



18076069

REVIEWED FOR COMPLIANCE

Performance of this review does not relieve the applicant from full responsibility to comply with all applicable codes, ordinances and regulations 10/29/18

MECHANICAL GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL STATE, COUNTY AND LOCAL CITY CODES, REGULATIONS AND ORDINANCES. ADDITIONALLY, ALL WORK SHALL CONFORM TO LANDLORD REQUIREMENTS AND TENANT GUIDELINES.
- ALL ROOFING WORK SHALL BE COMPLETED BY LANDLORD'S ROOFING CONTRACTOR TO MAINTAIN WARRANTY, AS REQUIRED BY THE LANDLORD.
- THE MECHANICAL CONTRACTOR SHALL OBTAIN A FULL SET OF PLANS AND SPECIFICATIONS FOR THIS PROJECT AND SHALL BE AWARE OF THE WORK OF ALL OTHER TRADES WHICH MAY REQUIRE COORDINATION.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND PAY ALL FEES RELATIVE TO THE INSTALLATION OF HIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE AND THOROUGHLY SURVEY ALL EXISTING CONDITIONS BEFORE SUBMITTING BID.
- IT SHALL BE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES AND SHALL PROVIDE ALL REQUIRED OFFSETS IN DUCTWORK TO ACCOMPLISH THIS AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL FIELD VERIFY THE EXACT SIZE AND LOCATION OF ALL EXISTING EQUIPMENT, DUCTWORK AND PIPING TO BE REMOVED, RELOCATED, CONNECTED TO NEW WORK OR RELATED TO IN ANY WAY TO THE SCOPE OF THIS PROJECT.
- ALL MECHANICAL PLANS ARE DIAGRAMMATIC IN FORM. THE MECHANICAL CONTRACTOR SHALL SEND EQUIPMENT AND FABRICATE DUCTWORK BASED ON FIELD MEASUREMENTS TO ENSURE THE PROPER ROUTING AND FIT. ALL HVAC EQUIPMENT ACCESS PANELS/DOORS MUST BE EASILY ACCESS AND BE FREE FROM OBSTRUCTIONS.
- THE CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT BALANCE AND TESTING AGENCY, WHICH SPECIALIZES IN THE BALANCING AND TESTING OF THE HEATING, VENTILATING AND AIR CONDITIONING & WATER SYSTEMS, TO BALANCE, ADJUST AND TEST ALL SYSTEMS AND EQUIPMENT AS SHOWN ON PLANS, NOTED OR REQUIRED.
 - A FIRE-DEMOLITION AIR AND WATER BALANCE REPORT SHALL BE PERFORMED ON ALL HVAC UNITS AND EXISTING FANS, INCLUDING THE KITCHEN EXHAUST FAN ON THE ROOF. A CERTIFIED BALANCING REPORT SHALL BE PROVIDED TO THE LANDLORD AND JB WYBLE & ASSOCIATES WITHIN SEVEN (7) DAYS OF STARTING NEW CONSTRUCTION.
 - A POST-CONSTRUCTION, FINAL BALANCE REPORT SHALL BE PERFORMED. ALL SYSTEMS SHALL BE BALANCED TO PROVIDE THE AIR AND WATER QUANTITIES AS INDICATED ON THE PLANS WITHIN A MAXIMUM TOLERANCE OF +/- 2%. A CERTIFIED BALANCING REPORT SHALL BE PROVIDED TO THE LANDLORD, PROPERTY MANAGEMENT OFFICE ON-SITE AND JB WYBLE & ASSOCIATES WITHIN THIRTY (30) DAYS AFTER OPERATION OF SYSTEMS FOR BENEFICIAL USE.
- ALL NEW DUCTWORK SHALL BE FABRICATED FROM GALVANIZED SHEET METAL, STAINLESS STEEL OR BLACK STEEL AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA AND ASHRAE GUIDELINES.
- ALL BRANCH DUCTWORK EXTENDED FROM MAIN TRUNK DUCTWORK SHALL BE FURNISHED WITH SPLITTER DAMPERS, AIR SCOOP, EXTRACTORS, VOLUME DAMPERS OR SIMILAR BALANCING DEVICES IN ACCORDANCE WITH THE STANDARDS OF THE ASSOCIATED AIR BALANCING COUNCIL.
