MECHANICAL KEYED NOTES

1. 550 LB. CO2 TANK. TANK SHALL BE IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS. TANK MUST COMPLY WITH CHAPTER 50 AND 53 OF THE CFC. PROVIDE EMERGENCY SHUTOFF VALVE TAG ON SUPPLY LINE AND REQUIRED SIGNAGE PER NFPA REQUIREMENTS. VENT RELIEF PIPING A MINIMUM OF 10' FROM OPENINGS INTO BUILDING.
2. EMERGENCY PROCEDURES LOCATION.
3. SUPPLY PIPING, FLEX-TECH PEB FDA/NSF-51 POLYETHYLENE BEVERAGE HOSE. LABEL PIPING A MINIMUM OF EVERY 20' WITH PRODUCT DESCRIPTION AND FLOW DIRECTION. PROVIDE SLEEVE FOR OUTSIDE INSTALLATION. PIPING MUST COMPLY WITH LOCAL FIRE CODES AND ASME A13.1.
4. BAG-IN-BOX RACK BY VENDOR.
5. CO2 DETECTOR/SENSOR KIT, CO2METER MODEL RAD-0102-6, COMPLETE WITH NECESSARY CONTACTS FOR COMMUNICATION FIRE ALARM SYSTEM (AS APPLICABLE). CONTRACTOR TO INSURE COMPLIANCE. INSTALL UNIT IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS WITHIN 12" AFF. EQUIPMENT SHALL BE INSTALLED BY CO2 VENDOR OR ELECTRICAL CONTRACTOR, VERIFY WITH GC.
6. AUDIBLE/VISUAL ALARM LOCATION. MOUNT ON WALL BETWEEN 80" AND 96" AFF IN A VISIBLE LOCATION.
7. WARNING SIGN IN ACCORDANCE WITH NFPA55, SECTION 13.2.3.1 STATING "CAUTION- CARBON DIOXIDE GAS. VENTILATE THE AREA BEFORE ENTERING. A HIGH CARBON DIOXIDE (CO2) GAS CONCENTRATION IN THIS AREA CAN CAUSE SUFFOCATION." SIGN MUST BE AT LEAST 8"x6". SIGN IS PROVIDED WITH CO2 ALARM PACKAGE, AND INSTALLED BY CONTRACTOR.
8. INSTALL REMOTE READOUT MONITOR FOR CO2 SENSOR & AV ALARM, VERIFY EXACT MOUNTING HEIGHT IN FIELD.
9. CO2 TANK FILL PORT LOCATION, SHOWN FOR REFERENCE ONLY. VERIFY EXACT PIPE ROUTING IN FIELD.

SEQUENCE OF OPERATIONS

CO2 SENSOR SHALL BE CAPABLE OF TWO TIER DETECTION (15,000 PPM AND 30,000 PPM).

AT THE LOWER LEVEL, THE SYSTEM SHALL PROVIDE A LOCAL WARNING/SUPERVISORY SIGNAL WITH VISIBLE AND AUDIBLE INDICATION.

AT THE HIGHER LEVEL, CO2 SENSOR DETECTS CO2 WHICH PROVIDES AN EVACUATION SIGNAL WITH VISIBLE AND AUDIBLE INDICATION.

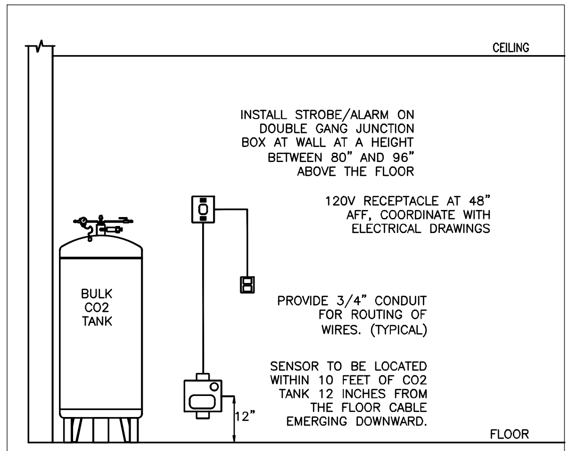
IF THERE IS A FIRE ALARM SYSTEM, CONNECT IN ACCORDANCE WITH FIRE ALARM MANAGER. EMERGENCY PLAN WILL BE INITIATED BY STAFF.

REQUIRED TESTING

INSTALLING CONTRACTOR SHALL TEST THE DETECTOR IN ACCORDANCE WITH THE MANUFACTURERS TESTING REQUIREMENTS TO VERIFY DETECTOR AND ALARMS ARE IN PROPER OPERATING ORDER.

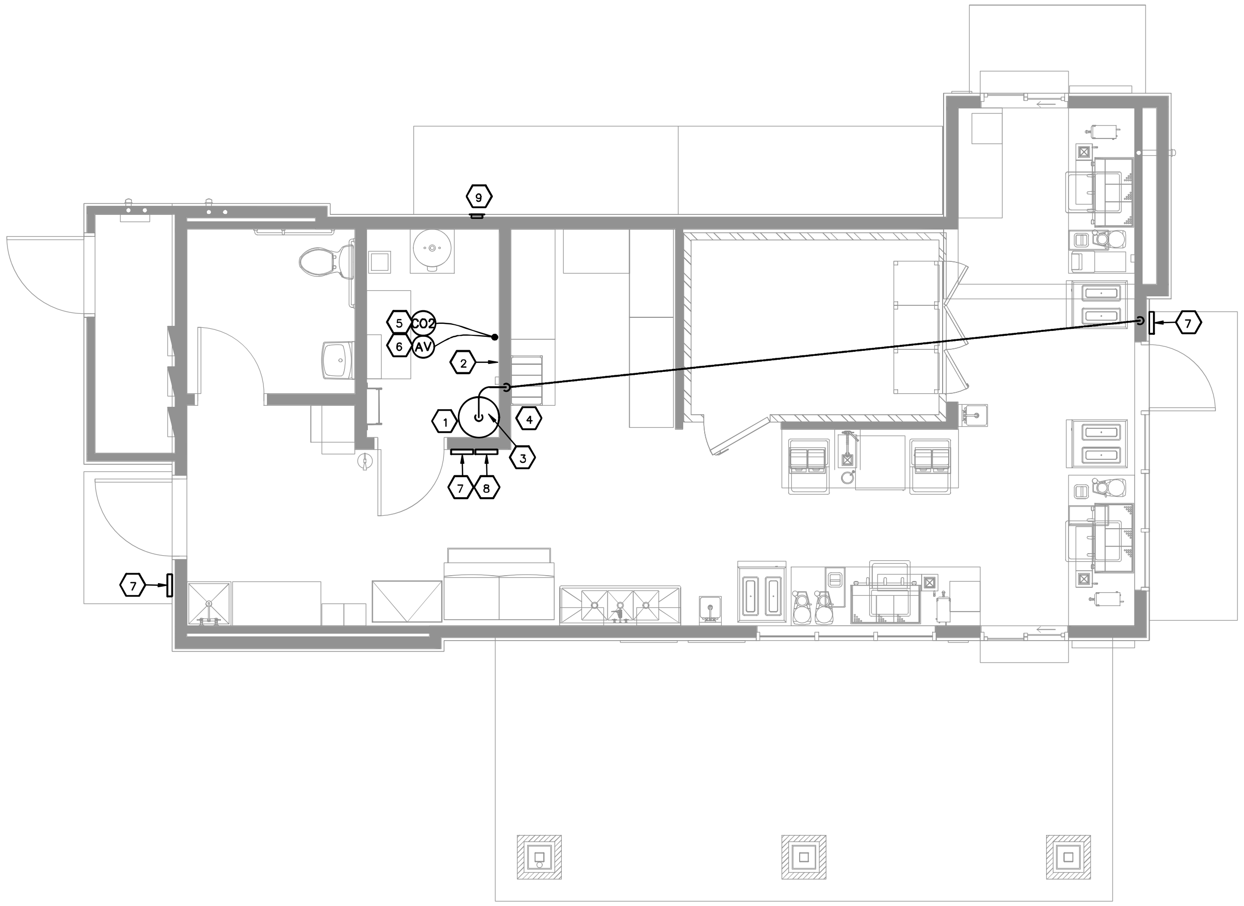
GENERAL NOTES

1. INSTALLATION SHALL BE IN COMPLIANCE WITH NFPA 55 CHAPTER 13 AND INTERNATIONAL FIRE CODE, CHAPTERS 50 AND 53.
2. PIPING AND FITTINGS TO BE LOCATED AND SUPPORTED TO PROTECT AGAINST DAMAGE.
3. THE GAS DETECTION AND ALARM SYSTEMS SHALL BE INSTALLED, INSPECTED, TESTED, CALIBRATED AND MAINTAINED PER THE MANUFACTURER'S INSTRUCTIONS OR AT A MINIMUM ANNUALLY.
4. PROVIDE EMERGENCY POWER BACK UP FOR CO2 DETECTOR TO AVOID NUISANCE TRIPS DUE TO POWER OUTAGES OR AUTOMATIC RESTART OF SYSTEMS WHEN REQUIRED BY LOCAL AHJ.



1 CO2 ALARM SYSTEM
SCALE: NONE

CO2 ALARM SYSTEM SYMBOLS LEGEND	
CO2	CO2 SENSOR @ 12" AFF.
AV	AUDIO & VISUAL ALARM LOCATION (75 db, 100 CANDELA AND NOT LABELED AS "FIRE")
▭	SIGN PER NFPA 704 & 55 SECTION 13.2, CFC 50&53.
—CO2—	CO2 PIPING



PLAN
NORTH
N

1 CO2 ALARM PLAN
1/4" = 1'-0"
0 2' 4' 8'

DUTCH BROS Coffee

CORALIC ARCHITECTURE

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MATTHEW R. CASE
No. 12200110

11.26.2024

Project No: IN0501
Dutch Bros Coffee
New Freestanding Store
1111 E MCGALLIARD RD,
MUNCIE, IN 47303
for: Dutch Bros Coffee
110 SW 4th St. Grants Pass, OR 97526

ISSUED FOR PERMIT :
11.26.2024

REV:	DATE:	DESCRIPTION:

SHEET NAME:

CO2 ALARM PLAN

SHEET NUMBER:

M1.1

MECHANICAL SYMBOLS LEGEND

Ⓣ	THERMOSTAT
Ⓢ	TEMPERATURE SENSOR
(SD)	SMOKE DETECTOR
-^^^-	FLEXIBLE DUCT
⎯⎯⎯⎤	VOLUME DAMPER
FD ■⎯⎯	FIRE DAMPER
⊠	CEILING SUPPLY AIR DIFFUSER
⊠	CEILING RETURN AIR GRILLE
═	SIDEWALL AIR DIFFUSER OR GRILLE
⎯⎯⎯	NEW DUCTWORK
⎯⎯⎯	EXISTING DUCTWORK
— D —	CONDENSATE DRAIN
— G —	GAS PIPING
⎯⎯⎯⊃	PIPE TURNING DOWN
⎯⎯⎯○	PIPE TURNING UP
—●—	BALL VALVE
—▶◀—	GATE VALVE
⊗	CONNECTION OF NEW TO EXISTING
—N—	CHECK VALVE
—⊓—	GAS COCK
—‖—	UNION
⚲	PRESSURE GAUGE
—⊻—	STRAINER
AFF	ABOVE FINISHED FLOOR
S1 100	AIR DEVICE # CFM S – SUPPLY R – RETURN E – EXHAUST

MECHANICAL KEYED NOTES

1. 24 HR, 7 DAY PROGRAMMABLE THERMOSTAT TO BE INSTALLED 48" ABOVE THE FLOOR.
2. FURNISH AND INSTALL ROOFTOP UNIT (RTU–1,2) ON ROOF. ROUTE CONDENSATE PIPING TO NEAREST ROOF DRAIN, OR THROUGH ROOF TO INDIRECTLY DRAIN ABOVE MOP SINK WHERE REQUIRED BY LOCAL AHJ.
3. FLEXIBLE AIR DUCTS SHALL BE TESTED IN ACCORDANCE WITH UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS AND SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL MECHANICAL CODE.
4. PROVIDE WALL–MOUNTED ELECTRIC AIR CURTAIN ABOVE DOOR/WINDOW. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
5. 6"ø EXHAUST DUCT OUT THROUGH ROOF. MAINTAIN MINIMUM OF 10 FEET FROM ANY OUTSIDE ARE INTAKES.
6. INSTALL OWNER–PROVIDED WALK–IN COOLER CONDENSING UNIT ON ROOF. REFRIGERANT PIPING FROM COOLER TO REMOTE CONDENSER ON THE ROOF PROVIDED BY CONTRACTOR PER MANUFACTURER'S RECOMMENDATIONS. VERIFY EXACT ROUTING AND ROOF PENETRATION LOCATION IN FIELD.
7. INSTALL OWNER–PROVIDED ICE MAKER CONDENSING UNIT ON ROOF. REFRIGERANT PIPING FROM ICE MAKER TO REMOTE CONDENSER ON THE ROOF PROVIDED BY CONTRACTOR PER MANUFACTURER'S RECOMMENDATIONS. VERIFY EXACT ROUTING AND ROOF PENETRATION LOCATION IN FIELD.
8. CONNECT AIR DEVICE RUN–OUT, SIZED PER AIR DEVICE SCHEDULE THIS SHEET, TO BOTTOM OF PLENUMIZED CURB. SEE DETAILS ON SHEET M–2.0. ALL DUCTWORK SHALL HAVE MINIMUM R–6 INSULATION.
9. FURNISH AND INSTALL REMOTE TEMPERATURE SENSOR AND RELATED WIRING TO CONNECT TO THERMOSTAT FOR HVAC UNIT. MOUNT ON WALL AT 60" AFF. VERIFY EXACT LOCATION IN FIELD.
10. UNDERCUT DOOR 1" FOR MAKEUP AIR.

