H.V.A.C. SYMBOLS LEGEND

- (T) – THERMOSTAT
- (S) – DUCT MOUNTED SMOKE DETECTOR WITH REMOTE AUDIBLE AND VISUAL NOTIFICATION
- – INDICATES SPIN–IN FITTING WITH MANUAL DAMPER.
- – ROOFTOP AIR SUPPLY.
- – ROOFTOP AIR RETURN.
- – CEILING AIR DIFFUSER (ROUND OR SQUARE NECK) WITH DIRECTION OF AIR FLOW INDICATED
- O.A. – FRESH AIR FROM OUTSIDE.

H.V.A.C. KEY NOTES

1. PROVIDE RETURN AIR FILTER GRILLES IN CEILING; PROVIDE DUCT TRANSITION FROM R.A. AT AHU TO SHEET METAL R.A. PLENUM.
2. CONDENSING UNIT AT REAR OF BUILDING FOR WALK–IN COOLER.
3. CONDENSATE DRAIN TO SANITARY SEWER P.C. (TYPICAL).
4. 8"X6" EXHAUST DUCT UP THRU 12" HIGH ROOF CURB TO EXHAUST DISCHARGE HOOD.
5. 21"X10" E.A. DUCT UP TO EF–2 ON ROOF. HOLD 10'–0" FROM O.A. INTAKES.
6. 18"X16" S.A. DUCT UP TO SUPPLY FAN (SF–1) ON ROOF.
7. DASHED LINE INDICATES EXHAUST FAN/SUPPLY FAN ON ROOF. REF. DRWG M–2 FOR ADDITIONAL INFORMATION.
8. INTAKE TO BE A MINIMUM OF 10'–0" FROM ALL EXHAUST.
9. THE EXHAUST OUTLET SHALL ALWAYS BE LOCATED AT THE REAR OF THE HOOD AND THE SUPPLY AIR INLET SHALL BE LOCATED AT THE SIDES OF THE HOOD. THE SUPPLY FAN SHALL BE ROTATED ON THE ROOF AS REQUIRED TO ACCOMMODATE THIS. CONTRACTOR SHALL PROVIDE OFFSETS IN THE SUPPLY AIR DUCT WHERE REQUIRED.
10. MECHANICAL CONTRACTOR SHALL COORDINATE THERMOSTAT MOUNTING LOCATION WITH CONTRACTOR INSTALLING EQUIPMENT IN THIS AREA. THERMOSTAT SHALL NOT BE LOCATED NEAR EQUIPMENT WHICH PRODUCES HEAT OR HUMIDITY. TYPICAL FOR ALL.
11. O.A. INTAKE SHALL BE A MINIMUM OF 10'–0" FROM ANY EXHAUST, GAS OR PLUMBING VENT.
12. MECHANICAL CONTRACTOR SHALL INSTALL ALL CONDENSATE DRAIN LINE CONNECTIONS FOR WALK–IN COOLER. M.C. SHALL INSTALL COMPRESSOR AND EVAPORATOR AND MAKE FINAL CONNECTIONS.
13. RESTROOM EXHAUST FAN TO BE ROOF MOUNTED AND CONNECTED TO ELECTRICAL SWITCH OPERATING LIGHTING IN KITCHEN. EF–1 TO RUN CONTINUOUSLY DURING BUSINESS DAY. PROVIDE BIRD SCREENS.
14. 24"X24" LOUVER IN BATHROOM DOOR. REFER TO ARCHITECTURAL DRAWINGS FOR DETAIL. LOUVER TO BE FURNISHED AND INSTALLED BY G.C.
15. UNIT SHALL BE EQUIPPED WITH HURRICANE RESTRAINTS.