- DUCTWORK FOR KITCHEN EXHAUST SHALL BE FABRICATED RECTANGULAR BLACK STEEL, DUCTWORK, UNLESS OTHERWISE INDICATED ON THE PLANS. JOINTS AND SEAMS SHALL BE WELDED TO PREVENT DUCT LEAKAGE.
 - ACCEPTABLE ALTERNATE: DUCTWORK FOR KITCHEN EXHAUST SHALL BE PRE-FABRICATED, STAINLESS STEEL, ROUND DUCTWORK AS MANUFACTURED BY "CAPTIVE AIRE". JOINTS AND SEAMS SHALL BE CLAMPED AND SEALED, AS PER MANUFACTURER, TO PREVENT DUCT LEAKAGE. SLOPE KITCHEN EXHAUST DUCT AT A MINIMUM 2.0-PERCENT SLOPE TOWARD KITCHEN HOOD. CONTRACTOR AND MANUFACTURER SHALL COORDINATE EXACT ROUTING, LENGTH OF DUCTWORK AND DUCTWORK ACCESSORIES REQUIRED TO MEET INTENDED DESIGN.
- THE ABOVE MENTIONED LEAKAGE TESTS ARE NOT SPECIFIC TO THE LISTING(S) REQUIREMENTS OF THE SYSTEM BEING TESTED. THE CODE OFFICIAL MAY HAVE SPECIFIC REQUIREMENTS OTHER THAN ABOVE AND SHOULD BE CONSULTED BEFORE FINAL INSPECTION. ALL SUPPLY AND OUTSIDE AIR DUCTWORK INSTALLED CONCEALED IN THE CEILING OF THE INTERIOR OF THE BUILDING SHALL BE INSULATED WITH 1-1/2" THICK FIBERGLASS DUCT INSULATION WITH FOIL FACING AS MANUFACTURED BY JOHNS MANVILLE OR APPROVED EQUAL FOR THE ENTIRE LENGTH OF THE DUCT. EXPOSED DUCTWORK SHALL HAVE 1" ACOUSTIC LINER ON THE INSIDE OF DUCT AND HAVE A PAINTABLE FINISH. ALL RETURN DUCTWORK SHALL HAVE 1" SOUND LINING, UP TO THE FIRST 20'-0". INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- PRIOR TO THE CONCEALMENT OF ANY PORTION OF A GREASE DUCT SYSTEM, A LEAKAGE TEST SHALL BE PERFORMED IN THE PRESENCE OF THE CODE OFFICIAL. DUCT SHALL BE CONSIDERED TO BE CONCEALED WHERE INSTALLED IN SHAFTS OR COVERED BY COATINGS OR WRAPS THAT PREVENT THE DUCTWORK FROM BEING VISUALLY INSPECTED ON ALL SIDES. A LIGHT TEST OR APPROVED EQUIVALENT TEST METHOD (SMOKE OR PRESSURE TEST) SHALL BE PERFORMED TO DETERMINE THAT ALL JOINTS ARE LIQUID TIGHT. THE SMOKE OR PRESSURE TEST IS USED FOR LONGER DUCT RUNS WHILE THE LIGHT TEST IS USED FOR SHORT DUCT RUNS. ALL METHODS ARE APPROVED FOR USE. THE ABOVE MENTIONED LEAKAGE TESTS ARE NOT SPECIFIC TO THE LISTING(S) REQUIREMENTS OF THE SYSTEM BEING TESTED. THE CODE OFFICIAL MAY HAVE SPECIFIC REQUIREMENTS OTHER THAN ABOVE AND SHOULD BE CONSULTED BEFORE FINAL INSPECTION. IF THE DUCT SYSTEM IS MODIFIED OR RENOVATED, THE ENTIRE SYSTEM WILL REQUIRE RE-TESTING.
