REMARKS
D300A	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300B	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300C	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300D	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300E	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300F	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN
D300G	GAS-FIRED INFRARED PATIO HEATER	34,000	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING PATIO HEATER TO REMAIN

GRILLS, REGISTERS, AND DIFFUSERS SCHEDULE

TAG	DESCRIPTION	FACE SIZE	MATERIAL	FINISH	MOUNTING	SUPPLIER	INSTALLER	MANUFACTURER	MODEL	REMARKS
CD1	PLAQUE FACE DIFFUSER	24'' x 24''	ALUMINUM	WHITE	<varies>	GC	GC	TITUS	OMNI-AA	<varies>
ER4	PERFORATED CEILING EXHAUST	24'' x 24''	ALUMINUM	WHITE	GYPSUM BOARD	GC	GC	TITUS	PAR-AA	
SG1	DOUBLE DIRECTIONAL SUPPLY REGISTER	REFER TO NECK SIZE	ALUMINUM	WHITE	SURFACE	GC	GC	TITUS	272RL	PROVIDE INTEGRAL OBD

RECIRCULATING HOOD SCHEDULE

TAG	DESCRIPTION	MAX COOKING TEMP.	EXHAUST PLENUM AIRFLOW [CFM]	APPROXIMATE WEIGHT [lbs]	SUPPLIER	INSTALLER	ELECTRICAL DATA		BASIS FOR DESIGN		REMARKS
							WATTS	V/P/H	MANUFACTURER	MODEL	
HD-1	VENTLESS CANOPY RECIRCULATING HOOD	N/A	415	175	KES	KES	170 W	120/1/60	RATIONAL	60.76.177	UL 710B COOKING APPLIANCE WITH A GREASE DISCHARGE LESS THAN 5.0 E-06 KG/CUBIC METER WHERE OPERATED WITH A TOTAL AIRFLOW OF 500 CFM

FAN SCHEDULE

TAG	EXHAUST AIRFLOW (CFM)	E.S.P. (IN. W.C.)	DRIVE TYPE	MOTOR POWER (HP)	WEIGHT (LB)	ELECTRICAL			SUPPLIER	INSTALLER	MANUFACTURER	MODEL	REMARKS
						MCA (A)	MOCP (A)	V/P/H					
EF-1	1090	0.6	DIRECT	0.50	125	10.5	15	120/1/60	GC	GC	CAPTIVEAIRE	DU50HFA	FURNISHED WITH DISCONNECT, SPEED CONTROLLER, BACKDRAFT DAMPER AND ROOF CURB.
EF-2	300	0.6	DIRECT	0.25	100	3.7	15	120/1/60	GC	GC	CAPTIVEAIRE	DR12HFA	FURNISHED WITH DISCONNECT, SPEED CONTROLLER, BACKDRAFT DAMPER AND ROOF CURB.

AIR CURTAIN SCHEDULE

TAG	DESCRIPTION	OPENING WIDTH	AIRFLOW			ELECTRICAL			SUPPLIER	INSTALLER	MANUFACTURER	MODEL	REMARKS
			MAX VELOCITY (FPM)	AVERAGE VELOCITY (FPM)	AIRFLOW (CFM)	MOCP (A)	MCA (A)	V/P/H					
AC-1	KITCHEN DOOR AIR DOOR	36"	3600	2118	1036	15	3.4	120/1/60	GC	GC	BERNER	MAX1036A	FURNISHED WITH DOOR-ACTIVATED SWITCH

CONDENSING UNIT SCHEDULE

TAG	DESCRIPTION	PAIRED WITH	NUMBER OF COMPRESSORS	REFRIGERANT TYPE	WEIGHT (LB)	ELECTRICAL			SUPPLIER	INSTALLER	MANUFACTURER	MODEL	REMARKS
						MOCP	FLA	V/P/H					
CU-1	WALK-IN COOLER REMOTE CONDENSING UNIT	N/A	1	R448A	260	25	16.3	208/1/60	KES	GC / KES	BY KES	BY KES	FURNISHED WITH THE WALK-IN COOLER.
CU-2	WALK-IN COOLER REMOTE CONDENSING UNIT	N/A	1	R448A	260	25	16.3	208/1/60	KES	GC / KES	BY KES	BY KES	FURNISHED WITH THE WALK-IN COOLER.