NHP / NCA HVAC EQUIPMENT PACKAGE

PLAN AND SPECIFICATIONS AS PER P.E. SEAL

DUTCH BROS COFFEE HAS A NATIONAL ACCOUNT AGREEMENT WITH THE NCA GROUP. NCA SHALL VISIT THE SITE, AS AUTHORIZED, TO VERIFY ALL MATERIALS, EQUIPMENT, AND INSTALLATION ARE PER THE PROFESSIONAL ENGINEER SEAL.

FOR COMPLETE INFORMATION AND PRICING ON THE FOLLOWING PACKAGE OF EQUIPMENT AND ACCESSORIES CONTACT THE NCA GROUP MARKETING DEPARTMENT TOLL–FREE AT (877) 530–0078.

HEATING COOLING EQUIPMENT PACKAGE
INCLUDES ALL ROOFTOP (OR SPLIT SYSTEM) AIR CONDITIONING EQUIPMENT WITH ALL ACCESSORIES AS SPECIFIED ON THESE PLANS.

FAN PACKAGE
INCLUDES ALL FANS WITH ALL ACCESSORIES, INCLUDING CURBS, AS SPECIFIED ON THESE PLANS.

AIR DEVICE PACKAGE
INCLUDES ALL GRILLES, REGISTERS AND DIFFUSERS PER PLANS. SQUARE TO ROUND TRANSITIONS PROVIDED WHERE REQUIRED.

CURB PACKAGE
INCLUDES ONE–PIECE, FULLY WELDED NCA PLENUMIZED ROOF CURBS FOR ALL ROOF MOUNTED HEATING/COOLING EQUIPMENT, AND ALL FAN CURBS. ALTERNATIVES TO NCA PLENUMIZED CURBS MAY NOT BE USED.

CONTROLS PACKAGE
INCLUDES PRESET DIGITAL THERMOSTATS, THERMOSTAT WIRE, LOCKING COVERS, AND SMOKE DETECTORS WITH AUDIBLE–VISUAL DEVICES AND INSPECTOR TEST STATIONS.

NOTE: "RE–ENGINEERING" DEVIATIONS FROM THE SHOWN DESIGN AND REQUIRED HVAC EQUIPMENT MUST BE APPROVED IN ADVANCE BY THE ARCHITECT AND PROFESSIONAL ENGINEER. UNAUTHORIZED SUBSTITUTIONS OR ALTERATIONS WILL VOID THE SIGNATURE AND SEAL OF THE PROFESSIONAL ENGINEER AND LEAVE VIOLATORS RESPONSIBLE FOR RESUBMISSION OF SIGNED AND SEALED DRAWINGS

PACKAGED HVAC EQUIPMENT SCHEDULE

DESIGNATION	MFR.	TONNAGE	SEER/HSPF	MODEL	TOTAL AIRFLOW (CFM)	O.A. TOTAL AIRFLOW	TOTAL COOLING CAPACITY	SENSIBLE COOLING CAPACITY	LAT DB/WB °F	HEAT PUMP CAPACITY HIGH/LOW MBH	LAT °F	COP HIGH/LOW	SUPPLY FAN BHP	MCA	MOCP	ELECTRIC SERVICE	WEIGHT
RTU–1,2	CARRIER	3	17/8.8	50GCQJ04	1200	120	36.15	26.68	56.3/55.3	34.5/18.8	107.8	3.8/2.4	1.0	61	70	208/3/60	670

NOTES:
1. FURNISH AND INSTALL NEW ROOFTOP UNIT AND NCA PLENUMIZED CURB. TO ORDER CALL TOLL–FREE (877)–530–0078.
2. PROVIDE UNIT WITH DIFFERENTIAL ENTHALPY ECONOMIZER WITH FAULT DETECTION & DIAGNOSTICS, BAROMETRIC RELIEF DAMPER, AND MERV–8 THROWAWAY FILTERS. ECONOMIZER AND OUTSIDE AIR DAMPERS SHALL HAVE MOTORIZED DAMPERS THAT COMPLY WITH IECC REQUIREMENTS.
3. VERIFY ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
4. PROVIDE UNIT WITH ACCESSORY ELECTRIC HEATER, RATED FOR 12.0 KW @ 208V/3–PHASE.

VENTILATION FAN SCHEDULE

DESIGNATION	EF–1
APPLICATION	BATHROOM EXHAUST
MANUFACTURER	COOK
MODEL	GC–148
AIR FLOW (CFM)	75
STATIC PRESSURE	0.4
MOTOR (HP OR WATTS)	29W
WEIGHT	12
MCA	–
CONTROL NOTES	NOTES: PROVIDE FAN SPEED CONTROLLER AND BACKDRAFT DAMPER

ASHRAE 62.1 O.A. CALCULATIONS

AREA	OCCUPANCY	CFM/PERSON	SUBTOTAL	SQUARE FEET	CFM/SQFT	SUBTOTAL	TOTAL CFM (Ez = 0.8)	PROVIDED BY
PRODUCTION	9	7.5	67.50	575	0.18	103.5	213.8	RTU–1,2

AIR BALANCE SCHEDULE

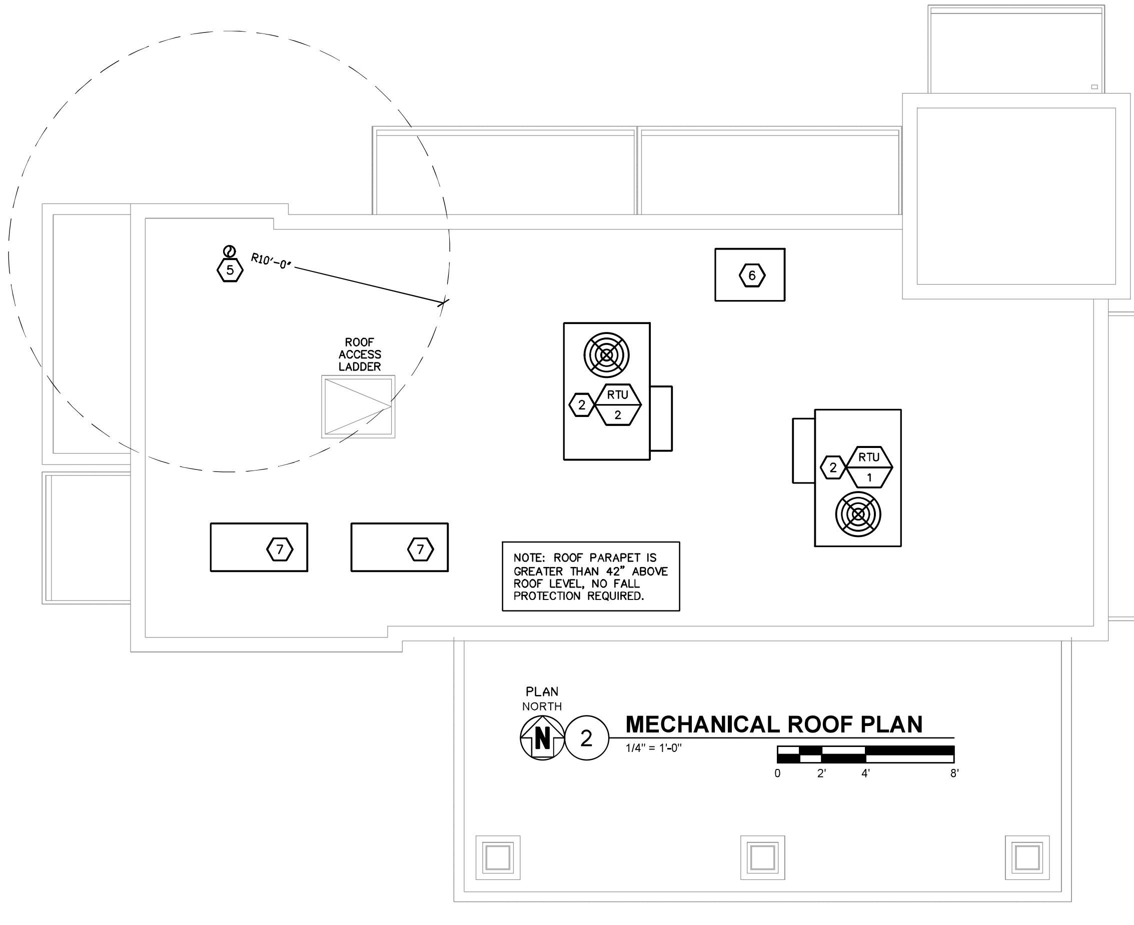
EXHAUST UNIT	EXHAUST AIR FLOW (CFM)	PROVIDED BY	O.A. FLOW (CFM)
*EF–1	75	RTU–1	120
–	–	RTU–2	120
TOTAL EXHAUST	75	TOTAL O.A.	240
* FAN TO OPERATE ON AN INTERMITTENT BASIS.			

AIR DEVICE SCHEDULE

SYMBOL	S1	S2	R1
DUCT SIZE	10"ø	6"ø	16"ø
BOOT SIZE	10"ø	6"ø	22"x22"
FACE SIZE	24"x24"	12"x12"	24"x24"
DESIGN MFG.	TITUS	TITUS	TITUS
MODEL NO	TMS	TMS	350RL
FINISH	WHITE	WHITE	WHITE