 - A LIGHT TEST SHALL BE PERFORMED BY PASSING A LAMP HAVING A POWER RATING OF NOT LESS THAN 100 WATTS THROUGH THE ENTIRE SECTION OF DUCTWORK TO BE TESTED. THE LAMP SHALL BE OPEN SO AS TO EMIT LIGHT EQUALLY IN ALL DIRECTIONS PERPENDICULAR TO THE DUCT WALLS. THE TEST SHALL BE PERFORMED FOR ENTIRE DUCT SYSTEM, INCLUDING THE HOOD-TO-DUCT CONNECTION. THE DUCTWORK SHALL BE PERMITTED TO BE TESTED IN SECTIONS, PROVIDED THAT EVERY JOINT IS TESTED. FOR LISTED FACTORY-BUILT GREASE DUCTS, THIS TEST SHALL BE LIMITED TO DUCT JOINTS ASSEMBLED IN THE FIELD AND SHALL EXCLUDE FACTORY WELDS.
 - AFTER THE DUCTWORK HAS BEEN INSTALLED ALLOW THE LISTED SEALANT TO CURE FOR A MINIMUM OF 24 HOURS. SMOKE BOMBS ARE LIT AND PLACED AT THE BOTTOM OF THE DUCT SYSTEM. NATURAL UPWARDS DRAFTS WILL PULL THE SMOKE TO THE TOP OF THE DUCT SYSTEM. VARIOUS LENGTH DUCT RUNS MAY REQUIRE MULTIPLE SMOKE BOMBS. ONCE THE SMOKE HAS REACHED THE TOP OF THE DUCT RUN, CAP THE DUCT SECURELY. INSPECT ALL JOINTS FOR LEAKAGE.
 - TESTING AND BALANCING SHALL BE PERFORMED PRIOR TO THE PRESSURE DUCT LEAKAGE TEST. A DUCT PRESSURE TEST SHALL BE PERFORMED DURING INITIAL INSTALLATION BY THE PERMIT HOLDER OR ITS TESTING AGENCY USING THE APPROPRIATE LOCAL CODE TESTING PROCEDURE. THIS TEST MUST BE PERFORMED AS A ROUGH INSPECTION PRIOR TO BEING COVERED, CONCEALED, INSULATED OR WRAPPED BEFORE FINAL INSTALLATION TO THE EXHAUST FAN, KITCHEN EXHAUST HOOD, OR OTHER EQUIPMENT. IN THE ABSENCE OF ANY LOCAL CODE TESTING PROCEDURES, USE SMACNA'S HVAC AIR DUCT LEAKAGE TEST MANUAL FOR INSPECTION AND TESTING GUIDELINES.
- ALL KITCHEN EXHAUST DUCTWORK SHALL BE PROVIDED WITH ZERO CLEARANCE DUCT WRAP- 3M FIRE BARRIER DUCT WRAP 2DA OR THERMAL CERAMICS FIREMASTER FASTWRAP XL OR UNIFRAX FRYEWAP MAX 2.0 OR EQUAL GREASE DUCT ENCLOSURE ASSEMBLY LISTED IN AN ICC-ES REPORT AS MEETING THE REQUIREMENTS OF 2012 IMC. WRAP SHALL MEET REQUIREMENTS OF ASTM E 2336.
 - ACCEPTABLE ALTERNATE: DUCTWORK FOR KITCHEN EXHAUST SHALL BE PRE-FABRICATED, DOUBLE-WALL, ZERO-CLEARANCE, STAINLESS STEEL, ROUND DUCTWORK AS MANUFACTURED BY "CAPTIVE AIRE".