ROOFTOP UNIT SCHEDULE

TAG	DESCRIPTION	COOLING CAPACITY (TONS)	EER	AIRFLOW				COOLING					HEATING			NUMBER OF COMPRESSORS	NUMBER OF CIRCUITS	REFRIGERANT CHARGE (LB)	WEIGHT (LB)	ELECTRICAL			SUPPLIER	INSTALLER	MANUFACTURER	MODEL	REMARKS
				TOTAL (CFM)	RETURN (CFM)	OA (CFM)	E.S.P. (IN. W.C.)	NET TOTAL (MBH)	NET SENSIBLE (MBH)	EAT (DEG. F) DB	EAT (DEG. F) WB	OAT (DEG. F)	INPUT (BTU/H)	OUTPUT (BTU/H)	EAT (DEG. F)					MOCP (A)	MCA (A)	V/P/H					
RTU-1	KITCHEN ROOFTOP UNIT	10.0	11.0	4000	3600	400	0.8	108.8	81.0	75.3	64.1	101.0	200,000	162,000	56.5	2	1	10.7	1600	70	54.0	208/3/60	OWNER	GC	TRANE	YSJ-120	FURNISHED WITH HOT GAS REHEAT WITH REMOTE HUMIDISTAT, COMPARATIVE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF AND FAULT DETECTION AND DIAGNOSTICS, MULTI-SPEED FAN, HINGED PANELS, SMOKE DETECTOR IN THE SUPPLY-AIR STREAM, MERV 13 FILTER, HAIL GUARD, DISCONNECT, UNPOWERED CONVENIENCE RECEPTACLE, AND 14" ROOF CURB.
RTU-2	DINING ROOM ROOFTOP UNIT	6.0	1.0	2400	1855	545	0.8	68.1	53.3	78.2	65.0	101.0	120,000	97,200	62.4	2	1	10.3	1625	50	38.0	208/3/60	OWNER	GC	TRANE	YSJ-072	FURNISHED WITH HOT GAS REHEAT WITH REMOTE HUMIDISTAT, COMPARATIVE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF AND FAULT DETECTION AND DIAGNOSTICS, MULTI-SPEED FAN, HINGED PANELS, SMOKE DETECTOR IN THE SUPPLY-AIR STREAM, MERV 13 FILTER, HAIL GUARD, DISCONNECT, UNPOWERED CONVENIENCE RECEPTACLE, AND 14" ROOF CURB.
RTU-3	DINING ROOM ROOFTOP UNIT	6.0	1.0	2400	1855	545	0.8	68.1	53.3	78.5	65.0	101.0	120,000	97,200	62.4	2	1	10.3	1625	50	38.0	208/3/60	OWNER	GC	TRANE	YSJ-072	FURNISHED WITH HOT GAS REHEAT WITH REMOTE HUMIDISTAT, COMPARATIVE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF AND FAULT DETECTION AND DIAGNOSTICS, MULTI-SPEED FAN, HINGED PANELS, SMOKE DETECTOR IN THE SUPPLY-AIR STREAM, MERV 13 FILTER, HAIL GUARD, DISCONNECT, UNPOWERED CONVENIENCE RECEPTACLE, AND 14" ROOF CURB.

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LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:
EVERI ENGINEERING, INC.
1509 BUCK TRAIL LANE
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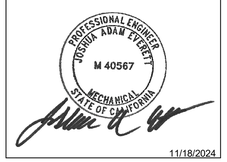
www.everjengineering.com

STAMP:



11/18/2024

PROJECT INFORMATION:
LAGUNA NIGUEL

PROJECT INFORMATION:
27221 LA PAZ ROAD
SUITE K
LAGUNA NIGUEL, CA 92677

DRAWN BY:	XXX
CHECKED BY:	XXX
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX
TEMPLATE VERSION:	12/31/2024

REVISIONS

REV.	DATE	DESCRIPTION
E	12/12/2024	IFC

HVAC SCHEDULES

M-300

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SEQUENCE OF OPERATIONS RTU-1 THRU RTU-3

OCCUPIED MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE THERMOSTAT TO BE IN OCCUPIED MODE, THE ROOFTOP UNIT FAN SHALL START AND RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPERS SHALL MODULATE TO THE MINIMUM POSITION.
HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 70 DEGREES (ADJUSTABLE) THE FIRST STAGE OF HEATING SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT. UPON A CONTINUED FALL IN SPACE TEMPERATURE, THE SECOND STAGE SHALL BE ENERGIZED (WHERE APPLICABLE) TO MAINTAIN THE SETPOINT.
COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 72 DEGREES (ADJUSTABLE), WHEN THE ENTHALPY OF THE OUTSIDE AIR IS FAVORABLE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN UP TO 100% TO PROVIDE COOLING FOR THE SPACE. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS NOT FAVORABLE, OR THERE IS A SUDDEN DEMAND FOR SPACE COOLING, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MINIMUM POSITION AND THE COOLING SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN THE SETPOINT.
DEHUMIDIFICATION: UPON A SIGNAL FROM THE HUMIDISTAT THAT DEHUMIDIFICATION IS REQUIRED, THE COOLING COIL SHALL BE ENERGIZED TO SATISFACTORILY DEHUMIDIFY THE AIR AND THE HOT GAS REHEAT COIL SHALL BE ENGAGED AS REQUIRED TO MAINTAIN THE SPACE SETPOINT.

