HVAC NOTES AND SPECIFICATIONS

SECTION 1: SCOPE OF WORK

1. EXISTING 10 TON SPLIT SYSTME HEAT PUMP UNIT, NEW KITCHEN HOOD SYSTEM, AND NEW AIR DISTRIBUTION.
2. DUCT WORK, ELBOWS, FITTINGS, & DUCT INSULATION.
3. DIFFUSERS, REGISTERS, AND GRILLES
4. HVAC CONTROL SYSTEMS.
5. TESTING AND BALANCING.
6. PERMIT AND INSPECTION.

SECTION 2: FEES, PERMITS & INSPECTIONS

a) CONTRACTOR MUST PAY FEES AND OBTAIN PERMITS, LICENSES, INSPECTIONS, ETC, AS REQUIRED BY ANY LEGALLY CONSTITUTE AUTHORITY.

b) CONTRACTOR SHALL NOT MAKE HIS WORK COVERED OR CLOSED UNTIL THE WORK HAS BEEN INSPECTED AND APPROVED BY ALL AUTHORITIES HAVING JURISDICTION. ANY EXPENSES FOR ADDITIONAL WORK DUE TO THE VIOLATION OF THIS REQUIREMENT WILL BE PAID BY THE CONTRACTOR.

c) THIS DOCUMENT IS NOT FOR BID OR CONSTRUCTION UNTIL THE PLAN HAS BEEN REVIEWED AND APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND THE PERMIT IS OBTAINED. NO COMPENSATION WILL BE MADE FOR ADDITIONAL WORK DUE TO THE VIOLATION OF THIS REQUIREMENT.

SECTION 3: GENERAL REQUIREMENTS

a) ANY EXISTING CONDITIONS ARE BASED ON LIMITED FIELD VERIFICATION. CONTRACTOR SHALL ADJUST TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE TENANT.

b) ALL CONTRACTORS SHALL REVIEW A COMPLETE SET OF CONSTRUCTION DOCUMENTS.

c) CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH DEMOLITION PRIOR TO BIDDING AND START OF WORK. CONTRACTOR IS RESPONSIBLE FOR DEMO OF ALL EXISTING ITEMS, AS REQUIRED, FOR INSTALLATION/CONSTRUCTION OF NEW WORK.

d) CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR ANY EXTRA COSTS DUE TO CONTRACTOR'S FAILURE TO VISIT THE JOBSITE AND/OR PREDETERMINE ALL EXISTING CONDITIONS BEFORE SUBMITTING HIS BID. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT FOR RESOLUTION. NO EXCEPTION.

e) CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL UTILITY RUNS, UNDERGROUND AND ABOVE GROUND PIPING AND/OR OTHER IMPROVEMENTS LOCATED ON THE PREMISES. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL COSTS RELATING TO THE RELOCATION OF, DAMAGE TO, REPAIR OF ANY EXISTING UTILITY RUNS AND/OR IMPROVEMENTS WHICH ARE DAMAGED AS A RESULT OF WORK IN OR AROUND THE PREMISES.

f) THE MECHANICAL CONTRACTOR SHALL INSPECT AND TEST RUN ALL EXISTING UNITS AT THE START OF CONSTRUCTION AND INFORM THE ARCHITECT OF ANY NECESSARY REPAIRS FOR APPROVAL IN A TIMELY MANNER TO NOT DELAY THE OPENING DATE.

g) ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE PER BUILDING CODE REQUIREMENTS OR APPLICABLE MANUFACTURER INSTALLATION REQUIREMENTS.

h) THE CONTRACTOR SHALL INSTALL ALL EQUIPMENTS AS REQUIRED TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.

i) ALL EQUIPMENT FURNISHED SHALL FIT THE SPACE AVAILABLE WITH CONNECTIONS IN THE REQUIRED LOCATIONS AND WITH ADEQUATE SPACE FOR OPERATING AND SERVICING. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE THE MANNER AND METHOD OF THE INSTALLATION WHILE THE SPECIFICATIONS AND EQUIPMENT LIST DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS, WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.

j) ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE LATEST FEDERAL, STATE AND LOCAL CODES [NFPA, UBC, UMC AND LOCAL BODIES HAVING JURISDICTION]. APPLICABLE CODE: CMC 2019, CPC 2019, CALIFORNIA ENERGY EFFICIENCY CODE 2019, CALIFORNIA ELECTRICAL CODE 2019.