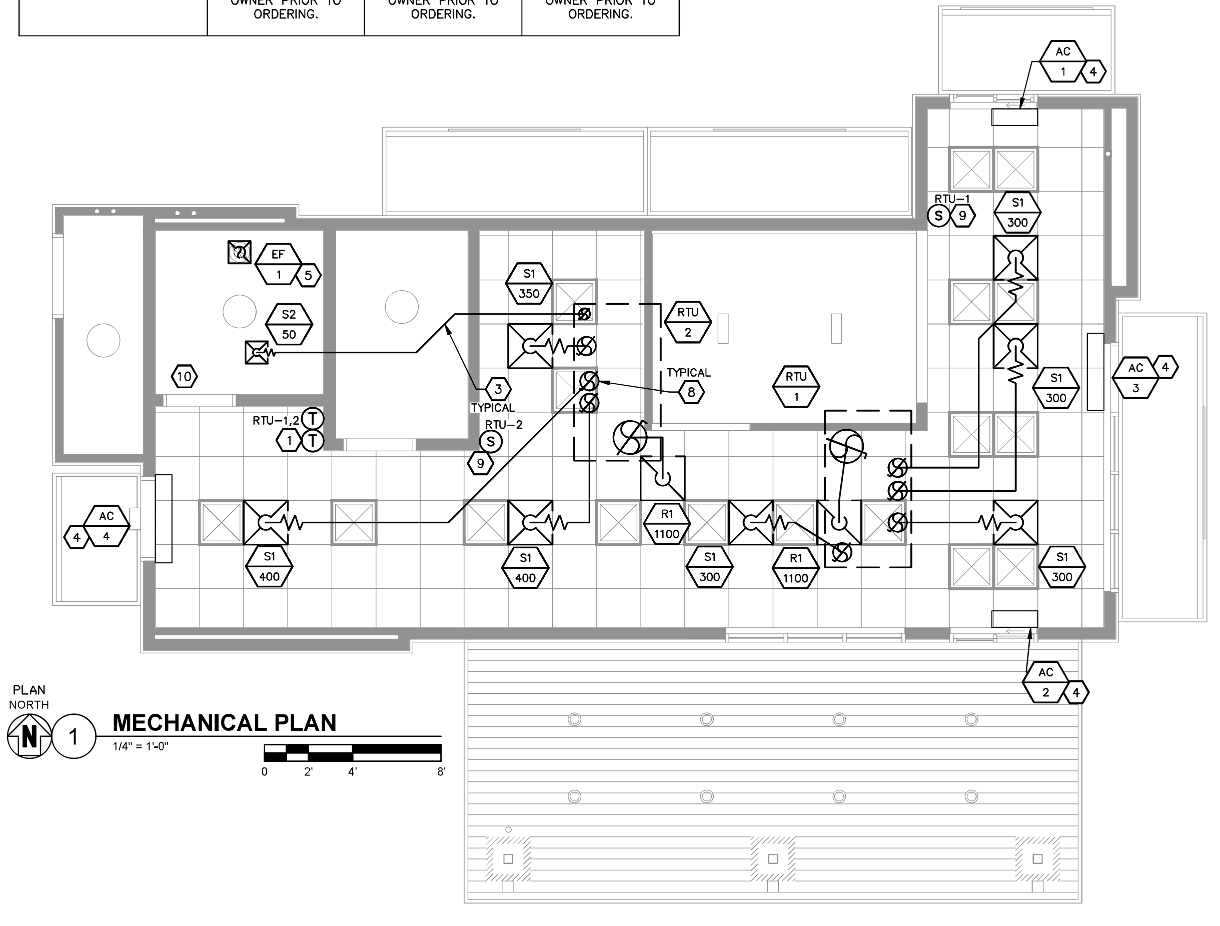
AIR CURTAIN SCHEDULE

DESIGNATION	AC–1,2	AC–3	AC–4
LENGTH	25"	42"	48"
MANUFACTURER	BERNER/QUIKSERV	BERNER/QUIKSERV	BERNER/QUIKSERV
MODEL	QSK1025AA–BK	SAN. CERT LOW–PROFILE 7	SAN. CERT LOW–PROFILE 7
VOLTAGE	120/1ø	120/1ø	120/1ø
AMPS	3.4	3.4	3.4
ACCESSORIES	PROVIDE ALL MANUFACTURER–RECOMMENDED ACCESSORIES FOR A COMPLETE OPERATIONAL SYSTEM. VERIFY EXACT SPECIFICATION WITH OWNER PRIOR TO ORDERING.	PROVIDE ALL MANUFACTURER–RECOMMENDED ACCESSORIES FOR A COMPLETE OPERATIONAL SYSTEM. VERIFY EXACT SPECIFICATION WITH OWNER PRIOR TO ORDERING.	PROVIDE ALL MANUFACTURER–RECOMMENDED ACCESSORIES FOR A COMPLETE OPERATIONAL SYSTEM. VERIFY EXACT SPECIFICATION WITH OWNER PRIOR TO ORDERING.



NOTE: ROOF PARAPET IS GREATER THAN 42" ABOVE ROOF LEVEL, NO FALL PROTECTION REQUIRED.

MECHANICAL ROOF PLAN



MECHANICAL PLAN

DUTCH BROS Coffee

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MATTHEW R. CASE
No. 12200110
11.26.2024

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Dutch Bros Coffee
New Freestanding Store
1111 E MCGALLIARD RD,
MUNCIE, IN 47303
for: Dutch Bros Coffee
110 SW 4th St. Grants Pass, OR 97526

ISSUED FOR PERMIT :
11.26.2024

REV:	DATE:	DESCRIPTION:

SHEET NAME:
MECHANICAL PLAN

SHEET NUMBER:
M1.0

CONTRACTORS NOTES:

HVAC CONTRACTOR

1. HVAC CONTRACTOR SHALL FURNISH AND INSTALL ROOF-TOP UNITS, EXHAUST FAN, DUCTWORK, INSULATION WRAP, DIFFUSERS, SMOKE DETECTORS, OCCUPIED/UNOCCUPIED PANEL, AND TEMPERATURE CONTROLS.
2. THE HVAC CONTRACTOR SHALL VERIFY LOCATIONS FOR ALL HVAC EQUIPMENT ON SITE FROM MOST-RECENT KITCHEN EQUIPMENT PLANS. ALL FANS ARE TO BE UL LISTED.
3. ALL HVAC EQUIPMENT CURBS SHALL BE SUPPLIED BY HVAC CONTRACTOR.
4. SHIMS SHALL BE PROVIDED BY HVAC CONTRACTOR BETWEEN THE ROOF DECK AND THE CURB TO COMPENSATE FOR ROOF PITCH.
5. ALL FLEX DUCT SHALL BE U.L. LISTED, R-6, FOIL-BACKED, CLASSIFIED AS A CLASS 1 AIR DUCT. MAXIMUM LENGTH IS TO BE 5' - 0" PER DROP OR PER LOCAL CODE.
6. ALL METAL DUCT AND AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH R-6, 2" X .75 DENSITY FOIL-BACKED INSULATION, WITH FIRE AND SMOKE RATING [25]-[50].
7. ALL DUCTWORK TO BE INDEPENDENTLY HUNG FROM STRUCTURAL MEMBERS.
8. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND EXTERNALLY INSULATED PER SMACNA LOW-VELOCITY DUCT MANUAL (LATEST ISSUE). INTERNALLY INSULATED DUCT IS NOT PERMITTED.
9. UNLESS OTHERWISE NOTED, ALL SUPPLY TAKEOFFS SHALL HAVE A MANUAL VOLUME CONTROL DAMPER.
10. THE HVAC CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
11. THE HVAC CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE COVERING A ONE-YEAR PERIOD FOR ALL EQUIPMENT AND AN ADDITIONAL FOUR-YEAR PERIOD FOR THE COMPRESSORS IN THE RTUS. ALL FANS TO BE U.L. LISTED.
12. UPON COMPLETION OF PROJECT THE HVAC CONTRACTOR IS TO HIRE AN AABC OR NEBB CERTIFIED, INDEPENDENT TEST & BALANCE COMPANY TO CONDUCT A COMPLETE, CERTIFIED TEST AND BALANCE OF ALL HVAC EQUIPMENT. PROVIDE A WRITTEN REPORT TO NCA CONSULTANTS. ALL CAPACITIES MUST BE SET TO AMOUNT INDICATED ON THE FLOOR PLANS AND SCHEDULES.
13. THE HVAC CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING FINAL CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, RTUS, AND SMOKE DETECTORS.

GENERAL CONTRACTOR

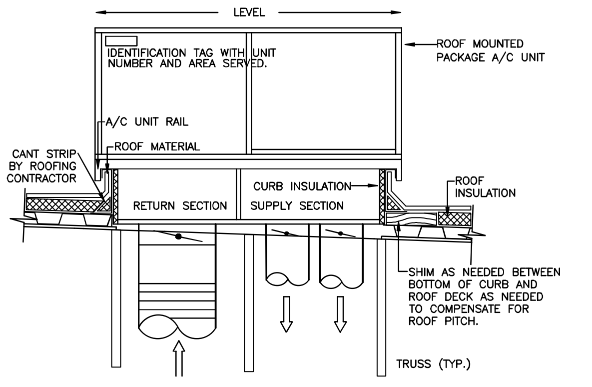
1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO RECEIVE, OFFLOAD, AND STORE ALL HVAC MATERIALS WHICH ARRIVE AT THE JOB SITE. ALL MATERIAL MUST BE STORED INSIDE THE BUILDING.
2. RTU ROOF OPENING SIZES AND ROOF CURBS ARE BASED ON EQUIPMENT SHOWN. IF OTHER EQUIPMENT IS USED, VERIFY ROOF OPENING REQUIREMENTS. MAKE PENETRATIONS AS NEEDED FOR INSTALLATION OF NEW CURB AND EQUIPMENT. COORDINATE ON SITE WITH HVAC CONTRACTOR. ENSURE THAT ROOFING MATERIAL DOES NOT COVER THE TOP OF ANY HVAC EQUIPMENT CURB.
3. ALL ROOF, CEILING, WALL, AND STRUCTURAL FRAMING FOR UNIT, FAN, DUCT, DIFFUSER, AND ALL OTHER HVAC WORK SHALL BE BY THE G.C. COORDINATE ON SITE WITH HVAC CONTRACTOR. GENERAL CONTRACTOR IS TO PROVIDE ANY SCREENING, GUARD RAILS, ETC. FOR ROOF-MOUNTED HVAC EQUIPMENT PER LOCAL ADOPTED CODES. ANY REQUIRED PAINTING OF HVAC WORK IS TO BE BY THE GENERAL CONTRACTOR.
4. IF NECESSARY, THE GENERAL CONTRACTOR IS TO REMOVE, REPLACE, AND/OR REPAIR CEILING GRID AND TILES IN ORDER FOR THE HVAC WORK TO BE PERFORMED..

ELECTRICAL CONTRACTOR

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL PITCH POCKETS FOR POWER AND CONTROL WIRING, AND IS TO MAINTAIN 12" MINIMUM CLEARANCE FROM BACK PANEL OF AIR CONDITIONING UNITS. DO NOT PENETRATE BOTTOM OF RTU CURB.
2. THE ELECTRICAL CONTRACTOR SHALL INSTALL LOW-VOLTAGE CONTROL WIRING FOR ALL AIR CONDITIONING CONTROLS.
3. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL DISCONNECTS FOR RTUS AND INTERLOCK RESTROOM FAN TO RUN CONTINUOUSLY WHILE WORK AREA LIGHTS ARE ON.
4. FOR EACH AIR CONDITIONING UNIT, THE ELECTRICAL CONTRACTOR IS TO PROVIDE ONE SINGLE-GANG RECEPTACLE TEST STATION FOR THE REMOTE SENSOR AND/OR T-STAT, AND ONE DOUBLE-GANG RECEPTACLE REST STATION FOR THE ANNUNCIATOR, WITH GREEN AND RED LIGHT INDICATORS. THE FIRE AND MECHANICAL INSPECTORS WILL DETERMINE SUITABLE LOCATION FOR TEST STATIONS. ANNUNCIATORS AND TEST STATION WILL BE LOOPED IN THE CIRCUITRY OF THE SMOKE DETECTION DEVICES. WIRING WILL BE INSTALLED BY ELECTRICAL CONTRACTOR.

PLUMBING CONTRACTOR

1. THE PLUMBING CONTRACTOR TO PROVIDE AND INSTALL CONDENSATE DRAINS/GAS PIPING FOR ALL A/C UNITS, AND PITCH POCKETS FOR RTU CONNECTIONS. DO NOT PENETRATE BOTTOM OF RTU CURB.
2. THE PLUMBING CONTRACTOR IS TO COORDINATE PLUMBING VENT STACKS AND WATER HEATER FLUES WITH OUTSIDE AIR INTAKES OF A/C UNITS. 10'-0" MINIMUM CLEARANCE REQUIRED OR PER LOCAL CODE.
3. THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL FLUE GAS EXHAUST VENT FOR WATER HEATER. MAINTAIN 10'-0" MINIMUM CLEARANCE TO AIR INTAKES, OR PER LOCAL CODE. COORDINATE ON SITE WITH G.C. AND HVAC CONTRACTOR.