RETURN / SUPPLY AIR DIFFUSER SCHEDULE

ITEM	MFR.	TYPE	MODEL	SIZE	NECK SIZE
A	TITUS	SUPPLY	300RL	8" X 8"	6"ø
B	TITUS	SUPPLY	300RL	8" X 10"	8"ø
C	TITUS	SUPPLY	TMS	24" X 24"	6"ø
D	TITUS	SUPPLY	TMS	24" X 24"	8"ø
E	TITUS	SUPPLY	PAS–AA	24" X 24"	14"ø
1	TITUS	RETURN	50F–A	24" X 48"	–

NOTE :
1. DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS.
2. DIFFUSERS SHALL FIT 24" X 24" LAY – IN CEILING GRID.
3. DIFFUSERS SHALL BE LOUVER FACE TYPE. WITH BAKED ENAMEL FINISH EXCEPT FOR PERFORATED DIFFUSERS IN KITCHEN AREA
4. DIFFUSERS/ GRILLES SHALL BE EQUAL TO ANEMOSTAT, CARNES, METALAIRE, TITUS
5. RA GRILLES TO BE ALUMINUM, EGG–CRATE TYPE, 1/2"X1/2" SPACING WITH WHITE FINISH.

ADDITIONAL MECHANICAL NOTES :

A. ALL SUPPLY, RETURN DUCTS AND OUTSIDE AIR DUCTS INSIDE BUILDING SHALL BE INSULATED EXTERNALLY WITH 1 1/2" THICK FIBERGLASS WITH A DENSITY OF 1.5 POUNDS PER CUBIC FOOT AND BE COMPLETE WITH VAPOR BARRIER JACKET. ALL DUCT INSULATION, TAPE COVERINGS, AND FLEXIBLE CONNECTORS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS IN ACCORDANCE WITH ASTM E84. ALL SA./RA./OA. DUCT INSULATION SHALL HAVE A MINIMUM "R" VALUE EQUAL OR GREATER THAN "R–5". ALL INSULATION SHALL MEET REQUIREMENT'S OF STATE AND LOCAL CODES AND MECHANICAL CODES.

B. ALL FLEXIBLE DUCTS SHALL BE METAL FLEX CLASS 1 TYPE 500 AIR DUCT AND SHALL BE U.L. LISTED AND HAVE 1" THICK FIBERGLASS INSULATION ENCASED IN A VAPOR BARRIER OF SEAMLESS, NON–COMBUSTIBLE, CO–POLYMER PLASTIC.

C. ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO TRUNK OR BRANCH DUCTS WITH A MINIMUM OF THREE SHEET METAL SCREWS AT EACH CONNECTION AND BE TAPED TO PROVIDE AN AIR TIGHT SEAL. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5'–0". REFER TO DETAIL.

D. FLEXIBLE DUCT HANGER STRIPS SHALL BE MINIMUM 2" WIDE BY 22 GAUGE GALVANIZED METAL.

E. ALL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT PUBLISHED SMACNA STANDARDS FOR LOW–VELOCITY, LOW–PRESSURE DUCTS.

F. ALL CONTROL WIRING SHALL BE FURNISHED AND INSTALLED BY H.V.A.C. CONTRACTOR.

G. THERMOSTATS SHALL BE HONEYWELL T–7300/Q7300 B1008 OR EQUAL WITH SHIELDED CABLE. ALL THERMOSTATS AND LOW VOLTAGE WIRING SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.

H. HOOD EXHAUST AND SUPPLY FANS SHALL BE FURNISHED WITH BIRD SCREENS. DISCONNECT SWITCHES AND HINGED BASE ON EXHAUST FAN.

I. H.V.A.C. CONTRACTOR SHALL INSTALL EXHAUST FAN AND FURNISH AND INSTALL COMPLETE EXHAUST DUCT SYSTEM. DUCTS SHALL BE INSULATED WITH MINERAL WOOL AND COVERED WITH 20 GA. STAINLESS STEEL COVER WHERE EXPOSED.

J. PAPA JOHN'S EQUIPMENT SYSTEMS (QUALSERV) TO FURNISH SUPPLY FAN AND CURB. MECHANICAL CONTRACTOR TO INSTALL SUPPLY FAN, CURB, AND DUCT SYSTEM COMPLETE.