- ALL KITCHEN EXHAUST DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED SO THAT GREASE CANNOT COLLECT IN ANY PORTION THEREOF. AND THE SYSTEM SHALL SLOPE NOT LESS THAN ONE-FOURTH UNIT VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT SLOPE) TOWARD THE HOOD OR TOWARD AN APPROVED GREASE RESERVOIR. WHERE HORIZONTAL DUCTS EXCEED 75 FEET (22 860 MM) IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL (8.3-PERCENT SLOPE)
- CLEANOUTS SERVING HORIZONTAL KITCHEN EXHAUST GREASE DUCTS SHALL BE SPACED NOT MORE THAN 20 FEET APART AND NOT MORE THAN 10 FEET FROM CHANGES IN DIRECTION THAT ARE GREATER THAN 45 DEGREES. THE CLEANOUTS SHALL BE LOCATED ON THE SIDES, TOP OR BOTTOM OF THE GREASE DUCT AND SIZED PER THE INTERNATIONAL MECHANICAL CODE. WHERE THE DIMENSIONS OF THE SIDES, TOP OR BOTTOM OF THE DUCT PRECLUDE THE INSTALLATION OF THE PRESCRIBED MINIMUM-SIZE CLEANOUT OPENING, THE CLEANOUT SHALL BE LOCATED ON THE DUCT FACE THAT AFFORDS THE LARGEST OPENING DIMENSION AND SHALL BE INSTALLED WITH THE OPENING EDGES AT THE PRESCRIBED DISTANCES FROM THE DUCT EDGES AS PREVIOUSLY SET FORTH IN THIS SECTION.
- ALL KITCHEN EXHAUST HOODS SHALL BE ETL LISTED AND UL 710 TESTED. SEE THE FOOD SERVICE PLANS FOR ADDITIONAL INFORMATION ON KITCHEN EXHAUST HOODS.

- ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-8 INSULATION. ALL KITCHEN EXHAUST DUCTWORK LOCATED OUTSIDE OF THE BUILDING SHALL BE COVERED WITH AN APPROVED CORROSION RESISTANT COATING.
 - SUPPLY AIR DUCTWORK SHALL UTILIZE EXTERNAL FOIL-WRAPPED INSULATION IN ALL ENCLOSED CEILING APPLICATIONS, AND NOT IN LIEU OF INTERNAL DUCT LINER.
- WHERE SHOWN ON PLANS, FLEXIBLE DUCT SHALL BE WIREMOLD TYPE 4K, OR APPROVED EQUAL. IT SHALL BE FACTORY INSULATED WITH A MINIMUM OF 1" GLASS FIBER BLANKET SHEATHED WITH EXTERNAL VINYL VAPOR BARRIER AND EACH SECTION FROM RIGID METAL DUCT TO DIFFUSER SHALL NOT EXCEED FIVE (5) FEET.
- ALL STRAIGHT BENDS IN DUCTWORK SHALL BE EQUIPPED WITH STANDARD DUCT TURNING VANES.
- DUCT SIZES SHOWN ARE FREE AREAS REQUIRED. DUCTWORK SIZES MUST BE ADJUSTED FOR THICKNESS OF THE LINER.
- UNLESS OTHERWISE NOTED ON PLANS, ALL DUCTWORK AND PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE, ABOVE CEILING OR TO THE UNDERSIDE OF THE STRUCTURE.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR COORDINATION OF DIFFUSERS, REGISTERS, GRILLES AND LIGHTS, AND FOR THE CEILING TYPE.
- MAINTAIN A MINIMUM OF 10'-0" BETWEEN ALL EXHAUST TERMINATIONS AND MECHANICAL INTAKES, OPERABLE OPENINGS IN TO BUILDINGS AND PROPERTY LINES, WITH THE EXCEPTION FOR ENVIRONMENTAL AIR DISCHARGES. FOR ENVIRONMENTAL AIR, MAINTAIN A MINIMUM OF 3'-0" BETWEEN ALL EXHAUST TERMINATIONS AND OPERABLE OPENINGS IN TO BUILDINGS AND PROPERTY LINES AND 10'-0" FROM MECHANICAL INTAKES. CONTRACTOR SHALL FIELD COORDINATE EXACT LOCATIONS FOR EXHAUST TERMINATIONS.
- ALL FRESH AIR INTAKES AND EXHAUST DISCHARGES SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVERS OR GRILLES WITH OPENING SIZES BETWEEN 1/4" AND 1" IN ANY DIRECTION, IN ACCORDANCE WITH IMC 401.5.