k) THE CONTRACTOR SHALL COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF ALL EQUIPMENT MAY BE PROPERLY COORDINATED.
k.1) DISCONNECT SWITCHES & LINE VOLTAGE CONNECTIONS (BY ELECTRICAL)
k.2) ALL LINE VOLTAGE WIRING AND CONDUIT (BY ELECTRICAL)
k.3) CONDENSATE PIPING (PLUMBING)

l) ALL ROOFING WORK SHALL BE PERFORMED BY OWNER'S APPROVED ROOFING CONTRACTOR.

m) DISPOSE OF ALL EQUIPMENT NOT REUSED AS A PART OF THE NEW WORK AS DIRECTED BY THE OWNER.

n) ALL ROOF MOUNTED EQUIPMENT SHALL BE LABELED AS TO THE SPACE IT SERVES WITH 3" HIGH WEATHERPROOF VINYL LETTERS.

o) ALL APPLIANCE AND PLUMBING VENTS AND THE DISCHARGE OUTLET OF EXHAUST FANS SHALL BE LEAST TEN (10) FEET IN A HORIZONTAL DIRECTION, OR THREE(3) FEET ABOVE THE OUTSIDE-AIR INTAKES FOR HVAC UNITS.

p) MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAMESPREAD RATING NOT GREATER THAN TWENTY-FIVE(25) AND A SMOKE DEVELOPED RATING NOT GREATER THAN FOUR HUNDRED FIFTY(450) WHEN TESTED AS A COMPOSITE PER APPLICABLE TESTING STANDARD.

q) AFTER INSTALLING WALL, CEILING, OR FLOOR INSULATION, THE INSTALLER SHALL MAKE AVAILABLE TO THE ENFORCEMENT AGENCY OR POST IN A CONSPICUOUS LOCATION IN THE BUILDING, A CERTIFICATE SIGNED BY THE INSTALLER STATING THAT THE INSTALLATION IS CONSISTENT WITH THE PLANS AND SPECIFICATIONS DESCRIBED IN SEC 10.103(A)2A. THE CERTIFICATE SHALL ALSO STATE THE MANUFACTURER'S NAME, MATERIAL IDENTIFICATION, AND THE INSTALLED R-VALUE.

r) INSTALL DUCT INSULATION ONLY AFTER DUCTWORK HAS BEEN INSPECTED AND APPROVED.

s) REGISTERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED ONLY AFTER ALL CEILINGS AND WALLS ARE FINISHED INCLUDING FINAL PAINTING. CEILING MOUNTED UNITS SHALL BE INSTALLED WITH RIMS TIGHT AGAINST CEILING. WALL MOUNTED UNITS SHALL BE INSTALLED AT LEAST 6 INCHES BELOW THE CEILING UNLESS OTHERWISE NOTED. DAMPERS PROVIDED WITH DIFFUSERS AND REGISTERS SHALL NOT BE USED FOR SYSTEM BALANCING. INSIDE OF DUCT, BEHIND SEE-THROUGH REGISTERS AND GRILLES SHALL BE PAINTED BLACK.

t) ROUND SHEET METAL DUCTS SUSPENDED IN THE AIR SHOULD BE SUPPORTED BY HANGERS AT LEAST EVERY 10 FEET. FLEXIBLE DUCTS SUSPENDED IN THE AIR SHOULD BE SUPPORTED AT LEAST EVERY 4 FEET BY STRAPS THAT ARE AT LEAST 1-1/2" TO 1-3/4" INCHES WIDE, AND THEY SHOULD NOT SAG MORE THAN 1/2" FOR EACH FOOT OF DISTANCE BETWEEN THE SUPPORTS. STRAPS USED ON FLEXIBLE DUCTS SHOULD NOT CONSTRICT THE INNER DIAMETER OF THE DUCT OR CUT THE OUTER JACKET.

u) DUCT SLEEVES AND PREPARED OPENINGS SHALL BE PROVIDED WHERE DUCTS PENETRATE FLOORS, WALLS, CEILINGS OR ROOFS, AND SHALL BE INSTALLED DURING CONSTRUCTION OF THE FLOOR, WALL, CEILING OR ROOF. MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION OF ALL DUCT PENETRATIONS OF STRUCTURE WITH GENERAL CONTRACTOR.

v) DUCT SLEEVES SHALL BE FABRICATED FROM MINIMUM 20 GAUGE GALVANIZED SHEET STEEL. SLEEVE SHALL HAVE ONE(1) INCH CLEARANCE BETWEEN THE DUCT AND THE SLEEVE, OR ONE(1) INCH CLEARANCE BETWEEN THE INSULATION AND THE SLEEVE FOR INSULATED DUCTS. DUCT SLEEVES EMBEDDED IN CONCRETE SHALL BE CONSTRUCTED OF 1/4 INCH THICK CARBON STEEL PLATE, AND SHALL BE WELDED IN ACCORDANCE WITH AWS D1.1.

w) DEMAND CONTROL VENTILATION DEVICES (CO2 SENSORS) SHALL BE INSTALLED IN ACCORDANCE WITH CMC. 121(C)4.