K. PROVIDE NEOPRENE FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN DUCT CONNECTIONS ON H.V.A.C. UNITS.

L. H.V.A.C. CONTRACTOR SHALL BALANCE H.V.A.C. SYSTEM TO AIR QUANTITIES INDICATED. PROVIDE TYPED WRITTEN REPORT TO OWNER UPON COMPLETION.

M. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID TO VERIFY ALL EXISTING CONDITIONS.

N. CONTRACTOR SHALL FIELD VERIFY DUCT CLEARANCE/ SPACE FOR ROUTING DUCTS PRIOR TO SUBMITTING BID. CONTRACTOR MAY ALTER DUCT SIZING TO ACCOMODATE CLEARANCES ABOVE CEILINGS, BUT MUST MAINTAIN SAME EFFECTIVE DUCT AREA.

O. ALL WORK SHALL BE FURNISHED AND INSTALLED TO COMPLY WITH ALL STATE AND LOCAL CODES.

P. M.C. SHALL PROVIDE ALL REQUIRED DUCT TRANSITIONS FROM PIZZA OVEN HOOD CONNECTIONS TO SUPPLY AIR AND EXHAUST AIR DUCT SIZES INDICATED.

Q. MECHANICAL CONTRACTOR SHALL PROVIDE AS–BUILT DRAWINGS TO GENERAL CONTRACTOR PRIOR TO FINAL PAYMENT.

R. SMOKE DETECTORS FOR FAN SHUT–DOWN WHERE REQUIRED BY MECHANICAL CODE SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

S. ALL ROOF MOUNTED HVAC EQUIPMENT INCLUDING COOLER CONDENSING UNITS SHALL BE HELD A MINIMUM OF 10'–0" FROM THE EDGE OF ROOF.

T. ALL HOOD AND HOOD EXHAUST DUCT SUPPORTS AND HANGERS TO BE SECURED BY NON–COMBUSTIBLE SUPPORTS AND INSTALLED PER SMACNA STANDARDS AND NFPA 96.

U. TYPE 1 HOOD EXHAUST DUCT SHALL BE MINIMUM OF 16 GAUGE AND TYPE 2 HOOD EXHAUST DUCT SHALL BE MINIMUM OF 24 GAUGE WELDED CARBON STEEL PER SMACNA STANDARDS.

V. SHEET METAL SA/RA/OA/EA DUCTWORK FOR AIR HANDLING EQUIPMENT SHALL COMPLY WITH THE FOLLOWING GAUGES:

DIMENSION OF LONGEST SIDE	DUCT DIAMETER	SHEET METAL GAUGES STEEL
THRU 12"	0"–12"	26
13" TO 30"	13" TO 18"	24

W. 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 OR UL 181B.

X. MECHANICAL FASTENERS AND SEALS, MASTICS, OR GASKETS MUST BE USED WHEN CONNECTING DUCTS TO FANS OR OTHER AIR DISTRIBUTION EQUIPMENT, INCLUDING MULTIPLE–ZONE.

Y. OPERATION AND MAINTENANCE DOCUMENTATION MUST BE PROVIDED TO THE OWNER THAT INCLUDES AT LEAST THE FOLLOWING INFORMATION: a) EQUIPMENT CAPACITY (INPUT AND OUTPUT) AND REQUIRED MAINTENANCE ACTIONS. b) EQUIPMENT OPERATION AND MAINTENANCE MANUALS. c) HVAC SYSTEM CONTROL MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL DRAWINGS, AT CONTROL DEVICES, OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS. d)COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