- PIPING SHOWN IS SCHEMATIC AND DOES NOT INDICATE EVERY OFFSET, ELBOW, UNION, VALVE, FITTING, ACCESS PANEL, ETC. THAT IS REQUIRED FOR A COMPLETE WORKING SYSTEM. PROVIDE ITEMS AND FITTINGS THAT ARE REQUIRED TO INSTALL THE PIPING SYSTEM WITHIN THE SPACE PROVIDED AND THAT ARE REQUIRED FOR A COMPLETE SYSTEM. PIPING SHALL BE SECURELY SUPPORTED IN ACCORDANCE WITH "MSS" STANDARD SP-89.
- ALL PIPING SHALL BE SUPPORTED IN COMPLIANCE WITH IMC SECTION 305.
- ALL CONDENSATE PIPING (BELOW ROOF LINE) SHALL BE COPPER AND INSULATED, PER LANDLORD'S REQUEST. PIPING SHALL SLOP A MINIMUM 2X IN DIRECTION OF DISCHARGE, AWAY FROM UNIT.
- INSTALL DRIP PANS UNDERNEATH ALL EQUIPMENT, DUCTWORK AND PIPING LOCATED ABOVE ELECTRICAL PANELS AS REQUIRED PER NEC.
- ALL HVAC PENETRATIONS THROUGH FIRE RATED WALLS, CHASES, FLOORS AND CEILINGS SHALL BE PROTECTED WITH FIRE AND/OR SMOKE DAMPERS, CLASSIFIED UNDER UL STANDARD 555. FIRE AND/OR SMOKE DAMPERS SHALL BE "RUSKIN" TYPE B OR EQUAL.
- PROVIDE ACCESS DOORS (FRAMED GRFG ACCESS PANELS, STEALTH PRODUCTS OR EQUAL) SIZED AND LOCATED REQUIRED, BUT NOT IN WOOD CEILINGS.
- ACCESS DOORS SHALL BE PROVIDED AT EACH FIRE AND/OR SMOKE DAMPER LOCATION. ACCESS DOORS SHALL BE VENTLOK OR EQUAL, APPROXIMATELY 12X12 UNLESS INDICATED OTHERWISE.
- FOR FACTORY-ASSEMBLED EQUIPMENT AND DEVICES ON WHICH THE MANUFACTURERS FURNISH STANDARD PUBLISHED GUARANTEES AS REGULAR TRADE PRACTICE, OBTAIN SUCH GUARANTEES AND REPLACE ANY SUCH EQUIPMENT WHICH PROVES DEFECTIVE DURING THE LIFE OF THESE GUARANTEES.
- GUARANTEE ALL WORK FOR WHICH MATERIALS ARE FURNISHED, FABRICATED OR FIELD ERRECTED BY THE CONTRACTOR. ALL FACTORY-ASSEMBLED EQUIPMENT FOR WHICH NO SPECIFIC MANUFACTURER'S GUARANTEE IS FURNISHED, AND ALL WORK IN CONNECTION WITH INSTALLING MANUFACTURER'S GUARANTEED EQUIPMENT. THIS PERSONAL GUARANTEE SHALL EXIST FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK AND SHALL APPLY TO DEFECTS IN MATERIAL AND TO DEFECTIVE WORKMANSHIP OF ANY KIND.
- IN THE EVENT OF FAILURE OF ANY WORK, EQUIPMENT OR DEVICE DURING THE LIFE OF THE GUARANTEE, REPAIR OR REPLACE THE EQUIPMENT OR DEFECTIVE WORK. REMOVE, REPLACE OR RESTORE, AT NO COST TO THE OWNER, ANY PARTS OF THE STRUCTURE OR BUILDING WHICH MAY BE DAMAGED EITHER AS THE DIRECT RESULT OF THE DEFECTIVE WORK OR IN THE COURSE OF THE CONTRACTOR'S MAKING REPLACEMENT OF THE DEFECTIVE WORK OR MATERIAL. WORK SHALL BE DONE AT A TIME AND IN A MANNER AS TO CAUSE NO UNDUE INCONVENIENCE TO THE OWNER.
- ALL NEW EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH UNIT MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE A NEW SET OF MERV-8 OR BETTER AIR FILTERS IN UNITS JUST BEFORE TURNING SYSTEMS OVER TO OWNER.