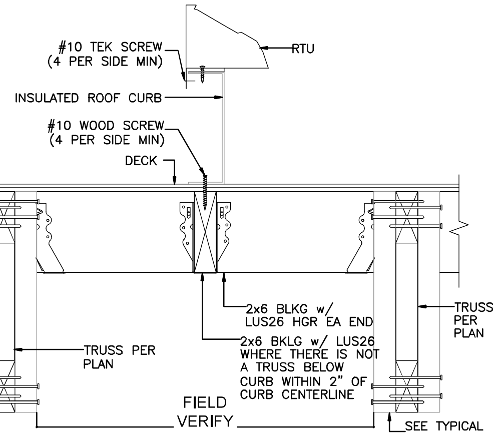


SEE FLOOR PLAN FOR CONTINUATION

NOTE: INSULATE ALL COLLARS. SEAL TO PLENUM AND FLEX INSULATION

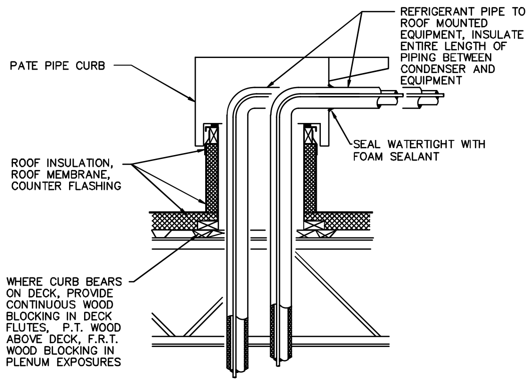
DUCT RISER/LEVELING DETAIL

NOT TO SCALE



ROOF CURB SECTION

NOT TO SCALE



REFRIGERANT PIPING DETAIL

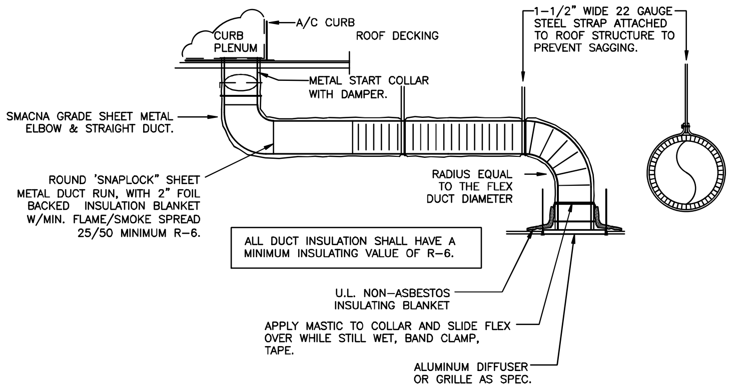
NOT TO SCALE

PLENUMIZED CURB INSTALLATION NOTES:

1. CAREFULLY LOCATE AND MARK ROOF CURB LOCATIONS SO THAT DUCT WORK CAN BE INSTALLED IN THE APPROXIMATE LOCATIONS AS SHOWN BY THE FLOOR PLAN. PAY ATTENTION TO THE LOCATION OF THE ROOF STRUCTURE IN ORDER TO ACCOMMODATE THE DUCT DROPS.
2. MARK THE EXACT LOCATION OF EACH ROOF CURB. LAY OUT ALL EQUIPMENT LOCATIONS IN ORDER TO MAINTAIN PROPER CLEARANCES FROM EXHAUST FANS AND VENTS AS WELL AS PROVIDING FOR PROPER SERVICE CLEARANCES.
3. GENERAL CONTRACTOR SHALL CUT ROOF DECKING MATERIAL TAKING CARE TO AVOID CUTTING ANY STRUCTURAL COMPONENTS. GENERAL CONTRACTOR SHALL ALSO INSTALL ANY NECESSARY FRAMING OR BLOCKING AT OPENINGS.
4. WITH ROOF CURB UPSIDE DOWN (SOLID METAL BOTTOM UP) MEASURE AND MARK THE LOCATION OF ANY JOISTS OR OTHER FRAMING MEMBERS THAT MUST BE AVOIDED. MEASURE AND MARK THE LOCATION OF ALL THE DUCT TAPS.
5. CUT ALL DUCT TAPS INTO THE BOTTOM PANEL OF THE ROOF CURB. BE CAREFUL NOT TO DAMAGE THE ROOFING SURFACE WHILE MAKING THESE CUTS.
6. INSTALL DUCT TAP FITTINGS AND MANUAL DAMPERS INTO THE OPENINGS PREVIOUSLY CUT. SEAL ALL CONNECTIONS ON BOTH THE BOTTOM AND THE TOP SIDES OF THE TAPS.
7. FLATTEN TAB OF START COLLAR INSIDE CURB, TIGHT AGAINST INSULATION. SEAL INSIDE OF COLLAR AND TABS TO INSULATION USING MASTIC DUCT SEALER. ALLOW SEALER TO DRY PRIOR TO PROCEEDING.
8. APPLY DUCT SEALER TO OPEN END OF COLLAR. SLIDE INNER CORE OF FLEXIBLE DUCT ONTO COLLAR AND CONNECT PANDUIT STRAP PER MANUFACTURER'S INSTRUCTIONS.
9. SLIDE OUTER INSULATION SLEEVE OF FLEX TIGHT TO THE BOTTOM OF CURB. SEAL INSULATION TO BOTTOM OF CURB WITH PRESSURE-SENSITIVE FOIL TAPE. DO NOT USE TAPE MEANT FOR RIGID DUCTBOARD. SQUEEGEE OUT ALL AIR BUBBLES FOR PROPER ADHESION.
10. TURN CURB RIGHT SIDE UP, LEVEL CURB BETWEEN BOTTOM OF CURB AND DECK, INSTALL IN ROOF OPENING. SECURE CURB TO ROOF FRAMING AS REQUIRED.
11. GENERAL CONTRACTOR OR ROOFING CONTRACTOR SHALL FLASH AND ROOF IN THE CURB AS DETAILED ON THE DRAWINGS.
12. INSIDE BUILDING, THE DUCT RUNS SHALL BE INSTALLED FROM THE TAPS TO THE DIFFUSER LOCATION SHOWN ON THE PLANS. SUPPORT PER SMACNA AND LOCAL CODES.
13. IF NECESSARY, FLEX DROPS MAY CONNECTED TO TAPS AFTER CURB HAS BEEN INSTALLED. REFER TO STEPS 8 AND 9.

APPLY MASTIC DUCT SEALER AT EACH JOINT OR SEAM OR CONNECTION.

SUPPORTS FOR FLEX DUCTWORK SHALL BE SPACED AT 4'-0" MAX. FLEX DUCT SHALL SAG NO MORE THAN 1/2" PER FOOT OF RUN.



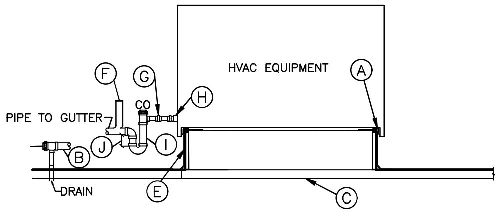
ALL DUCT INSULATION SHALL HAVE A MINIMUM INSULATING VALUE OF R-6.

DUCT SCHEDULE	
SIZE	GAUGE
6"ø - 8"ø	28
10"ø - 12"ø	26
14"ø - 16"ø	24
18"ø - 20"ø	22

DUCT SUPPORT
SUPPORT DUCTWORK WITH 1-1/2" WIDE 22 GAUGE STEEL STRAPS FIRMLY ATTACHED TO THE BUILDING STRUCTURE. SPACING SHALL BE MAXIMUM 10-0" FOR RIGID DUCTWORK, AND MINIMUM 4'-0" FOR FLEXIBLE DUCTWORK. 12 GAUGE WIRE MAY BE SUBSTITUTED FOR STRAPS IF 1-1/2" WIDE 22 GAUGE STEEL SADDLES ARE USED TO FULLY ENCIRCLE DUCT. REFER TO THE HVAC DUCT CONSTRUCTION STANDARDS PUBLISHED BY SMACNA FOR ADDITIONAL DETAILS. FULLY COMPLY WITH MECHANICAL CODES.

RIGID/FLEXDUCT CONNECTION/INSTALL DETAIL

NOT TO SCALE

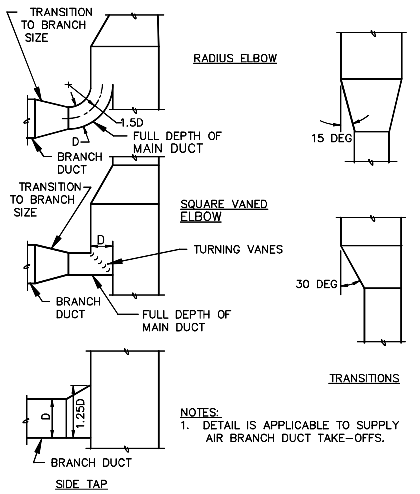


NOTES:

- Ⓐ OMIT COUNTER FLASHING FOR EQUIPMENT WITH BUILT-IN COUNTER FLASHING.
- Ⓑ PITCH DOWN TOWARD DRAIN, MIN. 1/8" PER ft.
- Ⓒ SUPPLY & RETURN DUCTS WITH INSULATED LINING AND FLEXIBLE CONNECTIONS.
- Ⓓ C.O. AT EVERY CHANGE IN DIRECTION GREATER THAN 45° AND AT MAX OF 50 INTERVALS
- Ⓔ FACTORY CURB BY HVAC.
- Ⓕ OPEN TO ATMOSPHERE.
- Ⓖ UNION
- Ⓗ DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN.
- Ⓘ CONDENSATE DRAIN TRAP WITH SUFFICIENT TRAP SEAL TO OFFSET PRESSURE AT DRAIN PAN.
- Ⓙ T.S.P. OF FAN PLUS 1" OF WATER.

RTU CURB AND PIPING DETAIL

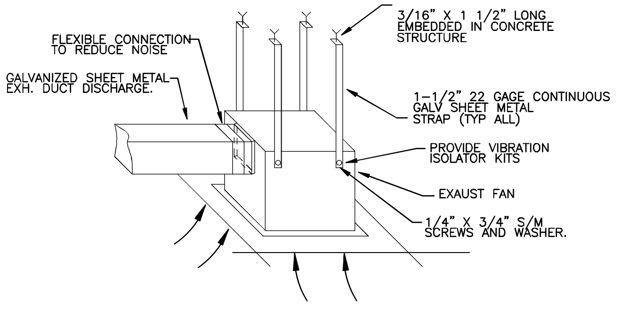
NOT TO SCALE



NOTES:
1. DETAIL IS APPLICABLE TO SUPPLY AIR BRANCH DUCT TAKE-OFFS.

BRANCH DUCT TAKEOFFS

NOT TO SCALE



BATHROOM FAN INSTALLATION DETAIL

NOT TO SCALE

DUTCH BROS Coffee

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MATTHEW R. CASE
No. 12200110
11.26.2024

Project No: IN0501
Dutch Bros Coffee
New Freestanding Store
1111 E MCGALLIARD RD,
MUNCIE, IN 47303
for: Dutch Bros Coffee
110 SW 4th St. Grants Pass, OR 97526

ISSUED FOR PERMIT :
11.26.2024

REV:	DATE:	DESCRIPTION:

SHEET NAME:
MECHANICAL DETAILS

SHEET NUMBER:
M2.0

MECHANICAL SPECIFICATIONS

WORK INCLUDED –

ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF AN OPERATING HVAC SYSTEM INCLUDING HVAC EQUIPMENT, DUCTWORK, GRILLES, REGISTERS, CONTROL AND RELATED ITEMS AS REQUIRED OR SPECIFIED. OBTAIN AND PAY FOR BUILDING PERMITS, FEES, TESTS, AND INSPECTIONS REQUIRED IN CONNECTION WITH WORK. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL GOVERNING CODES AND ORDINANCES. THE FINAL PRODUCT SHALL BE A COMPLETE WORKING SYSTEM.

GENERAL –

ALL HVAC EQUIPMENT AND ACCESSORIES SHALL BE INSTALLED AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC, AND ARE INTENDED TO CONVEY SCOPE OF WORK AND TO INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS AND PIPING. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET OR FITTINGS OR STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING INSTALLATION OF WORK. DO NOT SCALE DRAWINGS. THE LOCATION OF ALL DUCTWORK, EQUIPMENT AND RELATED ITEMS SHALL BE VERIFIED IN THE FIELD PRIOR TO FABRICATION. THE EQUIPMENT AND DUCTWORK/DIFFUSER LOCATIONS AS SHOWN ARE ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, IN SOME INSTANCES, THE EQUIPMENT ITEM MAY VARY FROM WHAT IS SHOWN. VERIFY ALL CRITICAL DIMENSIONS AND ROUGH–IN REQUIREMENTS WITH THE EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION. FAILURE OF THE CONTRACTOR TO VERIFY THESE DIMENSIONS SHALL PLACE THE RESPONSIBILITY FOR ANY SUBSEQUENT RELOCATION'S DIRECTLY UPON THE CONTRACTOR.