Z. 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.

RESPONSIBILITY NOTES

1. ROOF OPENINGS FOR H.V.A.C. EQUIPMENT AND RELATED WORK SHALL BE THE RESPONSIBILITY OF THE H.V.A.C. SUBCONTRACTOR. HE SHALL EMPLOY THE LANDLORD'S ROOFER FOR THIS WORK TO MAINTAIN THE ROOF BOND.
2. THE H.V.A.C. SUBCONTRACTOR SHALL IDENTIFY ALL EXTERIOR H.V.A.C. EQUIPMENT AND APPARATUSES WITH 2" HIGH PAINTED STENCILED STORE NAME ON ALL SIDES OF THIS EQUIPEMENT.
3. IF DRAWINGS CALL FOR THE REUSE OF EXISTING EQUIPMENT, THE TENANT'S GENERAL CONTRACTOR SHALL VERIFY THAT ALL SUCH EQUIPMENT IS IN PROPER WORKING ORDER, OR TAKE THE NECESSARY STEPS TO ACCOMPLISH SUCH. IF REPLACEMENT IS REQUIRED, USE THE EQUIPMENT AND HARDWARE AS SPECIFIED ON THESE SCHEDULES OR AS CALLED OUT ON THE SPECIFICATIONS ON THIS SHEET. ALL SUCH ITEMS MUST MEET ALL GOVERNING CODES AND STANDARDS OF PRACTICE.

EXHAUST FAN SCHEDULE

MARK	MFR.	MODEL	SERVICE	CFM	S.P.	HP	VOLTAGE
EF – 1	ACME	PRN 80–1	TOILET EXHAUST	110	0.25"	1/10	115V / 1ø / 4.0A
EF – 2	CAPTIVE AIRE	NCA14FA	OVEN EXHAUST	2600	0.75"	3/4	115V / 1ø / 11.0A
SF – 1	CAPTIVE AIRE	SF–1	OVEN INTAKE	1820	0.50"	1/3	115V / 1ø / 6.8A

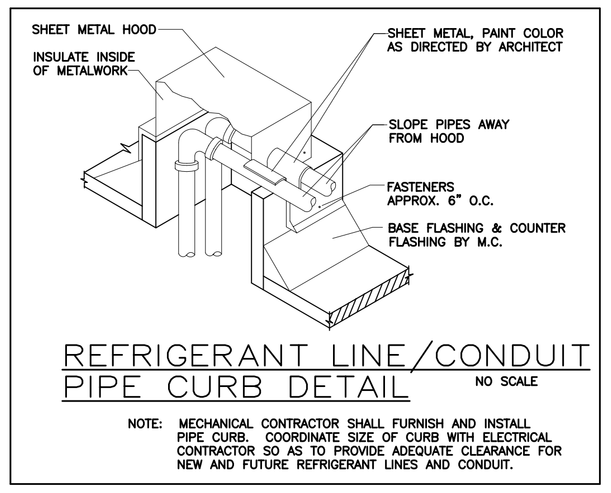
SF – 1 AND EF – 2 TO BE BALANCED TO CFM REQUIRED AND SHALL BE INTERLOCKED TO RUN SIMULTANEOUSLY. PROVIDE START/STOP SWITCH.

NOTE: SUPPLY FAN SF–1 AND EXHAUST FAN EF–2 TO BE PROVIDED BY J–TOWN EQUIPMENT CO.

EF–1 NOTES:
1. MECHANICAL CONTRACTOR SHALL PROVIDE FACTORY MATCHED ROOF CURBS, BACKDRAFT DAMPERS, BIRDSCREENS, FAN UNIT AND SOLID STATE SPEED CONTROLLERS WITH THE FAN.
2. INSURE ROOF CURBS ARE FOR USE WITH TYPE ROOF BEING PROVIDED.
3. FAN SHALL RUN CONTINUOUSLY WHILE DINING ROOM LIGHTS ARE TURNED ON.

AIR BALANCE SCHEDULE

ITEM	O.A.	R.A.	S.A	E.A.	PRESSURE
AHU–1	600	3325	3925	----	+600
AHU–2	300	1635	1935	----	+300
SF – 1	1820	----	1820	----	+1820
EF – 1	----	----	----	–100	–100
EF – 2	----	----	----	–2600	–2600
TOTALS	2720	4960	7680	–2700	+20



REFRIGERANT LINE/CONDUIT PIPE CURB DETAIL — NO SCALE

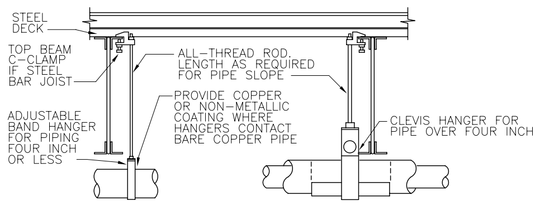
NOTE: MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL PIPE CURB. COORDINATE SIZE OF CURB WITH ELECTRICAL CONTRACTOR SO AS TO PROVIDE ADEQUATE CLEARANCE FOR NEW AND FUTURE REFRIGERANT LINES AND CONDUIT.