UNOCCUPIED MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE THERMOSTAT TO BE IN UNOCCUPIED MODE, THE ROOFTOP UNIT FANS ARE TO BE OFF AND THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED.
HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 55 DEGREES (ADJUSTABLE) THE ROOFTOP UNIT FAN SHALL START AND THE FIRST STAGE OF HEATING SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT. UPON A CONTINUED FALL IN SPACE TEMPERATURE, THE SECOND STAGE SHALL BE ENERGIZED (WHERE APPLICABLE) TO MAINTAIN THE SETPOINT.
COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 85 DEGREES (ADJUSTABLE) THE ROOFTOP UNIT FAN SHALL START. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS FAVORABLE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN UP TO 100% TO PROVIDE COOLING FOR THE SPACE. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS NOT FAVORABLE, OR THERE IS A SUDDEN DEMAND FOR SPACE COOLING, THE OUTSIDE AIR DAMPER SHALL REMAIN IN THE CLOSED POSITION AND THE COOLING SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN THE SETPOINT.
DEHUMIDIFICATION: UPON A SIGNAL FROM THE HUMIDISTAT THAT DEHUMIDIFICATION IS REQUIRED THE ROOFTOP UNIT FAN SHALL START, THE COOLING COIL SHALL BE ENERGIZED TO SATISFACTORILY DEHUMIDIFY THE AIR AND THE HOT GAS REHEAT COIL SHALL BE ENGAGED AS REQUIRED TO MAINTAIN THE SPACE SETPOINT.

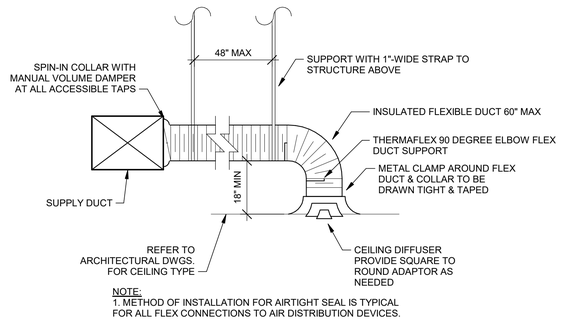
EMERGENCY MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: UPON A SIGNAL FROM THE SMOKE DETECTOR IN THE RETURN AIR STREAM OR THE FIRE ALARM SYSTEM, THE FAN SHALL STOP AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

SEQUENCE OF OPERATIONS EF-1 & EF-2

OCCUPIED MODE:
FAN OPERATION: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN OCCUPIED MODE, THE EXHAUST FAN IS TO START AND RUN CONTINUOUSLY.

UNOCCUPIED MODE:
FAN OPERATION: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN UNOCCUPIED MODE, THE EXHAUST FAN SHALL REMAIN OFF.

EMERGENCY MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: UPON A SIGNAL FROM THE FIRE ALARM SYSTEM, THE FAN SHALL STOP.



NOTE:
1. METHOD OF INSTALLATION FOR AIRTIGHT SEAL IS TYPICAL FOR ALL FLEX CONNECTIONS TO AIR DISTRIBUTION DEVICES.

2 **SEQUENCE OF OPERATIONS** N.T.S.

1 **DIFFUSER CONNECTION** N.T.S.

sg

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MECHANICAL
STATE OF CALIFORNIA
11/18/2024

PROJECT INFORMATION:
LAGUNA NIGUEL

PROJECT INFORMATION:
27221 LA PAZ ROAD
SUITE K
LAGUNA NIGUEL, CA 92677

DRAWN BY:	XXX
CHECKED BY:	XXX
PROJECT MANAGER:	XXX
SG DESIGN MANAGER:	XXX
SG CONSTR. MANAGER:	XXX
PROJECT NO:	XXXXXX

TEMPLATE VERSION: 12/31/2024

REVISIONS

REV.	DATE	DESCRIPTION

HVAC DETAILS

M-400

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