SUBSTITUTIONS –

IF THE CONTRACTOR DESIRES TO USE EQUIPMENT AND/OR MATERIAL OF EQUAL QUALITY OTHER THAN THAT SPECIFIED, HE SHALL HAVE REQUESTED, IN WRITING, APPROVAL OF EACH SUCH SUBSTITUTION AND RECEIVED APPROVAL PROR TO BID OPENING. A CONTRACTOR OFFERING A SUBSTITUTION SHALL ACCEPT RESPONSIBILITY FOR ITS EFFECT ON THE WORK OF ALL TRADES. THE CONTRACTOR WHO REQUESTED SUCH SUBSTITUTION SHALL PAY ALL COST AND CHANGES RESULTING FROM THE INCLUSION OF SUBSTITUTIONS.

DISCREPANCIES – IN THE EVENT THAT THE CONTRACTOR FINDS DISCREPANCIES OR OMISSIONS, OR IS IN DOUBT AS TO THE EXACT MEANING OF THE PLANS AND/OR SPECIFICATIONS, HE SHALL, BEFORE COMMENCING WORK, CONTACT THE ARCHITECT FOR CLARIFICATION.

FIRE/DRAFT STOP SURVEY –

THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS TO VERIFY THE LOCATION OF ALL FIRE AND/OR DRAFT BARRIERS IN THIS PROJECT PRIOR TO CONSTRUCTION. PROVIDE UL AND LOCAL CODE APPROVED FIRE/SMOKE DAMPERS AND MECHANICAL PIPING PENETRATION, CONSTRUCTION MATERIALS AND INSTALLATION METHODS FOR BARRIER RATING ENCOUNTERED. INCLUDE RATED ACCESS PANELS FOR EACH DAMPER. FAILURE OF THE CONTRACTOR TO VERIFY REQUIRED FIRE/DRAFT BARRIER REQUIREMENTS PRIOR TO BIDDING THESE DOCUMENTS SHALL PLACE THE RESPONSIBILITY FOR ANY SUBSEQUENT RELOCATIONS OR REVISIONS DIRECTLY ON THE CONTRACTOR.

ACCEPTABLE MANUFACTURERS –

THE FOLLOWING IS A LIST OF MANUFACTURERS WHOSE EQUIPMENT AND HVAC MATERIALS ARE ACCEPTABLE, SUBJECT TO CONFORMANCE WITH CONTRACT DOCUMENTS. VERIFY THAT THE EQUIPMENT WILL MEET ALL CAPACITIES, SPACE ALLOCATIONS, AND THAT THE WEIGHTS WILL NOT EXCEED STRUCTURAL DESIGN LOADS.
HVAC EQUIPMENT: TRANE, CARRIER, PAYNE, YORK, DAY & NIGHT, LENNOX,RUUD AND ICP COMMERCIAL
DUCT & PIPE INSTALLATION: KNAUF, OWENS–CORNING, MANVILLE, CERTAIN–TEED AND PPG
EVAPORATE COOLERS: ARVIN, GOETTL MASTER COOL, UNITED METAL PRODUCTS
MAKE–UP AIR UNITS: ARIES, REZNOR, WESTERN AND STERLING
HVAC CONTROLS: HONEYWELL, BARBER–COLMAN, ROBERTSHAW, OR HVAC EQUIPMENT SUPPLIER FURNISHED
GRILLES, REGISTERS, DIFFUSERS & LOUVERS: ANEMOSTAT, KRUEGER, METAL–AIRE, TITUS, RUSKIN AND PENN
ACCESS DOORS: MILCOR, VENTGAB AND POTTER–ROEMER
FLEXIBLE DUCT: GENFLEX, THERMAFLEX, OR EQUIVALENT
EXHAUST FANS: GREENHECK, ACME, ILG, LOREN COOK, PENN AND BROAN
SMOKE & FIRE DAMPERS: RUSKIN, PHILLIPS AND AIR BALANCE

AIR CONDITIONING UNITS –

SELF CONTAINED OR SPLIT SYSTEM: ELECTRIC/HEAT PUMP AIR CONDITIONING AND ELECTRIC RESISTANCE OR GAS HEATING SECTION. TYPE, CAPABILITIES AND RATING INDICATED ON THE DRAWINGS, ARI, AND/OR AGA CERTIFIED, UL LISTED. INCLUDE FACTORY ACCESSORIES NECESSARY TO MAKE EQUIPMENT COMPLETELY OPERATIONAL.

EVAPORATIVE COOLER UNITS –

FURNISH AND INSTALL EVAPORATIVE COOLERS. EACH UNIT SHALL BE COMPLETE WITH BLOWER AND MOTOR WITH STARTERS. PROVIDE SNAP LOCK PAD FRAMES. UNDERCOATING OF RESERVOIR, STRAINER BASKET, FLOAT KIT, WATER CONNECTION KIT, "AQUATROL" BLEED CONTROL PUMP. MODELS AND CAPACITIES AS INDICATED ON DRAWINGS, APPROVED UNITS SHALL BE CERTIFIED FOR AIR DELIVERY OR BE INCREASED IN SIZE TO MEET DESIGN STANDARDS, INCLUDE FACTORY ACCESSORIES NECESSARY TO MAKE EQUIPMENT COMPLETELY OPERATIONAL. COOLER SHALL BE CONNECTED TO A SYSTEM OF DRAINAGE TO FACILITATE THE DRAINING OF COOLER AND THE BLEED–OFF LINES. LINES SHALL BE TYPE "M" COPPER. TERMINATE DRAINAGE LINES AS INDICATED ON DRAWINGS. EVAPORATIVE COOLING EQUIPMENT SHALL BE U.L. LISTED AND MUST HAVE A PERMANENTLY ATTACHED LABEL.

HVAC EQUIPMENT DRAINS –

TO BE INSTALLED AS INDICATED OR REQUIRED. USE TYPE "M" COPPER TUBING AND WROUGHT COPPER MECHANICAL FITTINGS. EXTEND DRAINS TO NEAREST CODE APPROVED RECEPTOR, LAVATORY TAILPIECE (FURNISHED BY PLUMBER) OR DRAIN OUTSIDE IN PLANTER AREA. SLOPE DRAIN AT A MINIMUM OF 1/8" PER FT.
NOTE: INSULATE ALL CONDENSATE DRAIN LINES ABOVE CEILING.
NOTE: CONTRACTOR OPTION TO USE PVC WITH OWNERS APPROVAL. SCHEDULE 40 PVC ACCEPTABLE WHERE CONCEALED WITHIN STRUCTURE.
NO PVC PIPING ABOVE ROOF OR AT EXTERIOR OF BUILDING.

TEMPERATURE CONTROL SYSTEM –

AS INDICATED OR REQUIRED. PROVIDE THERMOSTAT AND SUB BASE, WITH HINGED AND LOCKABLE OPAQUE COVER(PUBLIC AREAS ONLY). CONTROLS SHALL BE FURNISHED AS RECOMMENDED BY HVAC EQUIPMENT SUPPLIER, SUITABLE FOR APPLICATION, UNLESS OTHERWISE INDICATED ON THE DRAWINGS. CONTRACTOR TO COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH THE ARCHITECT/OWNER.
NOTE: CONTRACTOR TO PROVIDE PROGRAMMABLE THERMOSTAT.
NOTE: THERMOSTAT TO COMPLY WITH REQUIREMENTS OF **THE IECC,** SECTION 403.2.4. HVAC SYSTEM CONTROLS.

EXHAUST FANS –

SIZE, CAPACITIES, AND TYPE AS INDICATED ON THE DRAWINGS. FURNISH COMPLETE WITH FACTORY CURBS/ROOF CAPS,BAROMETRIC DAMPER, SPEED CONTROL, DISCONNECT, STARTER (IF REQUIRED) AND BIRDSCREEN. FURNISH ROOF MOUNTED FANS WITH INSULATED ROOF CURB. PROVIDE CEILING MOUNTED FANS WITH WALL/ROOF CAP.
NOTE: ALL EXHAUST SYSTEMS MUST HAVE DAMPERS THAT ARE AUTOMATICALLY CLOSED WHILE THE EQUIPMENT IS NOT OPERATING.

GRILLES, DIFFUSERS AND REGISTERS –

SIZE, CAPACITIES, AND TYPE AS INDICATED ON THE DRAWINGS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALUMINUM TYPE FOR EVAPORATIVE COOLERS AND AREAS SUBJECT TO MOISTURE. PROVIDE EXTRACTORS BEHIND ALL SUPPLY REGISTERS.
NOTE: EACH SUPPLY AIR OUTLET OR DIFFUSER MUST HAVE ITS OWN BALANCING DEVICE. ACCEPTABLE BALANCING DEVICES INCLUDE ADJUSTABLE DAMPERS LOCATED WITHIN THE DUCTWORK, TERMINAL DEVICES AND SUPPLY AIR DIFFUSERS. EACH BALANCING DEVICE OR OTHER MEANS OF SUPPLY AIR ADJUSTMENT USED IN BALANCING SHALL BE PROVIDED WITH ACCESS.

DUCTWORK –

ALL DUCTWORK INSTALLATIONS MUST CONFORM TO REQUIREMENTS OF THE LATEST EDITION OF THE **INTERNATIONAL MECHANICAL CODE**. ALL LOW PRESSURE HEATING AND AIR CONDITIONING DUCTWORK SHALL BE FABRICATED FROM LOCK FORMING PRIME GRADE GALVANIZED STEEL SHEETS (MAKE–UP AIR DUCTWORK CONVEYING EVAPORATIVE COOLED AIR SHALL BE FABRICATED FROM ALUMINUM SHEETS), AND INSTALLED BY SKILLED MECHANICS IN STRICT CONFORMANCE WITH THE LATEST SMACNA MANUAL. CROSS BREAK ALL SIDES OF DUCTS. SUPPORT ALL DUCTWORK FROM OVERHEAD STRUCTURE WITH STRAP IRON OR ANGLES. ALL DUCT DIMENSIONS ARE NET FREE AREA AND DO NOT INCLUDE ALLOWANCE FOR INSULATION. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK MUST BE SECURELY SEALED USING WELDMENTS, MECHANICAL FASTENERS WITH SEALS, GASKETS, OR MASTICS, MESH AND MASTIC SEALING SYSTEMS, OR TAPES. TAPES AND MASTICS MUST BE LISTED AND LABELED IN ACCORDANCE WITH U.L. 181A OR U.L. 181B.

HORIZONTAL AND VERTICAL DUCT SUPPORTERS –
REFER TO **IMC**, SECTION 603.10 FOR DUCT SUPPORTS.

DUCTWORK FABRICATION –

PROVIDE CONNECTIONS BETWEEN EQUIPMENT AND DUCTWORK (DURODYNE "GRIP LOCK" OR EQUAL). PROVIDE SHEET METAL SHIELDED OVER EXPOSED JOINTS. COVER ALL JOINTS, SEAMS AND LOCKS ON INTERIOR AND EXTERIOR DUCTWORK WITH 4 OZ. CANVAS SATURATED WITH VINYL ACRYLIC DUCT SEALANT (UL LISTED, FLAME SPREAD 0) TO MAKE AIR TIGHT. WHERE DUCTS PASS THROUGH THE WALLS OR ROOF, FLASH AND COUNTER FLASH TO LEAVE WATERTIGHT INSTALLATION. PAINT ALL EXPOSED DUCTWORK TO MATCH SURROUNDING CONSTRUCTION OR AS RECOMMENDED BY ARCHITECT. PROVIDE AIRFOIL TURNING VANES ON ALL RIGHT ANGLE ELBOWS. PROVIDE VOLUME AND SPUTTER DAMPERS WHERE SHOWN ON DRAWINGS AND AS REQUIRED. FLEXIBLE DUCTWORK SHALL BE OF FLEXIBLE WIRE REINFORCED FIBERGLASS DUCT (TYPE UL, CLASS 1), AND NYLON LINER AND COVER, CONNECTORS TO BE UL APPROVED. FLEXIBLE DUCTWORK SHALL BE LIMITED TO RUN–OUTS TO DIFFUSERS OF (5) FIVE FT. OR LESS, SUPPORTED WITH STRAP HANGERS.

DUCTWORK INSULATION –

ALL ACOUSTIC LINER TO BE MINIMUM 1.5 PCF DENSITY, WITH NFPA 90A APPROVED LINER OR COATING. THERMAL INSULATION SHALL BE MINIMUM 3/4 PCF DENSITY, WITH A MAXIMUM "K" FACTOR OF 0.30 AT 75° F AND SHALL HAVE A FLAME RETARDANT FOIL–SKIMKRAFT VAPOR BARRIER (FSK), FASTENED TO DUCTWORK WITH 16 GA. WIRE @ 12" O.C. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS, AND A SMOKE DEVELOPED RATING OF 50 OR LESS. EXTERIOR HVAC DUCTWORK TO BE LINED WITH 2" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8.