AHU SCHEDULE

NO.	TOTAL BTU	CFM	O.A.	HEAT	ELECTRICAL VOLTAGE	ELECTRICAL MCA	ELECTRICAL CKT BRKR	COMMENTS
1	120,000 10 TON	3,725	600	10KW	208V, 3ø	35.4	PNL A #1,3,5	
2	60,000 5 TON	2,000	300	11.3KW	208V, 3ø	45	PNL A #7,9,11	

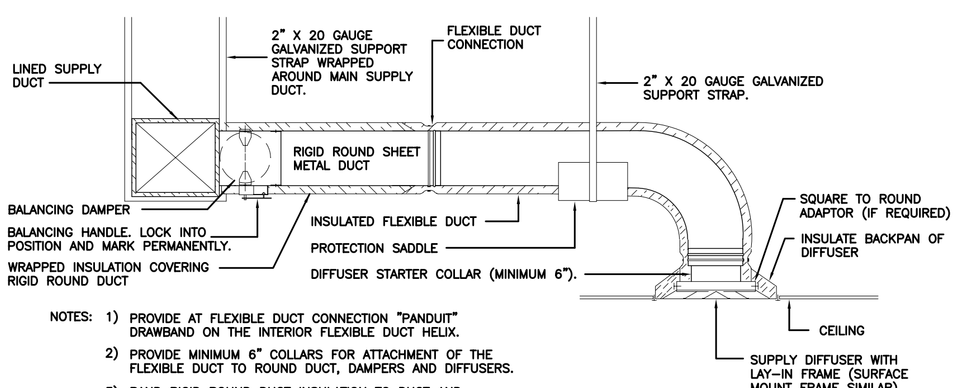
CONDENSING UNIT SCHEDULE

NO.	TOTAL BTU	ELECTRICAL VOLTAGE	ELECTRICAL MCA	ELECTRICAL CKT BRKR	COMMENTS
1	120,000 10 TON	208V, 3ø	58.8	MDP #2,4,6	
2	60,000 5 TON	208V, 3ø	22.9	MDP #1,3,5	



PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. HANGER SPACING FOR PIPE SIZE: COPPER: 4"=12' 3"=11' 2–1/2"=10' 2"=9' 1–1/2"=8' 1–1/4"=7' 1"=6' 3/4"=6' 1/2"=5'. CAST IRON: 10' AND ONE NEAR ALL JOINTS. STEEL: 4"=14' 3"=12' 2–1/2"=11' 2"=10' 1–1/2"=9' 1"=7' 3/4"=6' 1/2"=5'. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED.LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.