SECTION 4: PRODUCTS

a) THERMOSTAT SHALL BE INSTALLED WITH 7-DAY PROGRAMMABLE AUTO-CHANGE OVER FEATURE. MOUNTING HEIGHT IS 3 TO 4 FEET ABOVE FINISHED FLOOR.

b) ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS, INCLUDING, BUT NOT LIMITED TO, BUILDING CAVITIES, MECHANICAL CLOSETS, AIR-HANDLER BOXES AND SUPPORT PLATFORMS USED AS DUCTS OR PLENUMS, SHALL BE INSTALLED, SEALED AND INSULATED TO MEET THE REQUIREMENTS OF CHAPTER 6 OF THE CALIFORNIA MECHANICAL CODE. SUPPLY-AIR AND RETURN-AIR DUCTS CONVEYING HEATED OR COOLED AIR SHALL BE INSULATED TO A MINIMUM INSTALLED LEVEL OF R-8, UNLESS NOTED OTHERWISE. INSULATION IS NOT REQUIRED ON LINED DUCTS AND DUCTS EXPOSED TO CONDITIONED SPACE. PROVIDE RFI TO ENGINEER BEFORE CLASSIFYING THE SPACE AS CONDITIONED SPACE. NO COMPENSATION WILL BE MADE IF THE CONTRACTOR FAILS TO VERIFY.

c) DUCT PLENUM SHALL BE GALVANIZED STEEL DUCT. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPS. TAPS AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL181A OR UL181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. DUCT TAP IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS. [IECC 2003-803.2.8]

d) FLEXIBLE DUCTWORK SHALL BE IN ACCORDANCE WITH UL181 AND NFPA 90A AND NFPA 90B. ALL TAKEOFFS FROM MAIN AND BRANCH DUCT SHALL BE 45° TAPS WITH VOLUME DAMPERS AS SHOWN ON THE DRAWINGS. GLASS-FLEX TYPE DUCT MAY BE USED AT ENTRANCE TO DIFFUSERS BUT MUST BE NO GREATER THAN 5'-0" IN LENGTH.

e) DUCT SUPPORTS AND HANGERS: PROVIDE HANGERS AND SUPPORTS OF STEEL SHAPES AND RODS CONFORMING TO ASTM A36/A36M, GALVANIZED IN ACCORDANCE WITH ASTM A123. HARDWARE FOR HANGERS AND SUPPORTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153/A153M. HANGERS AND SUPPORTS SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, AND SMACNA HVAC SYSTEMS DUCT DESIGN.

f) BUILDING ATTACHMENT: CONCRETE INSERTS, POWER-ACTUATED FASTENERS, OR STRUCTURAL STEEL FASTENERS APPROPRIATE FOR BUILDING MATERIALS. DO NOT USE POWDER-ACTUATED CONCRETE FASTENERS FOR LIGHTWEIGHT AGGREGATE CONCRETES OR FOR SLABS LESS THAN 4 INCHES THICK.

g) STRAPS AND ROD SIZES: CONFORM WITH TABLE 4-1 IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, FOR SHEET STEEL WIDTH AND GAUGE AND STEEL ROD DIAMETERS.

h) DUCT ATTACHMENTS: SHEET METAL SCREWS, BLIND RIVETS, OR SELF-DRILLING, SELF-TAPPING METAL SCREWS; COMPATIBLE WITH DUCT MATERIALS.

i) KITCHEN HOOD EXHAUST DUCTWORK: FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE AND NFPA 96. CONSTRUCT OF 16 GAUGE STAINLESS STEEL, USING CONTINUOUS EXTERNAL WELDED JOINTS. TYPE II EXHAUST DUCTS TO BE STAINLESS STEEL.