INTERIOR DUCTWORK BELOW CEILING INSULATION TO BE LINED WITH 1" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8 (MIN.), OR WRAP WITH 1–1/2" FIBERGLASS DUCT WRAP, 3/4 PCF, K=0.31 AT 75° F, R=5 (MIN.) AND FLAME RETARDANT FOIL–SKIMKRAFT VAPOR BARRIER (SKF). INTERIOR SHEET METAL DUCTWORK ABOVE CEILING INSULATION TO BE LINED WITH 2" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8 (MIN.) OR WRAP WITH FIBERGLASS DUCT WRAP, 3/4" PCF, K=0.31 AT 75° F, R=5 (MIN.). COMBINATION HEATING/COOLING MAKE–UP AIR DUCTWORK CONVEYING EVAPORATIVE COOLED AIR SHALL BE INSULATED ON THE EXTERIOR WITH 1–1/2" THICK GLASS FIBER RIGID BOARD WITH ALL SERVICE JACKET (MIN. 3 PCF DENSITY, K=0.23, R=8). RIGID INSULATION ON OUTDOOR DUCTWORK SHALL BE COVERED WITH A LAYER OF OPEN WEAVE GLASS CLOTH EMBEDDED BETWEEN TWO COATS OF WEATHERPROOF MASTIC OF NOT LESS THAN 1/8" TOTAL THICKNESS. DUCTWORK CONVEYING EVAPORATIVE COOLED AIR ONLY SHALL NOT BE INSULATED

NOTE: DUCTWORK ISULATION SHALL COMPLY WITH REQUIREMENTS OF **THE IECC** AND SHALL BE INSTALLED BY LICENSED INSULATION CONTRACTOR, IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL AIR DUCTS MUST BE INSULATED TO THE FOLLOWING LEVELS:
A. SUPPLY AND RETURN AIR DUCTS FOR CONDITIONED AIR LOCATED IN UNCONDITIONED SPACES (SPACES NEITHER HEATED NOR COOLED) MUST BE INSULATED WITH A MINIMUM OF R–5. UNCONDITIONED SPACES INCLUDE ATTICS, CRAWL SPACES, UNHEATED BASEMENTS AND UNHEATED GARAGES.
B. SUPPLY AND RETURN AIR DUCTS AND PLENUMS MUST BE INSULATED TO A MINIMUM OF R–8 WHEN LOCATED OUTSIDE THE BUILDING.
C. WHEN DUCTS ARE LOCATED WITHIN EXTERIOR COMPONENTS (E.G. FLOORS OR ROOFS), MINIMUM R–8 INSULATION IS REQUIRED ONLY BETWEEN THE DUCT AND THE BUILDING EXTERIOR.

DUCTWORK INSULATION –

ALL ACOUSTIC LINER TO BE MINIMUM 1.5 PCF DENSITY, WITH NFPA 90A APPROVED LINER OR COATING. THERMAL INSULATION SHALL BE MINIMUM 3/4 PCF DENSITY, WITH A MAXIMUM "K" FACTOR OF 0.30 AT 75° F AND SHALL HAVE A FLAME RETARDANT FOIL–SKIMKRAFT VAPOR BARRIER (FSK), FASTENED TO DUCTWORK WITH 16 GA. WIRE @ 12" O.C. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS, AND A SMOKE DEVELOPED RATING OF 50 OR LESS. EXTERIOR HVAC DUCTWORK TO BE LINED WITH 2" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8.

INTERIOR DUCTWORK BELOW CEILING INSULATION TO BE LINED WITH 1" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8 (MIN.), OR WRAP WITH 1–1/2" FIBERGLASS DUCT WRAP, 3/4 PCF, K=0.31 AT 75° F, R=5 (MIN.) AND FLAME RETARDANT FOIL–SKIMKRAFT VAPOR BARRIER (SKF). INTERIOR SHEET METAL DUCTWORK ABOVE CEILING INSULATION TO BE LINED WITH 2" DUCT LINER 1–1/2" PCF, K=0.28 AT 75° F, R=8 (MIN.) OR WRAP WITH FIBERGLASS DUCT WRAP, 3/4" PCF, K=0.31 AT 75° F, R=5 (MIN.). COMBINATION HEATING/COOLING MAKE–UP AIR DUCTWORK CONVEYING EVAPORATIVE COOLED AIR SHALL BE INSULATED ON THE EXTERIOR WITH 1–1/2" THICK GLASS FIBER RIGID BOARD WITH ALL SERVICE JACKET (MIN. 3 PCF DENSITY, K=0.23, R=8). RIGID INSULATION ON OUTDOOR DUCTWORK SHALL BE COVERED WITH A LAYER OF OPEN WEAVE GLASS CLOTH EMBEDDED BETWEEN TWO COATS OF WEATHERPROOF MASTIC OF NOT LESS THAN 1/8" TOTAL THICKNESS. DUCTWORK CONVEYING EVAPORATIVE COOLED AIR ONLY SHALL NOT BE INSULATED,

NOTE: DUCTWORK ISULATION SHALL COMPLY WITH REQUIREMENTS OF **THE IECC** AND SHALL BE INSTALLED BY LICENSED INSULATION CONTRACTOR, IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL AIR DUCTS MUST BE INSULATED TO THE FOLLOWING LEVELS:
A. SUPPLY AND RETURN AIR DUCTS FOR CONDITIONED AIR LOCATED IN UNCONDITIONED SPACES (SPACES NEITHER HEATED NOR COOLED) MUST BE INSULATED WITH A MINIMUM OF R–5. UNCONDITIONED SPACES INCLUDE ATTICS, CRAWL SPACES, UNHEATED BASEMENTS AND UNHEATED GARAGES.
B. SUPPLY AND RETURN AIR DUCTS AND PLENUMS MUST BE INSULATED TO A MINIMUM OF R–8 WHEN LOCATED OUTSIDE THE BUILDING.
C. WHEN DUCTS ARE LOCATED WITHIN EXTERIOR COMPONENTS (E.G. FLOORS OR ROOFS), MINIMUM R–8 INSULATION IS REQUIRED ONLY BETWEEN THE DUCT AND THE BUILDING EXTERIOR.
EXCEPTION: DUCT INSULATION IS NOT REQUIRED ON DUCTS LOCATED WITHIN THE EQUIPMENT
EXCEPTION: DUCT INSULATION IS NOT REQUIRED WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15° F.
D. MECHANICAL FASTENERS AND SEALS, MASTICS, OR GASKETS MUST BE USED WHEN CONNECTING DUCTS TO FANS AND OTHER AIR DISTRIBUTION EQUIPMENT, INCLUDING MULTIPLE–ZONE TERMINAL UNITS.
E. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK MUST BE SECURELY SEALED USING WELDMENTS; MECHANICAL FASTENERS WITH SEALS, GASKETS, OR MASTICS; MESH AND MASTIC SEALING SYSTEMS; OR TAPES. TAPES AND MASTICS MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A–P" FOR PRESSURE–SENSITIVE TAPE, "181A–M" FOR MASTIC OR "181A–H" FOR HEAT–SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B–FX" FOR PRESSURE–SENSITIVE TAPE OR "181B–M" FOR MASTIC. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

LOW PRESSURE HVAC DUCTWORK –

(2" W.G. OR LESS): CONSTRUCT PARTITION FORMING PLENUMS OR SUCTION CHAMBERS OF #18 GAUGE WITH 1–1/2" x 1–1/2" x 3/16" GALVANIZED IRON ANGLES AND RIVETS FOR SEAM CONNECTIONS AND STIFFENING. ALL SUPPLY, RETURN AND EXHAUST DUCTS (AS NOTED) SHALL BE PRIME STEEL SHEETS HOT–DIPPED GALVANIZED OF THE FOLLOWING GAUGES:
UP TO 12" WIDE OR DIAMETER – #26
13" UP TO 30" WIDE OR DIAMETER – #24
31" UP TO 45" WIDE OR DIAMETER – #22
ALL EXHAUST DUCTWORK SHALL BE – #24

HVAC INTERLOCKS/ SMOKE DETECTORS –

PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO INTERLOCK HVAC SUPPLY AND EXHAUST SYSTEMS SPECIFIED ON THE DRAWINGS OR REQUIRED BY THE **CURRENTLY ADOPTED EDITION OF THE INTERNATIONAL MECHANICAL CODE**, FURNISH, INSTALL AND CONNECT SMOKE DETECTORS (APPROVED BY REGULATING AGENCY) ON THE RETURN SIDE OF ALL HVAC FANS EXCEEDING 2000 CFM OR AS REQUIRED PER LOCAL REGULATIONS TO SHUT DOWN FAN IF SMOKE IS DETECTED IN DUCTWORK.

SMOKE DETECTOR SHALL BE MOUNTED IN RETURN AIR DUCT. AUTOMATIC SHUT–OFF SHALL BE ACCOMPLISHED BY INTERRUPTING THE POWER SOURCE OF THE MECHANICAL UNIT UPON DETECTION OF SMOKE IN THE MAIN RETURN AIR DUCT. ACTIVATION OF ANY DETECTOR SHALL SHUT DOWN ALL UNITS WITHIN THE SYSTEM. SMOKE DETECTOR SHALL BE LABELED BY AN APPROVED AGENCY FOR AIR DUCT INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH DEVICES SHALL BE COMPATIBLE WITH THE OPERATION VELOCITIES, PRESSURES, TEMPERATURE AND HUMIDITY OF THE SYSTEM. DETECTOR SHALL BE 120 V/1Ø (OR AS DIRECTED BY THE ELECTRICAL CONTRACTOR) AND U.L. LISTED. COORDINATE AS REQUIRED PRIOR TO ORDERING AND INSTALLING. DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL. LINE VOLTAGE BY ELECTRICAL.

NOTE: IF A FIRE ALARM SYSTEM IS AVAILABLE, THE DUCT SMOKE DETECTOR(S) SHALL BE CONNECTED TO THE FIRE ALARM SYSTEM, **IMC** 606.4.1. IF A FIRE ALARM SYSTEM IS NOT AVAILABLE, PROVIDE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY SUPERVISED LOCATION TRIGGERED BY THE ACTIVATION OF A DUCT SMOKE DETECTOR. INCLUDE THE AIR DUCT DETECTOR TROUBLE INDICATOR (LED AT THE CEILING BELOW THE DUCT DETECTOR) AS REQUIRED BY **THE IMC** 606.4.1, EXCEPTION 2.

NOTE: SMOKE DETECTORS ASSOCIATED WITH SMOKE DAMPERS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR A QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR/TESTING AGENCY SHALL BE AN INDEPENDENT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL.

NOTE: IF A COMPLETE FIRE ALARM DETECTION SYSTEM IS INSTALLED IN THE BUILDING THEN SMOKE DUCT DETECTORS ARE NOT REQUIRED PER **THE IMC**, SECTION 606.2, AS LONG AS THE FIRE ALARM SYSTEM IS INTERCONNECTED TO THE MECHANICAL UNITS TO SHUT DOWN IN THE EVENT OF FIRE ALARM ACTIVATION IN ACCORDANCE WITH **THE IMC**, SECTION 606.4.

ELECTRICAL WORK –

MECHANICAL DIVISION SHALL FURNISH ALL MOTOR STARTERS REQUIRED FOR MECHANICAL EQUIPMENT, UNLESS INCLUDED AS AN INTEGRAL PART OF THE HVAC EQUIPMENT. PROVIDE SUITABLE ENCLOSURE PER NEMA STANDARDS. ALL LOW VOLTAGE (24V) CONTROL WIRING OR THERMOSTATS AND OTHER CONTROL REQUIREMENTS TO BE THE RESPONSIBILITY OF MECHANICAL CONTRACTOR. ALL LINE VOLTAGE WIRING AND CONDUIT INCLUDING LOW VOLTAGE CONTROL CONDUIT TO BE INSTALLED BY ELECTRICAL CONTRACTOR. SMOKE DETECTORS TO BE WIRED BY THE ELECTRICAL CONTRACTOR.