- PROVIDE AN ENGRAVED PHENOLIC NAMEPLATE FOR ALL HVAC EQUIPMENT. NAMEPLATE SHALL INCLUDE EQUIPMENT DESIGNATION IN LETTERING A MINIMUM OF 2" IN HEIGHT.
- THE CONTRACTOR SHALL PROVIDE ONE SET OF CLEAN AS-BUILT DRAWINGS.
- HVAC DESIGN LOADS ARE CALCULATED IN ACCORDANCE WITH ANSI/ASHRAE/ACCA STANDARD 183.
- ALL PIPING SHALL BE INSULATED AS REQUIRED IN ACCORDANCE WITH IECC TABLE C403.2.10 - "MINIMUM PIPE INSULATION THICKNESS".
- ALL MOTORS SHALL BE HIGH EFFICIENCY. MOTORS SHALL HAVE MINIMUM EFFICIENCY AS REQUIRED BY IECC TABLE C405.B - "MINIMUM NOMINAL FULL-LOAD EFFICIENCY FOR 60HZ NEMA GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE I) RATED 800V OR LESS".
- ALL NEW PIPING SHALL MATCHING EXISTING BASE BUILDING STANDARD. CONTRACTOR SHALL COORDINATE WITH THE LANDLORD AND MALL OPERATIONS DIRECTOR TO CONFIRM AND VERIFY ALL PIPING TO BE USED, PRIOR TO INSTALLATION.
- ALL NEW CONDENSER WATER PIPING SHALL BE CLEANED OUT AND FLUSHED PRIOR TO FINAL CONNECTION TO BASE BUILDING SYSTEM. TENANT CONTRACTOR SHALL USE LANDLORD AND MALL OPERATIONS DIRECTOR APPROVED CONTRACTOR TO PERFORM CLEANING AND FLUSHING.

MECHANICAL LEGEND

	EQUIPMENT IDENTIFICATION
	AIR DISTRIBUTION DEVICE IDENTIFICATION + SUPPLY, - RETURN OR EXHAUST
	WALL-MTD THERMOSTAT W/ COVER (60" AFF)
	RETURN GRILLE (RETURN OR EXHAUST)
	CEILING DIFFUSER (SUPPLY)
	SUPPLY REGISTER - SIDE-WALL MOUNTED (HORIZONTAL DISCHARGE)
	SUPPLY REGISTER - CEILING MOUNTED (VERTICAL DISCHARGE)
	LINEAR SLOT DIFFUSER
	DUCT MOUNTED SMOKE DETECTOR, TYPE TO MATCH EXISTING FIRE ALARM SYSTEM
	VOLUME DAMPER
	MOTORIZED DAMPER
	FIRE DAMPER
	FLEX DUCTWORK
	DUCT TRANSITION
	SUPPLY DUCT UP/DN
	RETURN OR EXHAUST DUCT UP/DN
	SL SOUND LINED DUCTWORK
	ROUND DUCT
	C.T.E. CONNECT TO EXISTING
	PIPING UP
	PIPING DOWN
	CONDENSATE DRAIN PIPING
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	BALL VALVE (LEVER TYPE)
	THREE-WAY CONTROL VALVE (ELECTRONIC ACTUATOR)
	"Y" STRAINER
	COMBINATION BALANCING/ SHUT-OFF VALVE
	FLOW METER FITTING
	NEW HVAC, DUCT, PIPING, ETC
	EXISTING HVAC, DUCT, PIPING, ETC
	ABV. ABOVE
	CLG. CEILING
	DN. DOWN
	ETR. EXISTING TO REMAIN
	VF VERIFY IN FIELD
	CO CLEAN OUT
	RL REFRIGERANT LIQUID LINE
	RS REFRIGERANT SUCTION LINE
	WSPH WATER SOURCE HEAT PUMP
	OAHU OUTDOOR AIR HANDLING UNIT
	EF EXHAUST FAN
	SA SUPPLY AIR
	RA RETURN AIR
	EXH EXHAUST
	OA OUTSIDE AIR

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				<p>I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS. PE LICENSE # 129510, EXPIRATION DATE: DECEMBER 31, 2018 FIRM LICENSE # F19615, EXPIRATION DATE: MARCH 31, 2019</p>		