j) VOLUME DAMPERS: PROVIDE VOLUME DAMPERS IN DUCTS CONSTRUCTED OF 22 GAUGE GALVANIZED FOR DUCTS SMALLER THAN 11 INCHES; 20 GAUGE FOR DUCTS SMALLER THAN 21 INCHES; AND 16 GAUGE FOR DUCTS LARGER THAN 21 INCHES. PROVIDE LOCKING QUADRANTS AS REQUIRED. MANUALLY ADJUSTABLE BALANCING DAMPERS SHALL BE PROVIDED TO SUPPLY, RETURN AND EXHAUST DUCTS AT POINTS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AND IN BRANCH DUCT TO INDIVIDUAL DIFFUSERS, GRILLES, AND REGISTERS.
1. DAMPER AXLES SHALL BE CONTINUOUS SQUARE RODS NOT SMALLER THAN 3/8-INCH, WITH MACHINED ENDS AND BEARING AT BOTH ENDS.
2. SINGLE-BLADE DAMPER SHALL BE PROVIDED FOR DUCT SIZES UP TO 18 INCH; MULTIBLADE DAMPERS OF OPPOSED BLADE PATTERN SHALL BE PROVIDED FOR CUST SIZE LARGER THAN 18 INCH.

k) T-BAR CEILING SUPPLY DIFFUSER: KRUEGER MODEL 6500 OR APPROVED EQUAL.

l) T-BAR CEILING RETURN DIFFUSER: KRUEGER MODEL 6690 OR APPROVED EQUAL.

m) DUCT HEATER: WHERE ELECTRICAL HEATER ARE INSTALLED IN AIR DUCTS, THE DUCT SHALL BE INSULATED WITH NONCOMBUSTIBLE INSULATION EXTENDING IN EACH DIRECTION FROM THE HEATER. DISTANCE SHALL BE AS RECOMMENDED BY THE HEATER MANUFACTURER.

n) LINED EXPOSED EXTERIOR DUCTWORK SHALL BE 2" THICK, 1.5PCF DENSITY LINING. DUCT SIZE SHOWN ON PLAN SHALL REFER TO OUTER DIMENSIONS UNLESS SPECIFIED OTHERWISE.

o) VOLUME DAMPER MUST BE INSTALLED AT BRANCH TAKE-OFF FROM MAIN SUPPLY DUCT. PROVIDE YOUNG REGULATOR CABLES FOR ADJUSTMENT OF VOLUME DAMPERS IN HARD LID CEILING WHERE ACCESS PANELS ARE NOT PROVIDED.

SECTION 5: EQUIPMENT SUBMITTALS

SUBMITTALS FOR MECHANICAL EQUIPMENTS SHALL BE SUBMITTED TO ARCHITECT AND ENGINEER FOR APPROVAL BEFORE ORDERING SUCH EQUIPMENTS. NO EXCEPTION.

SECTION 6: TESTING

a) AFTER COMPLETION OF WORK, TESTS ON THE HVAC SYSTEMS, INCLUDING A DUCT LEAKAGE TEST, AND ON AIR BALANCE PERFORMANCE ARE REQUIRED. THE AIR QUALITY RESULTS SHOULD CONFORM WITH THE VOLUME SHOWN ON THE PLAN. PROVIDE ALL NECESSARY TESTING EQUIPMENTS AND LABORS AT NO COST TO THE OWNER.

b) THE TESTED AIR QUALITY SHOULD BE WITHIN 5% OF THE DESIGN VALUE INDICATED ON PLANS. NOTIFY ENGINEER IMMEDIATELY IF AIR QUALITY IS OUT OF THE RANGE. NO EXCEPTION.

SECTION 7: OPERATING INSTRUCTIONS

a) THE BUILDER SHALL PROVIDE THE BUILDING OWNER OR PERSON(S) RESPONSIBLE FOR BUILDING MAINTENANCE (IN CASE OF MULTI-TENANT OR CENTRALLY OPERATED BUILDINGS) AT OCCUPANCY THE FOLLOWING:

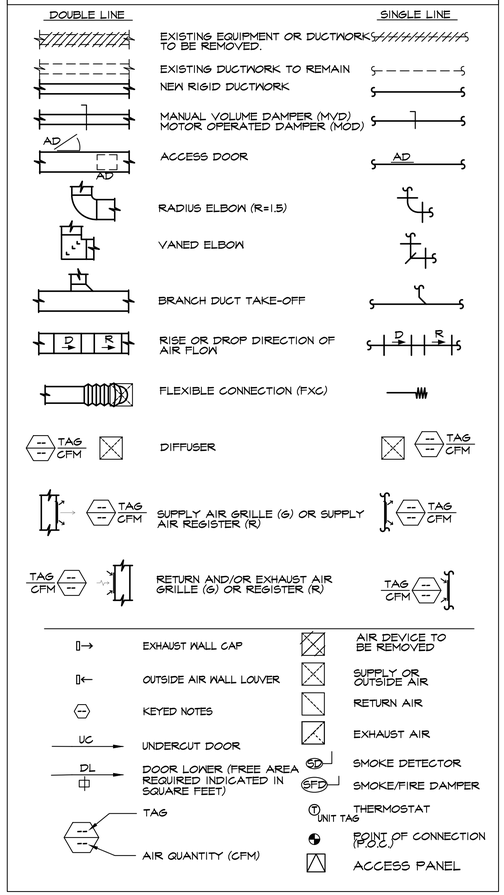
1)OPERATING INFORMATION: THE APPROPRIATE CERTIFICATE(S) OF COMPLIANCE AND A LIST OF THE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING AND INSTRUCTIONS ON HOW TO OPERATE THEM EFFICIENTLY.
2) MAINTENANCE INFORMATION: REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING THE OPERATION AND MAINTENANCE MANUAL.
3) VENTILATION INFORMATION: A DESCRIPTION OF THE QUANTITIES OF OUTDOOR AND RECIRCULATED AIR THAT THE VENTILATION SYSTEMS ARE DESIGNED TO PROVIDE TO EACH AREA.

b) CONTRACTOR SHOULD PREPARE AT LEAST THREE SETS MANUALS, COVERING
1. OIL AND LUBRICATION INSTRUCTIONS
2. PARTS SCHEDULE AND REPLACEMENT INSTRUCTIONS
3. AIR FLOW AND AIR BALANCE REPORT.

SECTION 8: WARRANTY

a) THE CONTRACTOR SHALL PROVIDE OWNER WITH A WRITTEN MINIMUM TWO (2) YEAR MANUFACTURING WARRANTY ON ALL HVAC EQUIPMENT PROVIDED AND/OR INSTALLED. THE WARRANTY SHALL INCLUDE ALL LABOR, MATERIALS, AND THREE (3) ROUTING SERVICES WITH FILTER CHANGES DURING A ONE (1) YEAR PERIOD.

DUCT WORK SYMBOLS



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NOT FOR BID

PROJECT:

Commercial Tenant Improvement
for

Cafe Bonaparte
@
219 Avenue I, Suite 200
Redondo Beach, CA 90277

MARK	DATE	DESCRIPTION
01	01/14/22	50% CD

DMA PROJECT NO: 21025.00

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CITY APPROVAL

CITY OF REDONDO BEACH
PROJECT NO: TBD

SHEET TITLE

HVAC GENERAL NOTES AND LEGENDS

M-1.0

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EXISTING SPLIT SYSTEM HEAT PUMP - OUTDOOR UNIT SCHEDULE

XHP

EQUIPMENT NO.	SERVICE	HEATING CAPACITY (BTU/HR)	HSPF/ C.O.P.	COOLING CAPACITY (BTU/HR)	SEER/ EER	ELECTRICAL	REFRIG. PIPING		MINIMUM CIRCUIT AMPS	MAXIMUM FUSE SIZE	MANUFACTURER & MODEL	OPTIONS-ACCESSORIES
						V.-PH.-CY.	LIQUID	SUCTION				
XHP 120	SEE PLAN	EXISTING 10 TON SPLIT SYSTEM CONDENSER TO REMAIN (V.I.F.)									ICP CHS121	R410 REFRIGERATION NOTE #1, #2, #3, #4, #5, #6

NOTES:
1. PROVIDE ALL REQUIRED MATERIALS & INSULATED REFRIGERANT LINES FOR COMPLETE INSTALLATION, SIZE RS/RL PIPING PER MANUFACTURERS GUIDELINES.
2. PROVIDE REQUIRED ACCESS TO INDOOR UNIT PER CMC.
3. PROVIDE PROGRAMMABLE THERMOSTAT.
4. PROVIDE CONTROL WIRING, CONDUIT, ETC. FOR A COMPLETE AND OPERABLE SYSTEM.
5. PROVIDE SECONDARY CONDENSATE DRAIN PAN FOR ALL DX COILS.
6. PROVIDE MERV 13 FILTER AT RETURN AIR PLENUM CONNECTION TO UNIT.