OUTSIDE AIR REQUIREMENTS –

LOCATE ALL OUTSIDE AIR/INTAKE AIR OPENINGS A MINIMUM OF 10'–0" FROM PLUMBING VENTS, EXHAUST FANS, AND/OR GAS FLUE VENTS. PROVIDE OUTSIDE AIR GRILLE (FILTER IF REQUIRED) AND OBD.
NOTE: MINIMUM OSA REQUIREMENTS SHALL COMPLY WITH **THE IMC**, SECTION 403.3.
A. CONTRACTOR TO BALANCE OUTSIDE AIR TO CFM SHOWN ON OUTSIDE AIR SCHEDULE.
B. CONTRACTOR SHALL PROVIDE A COPY OF AIR BALANCE TEST REPORT TO FIELD INSPECTOR PRIOR TO FINAL INSPECTION.
C. VENTILATION SYSTEMS SHALL BE BALANCED BY AN APPROVED METHOD. A BALANCE REPORT SHALL VERIFY THAT THE VENTILATION SYSTEM IS CAPABLE OF SUPPLYING AIR FLOW RATES REQUIRED BY **THE IMC**, SECTION 403.3.

SYSTEM START–UP/AIR BALANCE –

BEFORE FINAL ACCEPTANCE, CONTRACTOR SHALL DEMONSTRATE THAT ALL APPARATUS IS FUNCTIONING PROPERLY IN ACCORDANCE WITH FACTORY START–UP RECOMMENDATIONS. AIR QUANTITIES SHALL BE BALANCED FOR EVEN TEMPERATURES THROUGHOUT CONTROLS AND/OR INTERLOCKS/SMOKE DETECTORS ADJUSTED, AND THE SYSTEM PLACED INTO OPERATION. AIR BALANCE WORK SHALL BE PERFORMED BY QUALIFIED PERSONNEL LISTED WITH NEBB OR AABC. PROVIDE THE FOLLOWING START–UP BALANCE INFORMATION IN TWO (2) COPIES TO THE OWNER/ARCHITECT FOR REVIEW PRIOR TO PROJECT CLOSE: SUPPLY/EXHAUST CFM AT EACH DIFFUSER/REGISTER (USING FLOW HOOD), OUTSIDE AIR QUANTITY TO EACH HVAC UNIT, DISCHARGE/RETURN AIR TEMPERATURES AT THE HVAC UNIT (FOR BOTH HEATING AND COOLING MODE), AND THE HVAC MOTOR AMP DRAW. PROVIDE OWNER WITH WRITTEN CERTIFICATION FROM THE HVAC EQUIPMENT SUPPLIER(S) THAT ALL EQUIPMENT HAS BEEN INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. INCLUDE THE COST OF ANY ADDITIONAL OPPOSED BLADE VOLUME DAMPERS, MOTOR SHEAVES, ETC. NECESSARY TO ACHIEVE AIR QUANTITIES LISTED. INCLUDE AN EXTENDED 90 DAY WARRANTY, DURING WHICH TIME THE ENGINEER MAY REQUEST A RECHECK OR RESETTING OF ANY AIR QUALITY, OR NOT MORE THAN TWO CHANGES OF NON–ADJUSTABLE SHEAVES TO OBTAIN DESIRED AIR QUANTITIES. CONTRACTOR SHALL MAKE ANY CHANGES IN PULLEYS, BELTS, OR ADDITIONAL DAMPERS REQUIRED FOR CORRECTED AIR BALANCE AS REQUIRED BY BALANCE AGENCY AT NO ADDITIONAL COST TO THE OWNER.

INSTRUCTIONS/O &M MANUAL –

THE CONTRACTOR SHALL INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF ALL INSTALLED HVAC EQUIPMENT. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2) BOUND OPERATING AND MAINTENANCE MANUALS TO THE OWNER AT THE COMPLETION OF THE PROJECT. THE MANUAL SHALL INCLUDE: EQUIPMENT CAPACITY (INPUT AND OUTPUT), CONTROL AND/OR INTERLOCK WIRING DIAGRAMS, SEQUENCE OF OPERATION, PREVENTATIVE MAINTENANCE SCHEDULE, NAME, ADDRESS AND PHONE NUMBER OF THE LOCAL PRODUCT REPRESENTATIVE.

GUARANTEE –

ALL LABOR AND MATERIALS FURNISHED OR INSTALLED UNDER THIS SECTION SHALL CARRY A WRITTEN ONE (1) YEAR GUARANTEE BY THE MECHANICAL CONTRACTOR TO THE OWNER, COVERING MATERIALS AND WORKMANSHIP IN FULL. PROVIDE EXTENDED FIVE (5) YEARS FACTORY PARTS AND LABOR WARRANTY ON ALL AIR CONDITIONING COMPRESSORS. EXISTING HVAC EQUIPMENT, DUCTWORK AND/OR HVAC COMPONENTS REUSED IN THE JOB ARE NOT COVERED UNDER THIS WARRANTY.

MECHANICAL GENERAL NOTES

1. PRIOR TO THE CONTRACTOR ORDERING OR SETTING ANY AIR CONDITIONING EQUIPMENT, DUCTWORK OR AIR DEVICE, HE SHALL VERIFY LOCATION OF PLACEMENT WITH STRUCTURAL DRAWINGS AND CONFIRM WEIGHTS, DISCHARGE CONFIGURATION, SIZES, ELECTRICAL CHARACTERISTICS AND ANY OTHER DIMENSIONAL DATA WHICH MIGHT AFFECT THE SUCCESSFUL INSTALLATION OF THE MECHANICAL SYSTEM.

2. PROVIDE CLEARANCES AS PER MANUFACTURER'S RECOMMENDATIONS.

3. PROVIDE EQUIPMENT IDENTIFICATION AS TO THE SPACE OR AREA SERVED.

4. REFER TO ARCHITECTURAL DRAWINGS FOR ACCESS TO ROOF INSTALLED MECHANICAL EQUIPMENT.

5. PRIOR TO PENETRATION AND/OR INSTALLATION OF ANY ROOF TOP EQUIPMENT, CONTRACTOR IS TO CHECK IN WITH LANDLORD ROOF MONITOR. ALL ROOF WORK TO BE PERFORMED BY LANDLORD ROOF MONITOR CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO COMMENCING WORK.

6. FIELD COORDINATE SIZE AND PLACEMENT OF DRAIN LINES REQUIRED FOR ROOFTOP HEAT PUMPS, EVAPORATIVE COOLERS, FURNACES, HUMIDIFIERS, ETC., WITH PLUMBING CONTRACTOR TO ROUGH–IN.

7. PROVIDE VIBRATION ISOLATORS FOR ALL MECHANICAL EQUIPMENT SUPPORTED FROM STRUCTURE.

8. NOTIFY GENERAL CONTRACTOR AND/OR ARCHITECT OF ANY DISCREPANCIES PRIOR TO ROUGH–IN.

9. ALL HVAC EQUIPMENT, INCLUDING EVAPORATIVE COOLERS, SHALL BE UL, ETL AND/OR AGA LISTED.

10. PROVIDE ALL EXHAUST AIR DUCTS WITH BACKDRAFT DAMPER.

11. PROVIDE AN ELECTRICAL INTERLOCK FOR MAKE–UP AIR UNITS AND ASSOCIATED EXHAUST FANS AS REQUIRED. SEE SCHEDULES.

12. KITCHEN HOOD AND EXHAUST DUCTWORK TO CONFORM TO NFPA–96 STANDARDS AND **THE IMC** SECTION 505 FOR DOMESTIC AND SECTION 506 FOR COMMERCIAL KITCHENS.

13. SLOPE ALL HORIZONTAL EXHAUST DUCTS AT 1/4" PER FOOT TOWARDS HOOD INTAKE.

14. PROVIDE CLEAN–OUT ACCESS PANELS AS SHOWN HAVING A FIRE RESISTIVE RATING EQUAL TO SHAFT ENCLOSURE.

15. EXTERNAL WELD ALL JOINTS AND SEAMS OF ALL KITCHEN EXHAUST DUCTS.

16. MECHANICAL CONTRACTOR TO COORDINATE EXACT KITCHEN HOOD OPENINGS WITH KITCHEN CONTRACTOR PRIOR TO ANY CONSTRUCTION.

17. PROVIDE FIRE DAMPERS AT ALL PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS AND FLOOR. FIRE DAMPER AND FIRE DAMPER INSTALLATION SHALL CONFORM TO LOCAL BUILDING AND MECHANICAL CODE REQUIREMENTS AND SMACNA STANDARDS. PROVIDE WITH ACCESS DOOR AS REQUIRED.

18. FLUE AND COMBUSTION AIR DUCTS PENETRATING ROOF STRUCTURE SHALL BE ENCLOSED IN ONE–HOUR SHAFT.

19. ALL TEMPERATURE CONTROLS ARE TO BE TESTED, ADJUSTED AND CALIBRATED FOR PROPER OPERATION.

20. MOUNT ALL THERMOSTATS AT 48" THROUGH 54" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH THE ARCHITECT/OWNER. PROVIDE WITH LOCKING COVER AS REQUIRED BY THE ARCHITECT AND/OR OWNER. PROVIDE WITH PROGRAMMABLE THERMOSTAT.

21. INSTALL CLEANOUTS AT EVERY 90° TURN ON AIR CONDITIONING CONDENSATE DRAIN LINES.

22. KEEP ALL FLUES, VENTS THROUGH ROOF AND EXHAUST DUCTS A MINIMUM OF 10'–0" FROM OUTSIDE AIR INTAKES OR WINDOWS AND FROM ALL VERTICAL PORTIONS OF THE BUILDING.

23. ALL GAS VENTS SHALL BE U.L. LISTED TYPE 'B' DOUBLE WALL AS MANUFACTURED BY "METALBESTOS" OR EQUIVALENT.

24. COMBUSTION AIR DUCT OPENINGS TO BE COVERED WITH CORROSIVE RESISTANT SCREEN OF 1/4" MESH.

25. CONTRACTOR SHALL BALANCE AIR DISTRIBUTION TO WITHIN 10% OF VALUES LISTED ON DRAWINGS. CONTRACTOR SHALL PROVIDE TENANT WITH A COPY OF FINAL HVAC AIR TEST AND BALANCE REPORT FROM INDEPENDENT NEBB ORABC CERTIFIED CONTRACTOR.

26. LIGHTING LOCATIONS TAKE PRECEDENCE OVER DIFFUSER LOCATION. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS TO DIFFUSERS TO AVOID ANY CONFLICT WITH LIGHTING LAYOUT. EXACT PLACEMENT OF DIFFUSERS AND REGISTERS TO BE COORDINATED WITH ARCHITECT AND CONTRACTORS.

27. UNDERCUT ALL DOORS TO ROOMS WHERE A SUPPLY DIFFUSER EXISTS BUT NO RETURN GRILLE IS PRESENT BY A MINIMUM OF 1". THIS WILL ALLOW FOR FREE MIGRATION OF RETURN AIR.

28. COORDINATE OPENINGS FOR GRILLES, REGISTERS, DIFFUSERS, AND DUCTWORK WITH FRAMING CONTRACTOR PRIOR TO ROUGH–IN.

29. PROVIDE RADIUS ELBOWS, TURNING VANES, AND SPLITTER DAMPERS IN BRANCHES AND EXTRACTORS WHERE APPLICABLE. TURNING VANES SHALL BE INSTALLED IN ALL MITERED ELBOWS.

30. INSULATE FIRST TEN FEET (10') OF DUCTWORK WITH 1" THICK INTERNAL ACOUSTICAL INSULATION. INSULATE ALL SUPPLY AND RETURN AIR DUCTWORK, ALL EXTERIOR DUCTWORK AND OTHER DUCTWORK NOT WITHIN THE ENVELOPE OF THE AIR CONDITIONED SPACE.

31. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "ASHRAE GUIDE" AND "SMACNA STANDARDS" AND IN CONFORMANCE WITH REQUIREMENTS OF LOCAL BUILDING AND MECHANICAL CODES. WHERE MORE THAN ONE REGULATION OR CODE APPLIES, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

32. FLEXIBLE DUCTWORK SHALL COMPLY WITH THE CLASS 1 REQUIREMENTS OF THE NFPA BULLETIN NO. 90A AND SHALL BE INSULATED WITH 1" FIBERGLASS, SUPPORTED BY HELICALLY WOUND STEEL WIRE WITH REINFORCED METALIZED OUTER JACKET RATED FOR USE IN PLENUMS. ATTACHMENT SHALL BE WITH WORM DRIVE CLAMPS. LENGTH SHALL NOT EXCEED 8'–0" PROVIDE RIGID ROUND DUCTWORK FOR RUNS EXCEEDING 8'–0" IN TOTAL LENGTH.
NOTE: FLEXIBLE DUCTWORK NOT ALLOWED AT EXPOSED LOCATIONS.

33. TAPE ALL DUCT JOINTS WITH CANVAS AND ARABOL ADHESIVE.

34. DUCTWORK CONSTRUCTION AND INSTALLATION INCLUDING SHEET METAL GAUGES, REINFORCEMENT, JOINT SEALING, AIR LEAKAGE AND DETAILS NOT SPECIFICALLY SHOWN ON DRAWINGS SHALL BE IN ACCORDNACE WITH THE **CURRENTLY ADOPTED EDITION OF THE IMC** FOR LOW VELOCITY DUCT CONSTRUCTION STANDARDS.

35. ALL DUCT DIMENSIONS SHOWN ARE CLEAR DIMENSIONS INSIDE DUCT LINER.

36. TAKE–OFF FITTINGS SHALL BE BELL MOUTH SPIN–IN TYPE WITH QUADRANT DAMPER. PROVIDE VOLUME DAMPER AT EACH AND EVERY SUPPLY AIR BRANCH DUCT TAKE–OFF.

37. IF ABOVE CEILING DUCTWORK IS FABRICATED OF SHEET METAL, HANGERS SHALL BE INSTALLED AS REQUIRED BY THE **CURRENTLY ADOPTED EDITION OF THE IMC**.

38. MECHANICAL CONTRACTOR TO VERIFY THAT ALL DUCTWORK WILL FIT WHERE INDICATED WITHOUT INTERFERENCES.

39. DUCTS SHALL CONFORM TO DIMENSIONS ON THE DRAWINGS UNLESS LOCATION OF STRUCTURAL MEMBERS PROHIBIT. IN CASE OF A CHANGE IN DIMENSIONS, CROSS SECTIONAL AREAS SHALL BE MAINTAINED, AND A MAXIMUM OF 1:4 RATIO FOR RECTANGULAR DUCTS SHALL ALSO BE MAINTAINED DUCT SIZES SHOWN ARE "CLEAR INSIDE" DIMENSIONS.
NOTE: CONTRACTOR OPTION TO USE ROUND DUCT WITH THE SAME CUBIC INCH VOLUME.

40. EXHAUST DUCTS SHALL BE 26 GAUGE GALVANIZED STEEL. SEE MECHANICAL EQUIPMENT SCHEDULE OR FLOOR PLAN FOR SIZES AND TERMINATION POINT.

41. ALL "FACTORY MADE" DUCTS MUST BE CLASS "0" OR CLASS "1".

42. AIR CONDITIONING UNITS SERVING EVAPORATIVE COOLERS/MAKE–UP AIR UNITS SHALL BE FABRICATED FROM ALUMINUM SHEETS AND HAVE NO DUCT LINER.

43. ALL PENETRATIONS THROUGH DRAFT–STOPS TO BE SEALED.

44. FURNISH ALL LABOR, MATERIALS, TOOLS EQUIPMENT, TRANSPORTATION COSTS, RIGGING, FEES, PERMITS, CERTIFICATES OF INSPECTION, ETC., NECESSARY OR REASONABLE, AS REQUIRED FOR THE COMPLETE INSTALLATION OF ALL AIR CONDITIONING WORK. THE WORK SHALL BE IN STRICT ACCORDANCE WITH ASHRAE GUIDE, AND ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.

45. UPON COMPLETION AND TESTING OF AIR CONDITIONING EQUIPMENT, THE CONTRACTOR SHALL REPLACE ALL CONSTRUCTION AIR FILTERS WITH NEW FILTERS OF THE SIZED SPECIFIED BY THE MANUFACTURER.

46. THE MECHANICAL CONTRACTOR SHALL ADEQUATELY SUPPORT, ERECT AND BALANCE ALL MATERIALS AND EQUIPMENT IN CONFORMANCE WITH LOCAL CODES AND HIGH STANDARDS OF CONSTRUCTION PRINCIPLES AND PRACTICES.

47. THE CONTRACTOR SHALL DO ALL THE NECESSARY CUTTING OF WALLS AND CEILING. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT AND THE ENGINEER. PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BRING ALL SURFACES (FLOOR, WALLS AND CEILINGS) BACK TO ORIGINAL CONDITION AFTER MODIFICATIONS HAVE BEEN MADE.

48. INSTALL A COMPLETE AND WORKING MECHANICAL SYSTEM IN STRICT ACCORDANCE WITH THE **INTERNATIONAL MECHANICAL CODE** AND SMACNA STANDARDS.

49. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENFT, AIR DEVICES, PIPING, DUCTWORK, ETC., WITH PLUMBING, ELECTRICAL, STRUCTURAL, ARCHITECTURAL AND GENERAL CONTRACTOR'S DRAWINGS.

50. WORKMANSHIP: ALL EQUIPMENT APPURTENANCES, DEVICES AND PIPING SHALL BE INSTALLED IN CONFORMANCE WITH THE PROVISIONS AND INTENT OF THE **INTERNATIONAL MECHANICAL CODE.**

51. CONTRACTOR SHALL CHECK FOR PROPER OPERATION AND INSTALLATION, AND SHALL THOROUGHLY EXAMINE, CLEAN AND INSPECT ALL EXISTING EQUIPMENT PRIOR TO COMMENCING WORK. NOTIFY BUILDING OWNER OF ANY DISFUNCTIONAL EQUIPMENT IMMEDIATELY.

52. CONTRACTOR SHALL INSURE THAT ALL EXISTING MECHANICAL EQUIPMENT IS IN SATISFACTORY WORKING CONDITION SO HE MAY MAKE PROVISIONS IN HIS BID TO ACCOMODATE ANY REPAIRS AND/OR REPLACEMENTS REQUIRED.

53. CONTRACTOR MAY, AT HIS DISCRETION REUSE ANY/ALL EXISTING EQUIPMENT NOT SPECIFICALLY NOTED TO BE REMOVED OR ABANDON AS LONG AS SUCH EQUIPMENT SATISFACTORILY MEETS THE DESIGN REQUIREMENTS SET FORTH IN THESE DOCUMENTS.

54. SIZES SHOWN ON AIR DEVICES ARE MIN. SIZE REQUIRED. CONTRACTOR SHALL VERIFY ALL AIR DEVICE SIZES AND REPLACE WITH NEW SIZE AS NECESSARY. BALANCE ALL AIR DEVICES TO CFM NOTED OR AS REQUIRED TO PROVIDE EVEN TEMPERATURES.

55. VERIFY EXACT SIZE, LOCATION, ROUTING, ETC., OF ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, AIR DEVICES, THERMOSTATS, SENSORS, PIPING, ETC., WHICH ARE TO BE REMOVED, REPLACED, ABANDONED, REWORKED, ETC., AS REQUIRED AND AS SHOWN ON DRAWINGS.

56. ALL SALVAGEABLE ITEMS SHALL BE RETURNED TO THE OWNER. MECHANICAL CONTRACTOR SHALL RETURN ALL HVAC EQUIPMENT NOTED TO BE REMOVED UNDER THIS CONTRACT TO BUILDING OWNER.

57. PROJECT INVOLVES WORK IN AN EXISTING FACILITY. LAYOUT OF DRAWINGS IS DIAGRAMMATICAL AND IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING, NOR EVERY STRUCTURAL DIFFICULTY THAT WILL BE ENCOUNTERED DURING DEMOLITION/CONSTRUCTION WORK.

58. ALL PATCHING AND/OR REPAIRING OF THE EXISTING WALLS, FLOORS, CEILINGS, ETC. DAMAGED DUE TO REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

59.MECHANICAL CONTRACTOR TO VERIFY EXACT LOCATION, SIZE, AND CONDITION OF ALL EQUIPMENT, DUCTWORK, PIPING, ETC., PRIOR TO SUBMITTING A BID FOR DOING WORK ON THIS PROJECT AND REPORT ANY DISCREPANCIES TO THE ARCHITECT.

60. BEFORE BEGINNING ANY CUTTING OR DEMOLITION WORK, CONTRACTOR SHALL CAREFULLY SURVEY EXISTING WORK AND EXAMINE ALL DRAWINGS TO DETERMINE EXTENT OF THE WORK. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO INSURE AGAINST DAMAGE DUE TO EXISTING WORK TO REMAIN IN PLACE, TO BE RE–USED, OR TO REMAIN PROPERTY OF THE OWNER, AND ANY DAMAGE TO SUCH WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO OWNER. CONTRACTOR SHALL CAREFULLY COORDINATE WORK OF THIS SECTION WITH OTHER WORK AND CONSTRUCT AND MAINTAIN SHORING, BRACING, AND SUPPORTS AS REQUIRED.

61. WHERE PIPING, DUCTWORK AND/OR EQUIPMENT IS TO BE REMOVED, REMOVE ALL ASSOCIATED HANGERS, SUPPORTS, INSULATION, ETC. VALVES SHALL REMAIN WHERE APPROPRIATE AND/OR ADDED WHERE REQUIRED.

62. NEW HVAC EQUIPMENT AND AIR DEVICES ARE REQUIRED TO MATCH EXISTING. CONTRACTOR TO FIELD VERIFY MANUFACTURER AND MODEL NUMBER OF EXISTING HVAC EQUIPMENT AND EXISTING AIR DEVICES AND USE SAME TYPE FOR NEW AND RENOVATED CONSTRUCTION.

63. CONTRACTOR MAY BE REQUIRED TO REPLACE EXISTING AIR DEVICE WITH NEW AIR DEVICE AS MAY BE REQUIRED BY DIFFERENT CEILING, DIFFERENT CFM REQUIREMENTS, DAMAGED AIR DEVICE, ETC.

64. CONTRACTOR SHALL VERIFY IN FIELD THAT ALL EQUIPMENT, DUCTWORK, AIR DEVICES, ETC. FOR EACH SYSTEM SERVE THE SAME ZONE AND THAT ANY ONE SYSTEM DOES NOT SERVE MORE THAN ONE TENANT. WHERE A CONFLICT OCCURS, THE ARCHITECT SHALL BE PROMPTLY NOTIFIED AND HIS/HER DECISION SHALL BE FINAL.

65. CONTRACTOR IS TO MAKE ARRANGEMENTS WITH ANY EXISTING TENANTS PRIOR TO CONSTRUCTION FOR ALLOWABLE CONSTRUCTION TIMES WITHIN THEIR SPACE.

66. NEW EQUIPMENT AND AIR DEVICES ARE REQUIRED TO MATCH EXISTING. CONTRACTOR TO FIELD VERIFY MANUFACTURER AND MODEL NUMBER OF EXISTING EQUIPMENT AIR DEVICES AND USE SAME TYPE FOR NEW AND RENOVATED CONSTRUCTION.

67. MANUFACTURERS AND MODEL NUMBERS LISTED ARE INTENDED TO ESTABLISH A MINIMUM QUALITY AND PERFORMANCE LEVEL. SUBSTITUTIONS WILL BE EVALUATED UPON REQUEST.

68. ALL ROOF MOUNTED EQUIPMENT SHALL BE FULLY SCREENED BY PARAPET WALLS (OR APPROVED SCREENING) EQUAL TO OR GREATER THAN THE HIGHEST POINT ON THE MECHANICAL EQUIPMENT.

69. ALL ROOF MOUNTED EQUIPMENT SHALL BE PERMANENTLY MARKED IN AN APPROVED MANNER (SUNLIGHT RESISTANT) THAT UNIQUELY IDENTIFIES THE APPLIANCE AND THE AREA IT SERVES. AS REQUIRED BY **THE IMC**, SECTION 304.11.

70. HVAC SYSTEM SHOWN IS BASED ON PREVIOUS T.I. DRAWINGS AND NOT ACTUAL FIELD MEASUREMENTS OR AS–BUILT DRAWINGS.

71. REMOVE ALL EXISTING HVAC DUCTWORK AND DIFFUSERS AND REPLACE WITH NEW AS SHOWN AND AS REQUIRED.

DUTCH BROS Coffee

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11.26.2024

Project No: IN0501
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New Freestanding Store
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for: Dutch Bros Coffee
110 SW 4th St. Grants Pass, OR 97526

ISSUED FOR PERMIT :
11.26.2024

REV:	DATE:	DESCRIPTION:

SHEET NAME:
MECHANICAL SPECIFICATIONS

SHEET NUMBER:
M3.0