EXISTING SPLIT SYSTEM HEAT PUMP - INDOOR UNIT SCHEDULE

XFC

EQUIPMENT NO.	SERVICE	SUPPLY (CFM)	MIN. OSA (CFM)	E.S.P. (IN W.G.)	COOLING CAPACITY (BTU/HR.)	HEAT PUMP HEATING CAPACITY (BTU/HR.)	BACKUP ELECTR. RESIST. HEATING		ELECTRICAL		MANUFACTURER & MODEL	OPTIONS-ACCESSORIES
							KW	MBH	V.-PH.-CY.	AMPS		
XFC 120	SEE PLAN	600	--	0.5	EXISTING 10 TON SPLIT SYSTEM FANCOIL TO REMAIN (V.I.F.)						ICP FHS120HAAA2A0A	R410 REFRIGERATION OPER. WT. = 112 LBS NOTE #1, #2, #3, #4, #5, #6

NOTES:
1. PROVIDE ALL REQUIRED MATERIALS & INSULATED REFRIGERANT LINES FOR COMPLETE INSTALLATION, SIZE RS/RL PIPING PER MANUFACTURERS GUIDELINES.
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CITY APPROVAL

CITY OF REDONDO BEACH
PROJECT NO: TBD

SHEET TITLE

HVAC EQUIPMENT SCHEDULES

M-1.1

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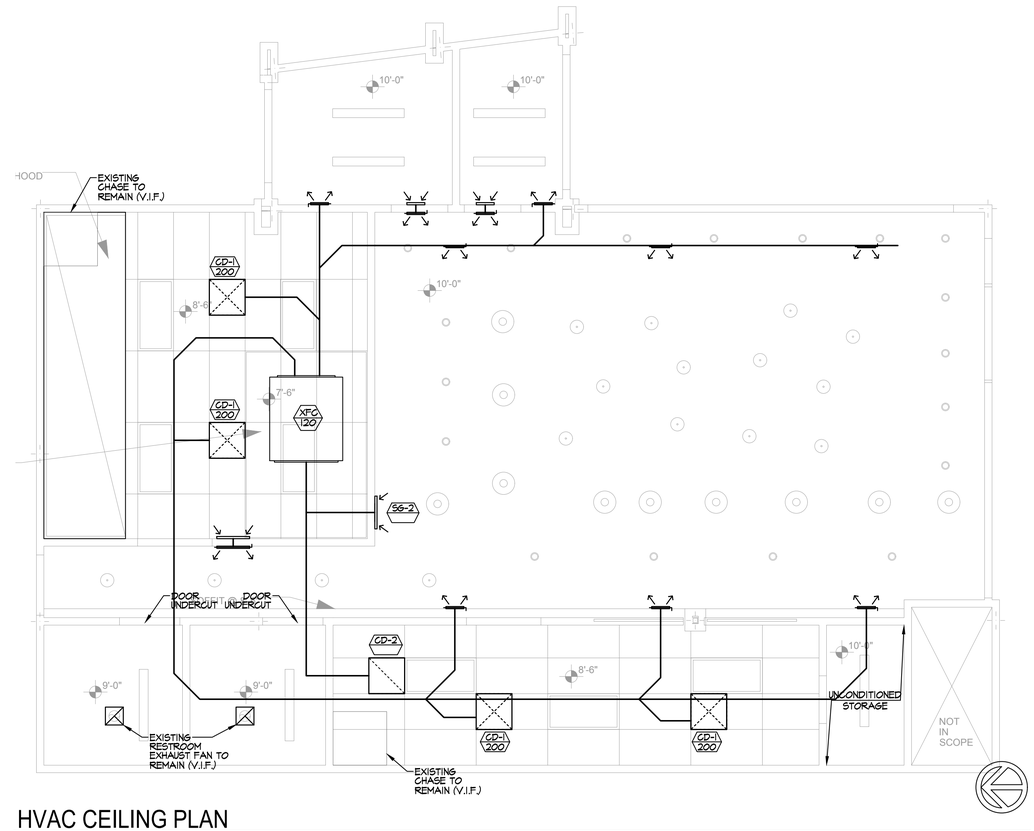

HVAC CEILING PLAN

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

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CITY APPROVAL

CITY OF REDONDO BEACH
PROJECT NO: TBD

SHEET TITLE

HVAC CEILING PLAN

M-2.0

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