Pipe Hangers
Scale: Not To Scale

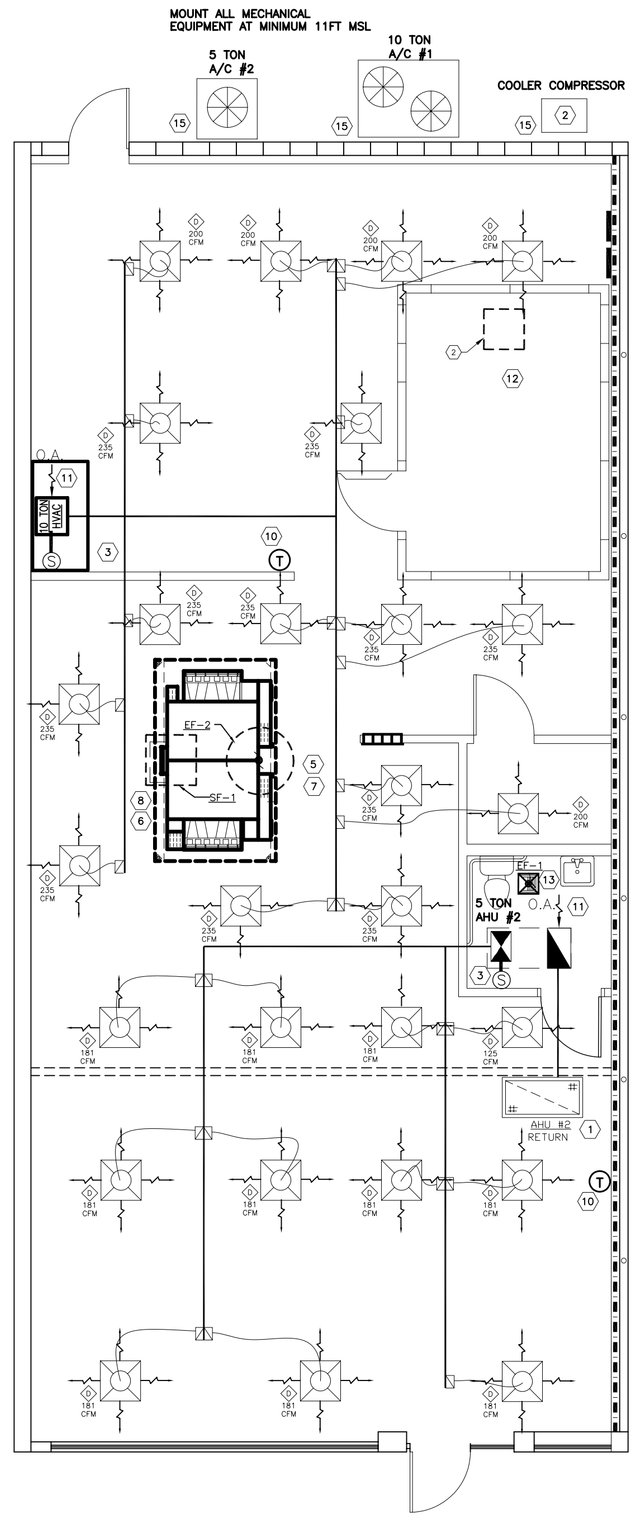


NOTES: 1) PROVIDE AT FLEXIBLE DUCT CONNECTION "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX.
2) PROVIDE MINIMUM 6" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO ROUND DUCT, DAMPERS AND DIFFUSERS.
3) BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.

DIFFUSER CONNECTION DETAIL–FLEX DUCT
N.T.S.

MECHANICAL NOTES:

1. CONTRACTORS AND SUB–CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.
2. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATER WITH THE WORK. OBTAIN ALL INSPECTONS REQUIRED BY CODE.
3. USE OF COMBUTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE PLENUM SHALL BE PLENUM RATED.
4. CONTRACT LANDLORD APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ROOF PENTRATIONS TO MAINTAIN ROOFING WARRANTY.
5. ALL ROOF PENETRATIONS MUST BE APPROVED BY THE LANDLORD PRIOR TO INSTALLATION.
6. EXPOSED DUCTWORK TO BE GALVANIZED SHEET METAL PER SMACA STANDARDS. LINE WITH NEOPRENE COATED 1.0", 1.5 POUNDS PER CUBIC FOOT DUCT INSULATION.
7. ROUND FLEXIBLE DUCT TO BE UL–181, CLASS I, AIR DUCT MATERIALS.
8. DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
9. IN ALL AIR DISTRIBUTION SYSTEM OVER 2,000 CFM, SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPAs 72 & 90A IN THE DUCT SYSTEM DOWNSTREAM OF THE AIR FILTERS AND AHEAD OF ANY BRANCH CONNECTIONS IN THE AIR SUPPLY SYSTEM. THE SMOKE DETECTOR SHALL BE CONNECTED TO ANY REQUIRED ALARM SYSTEM OR IN THE ABSENCE OF AN ALARM SYSTEM IT SHALL CAUSE A VISUAL AND AUDIBLE SIGNAL IN A NORMALLY OCCUPIED AREA.
10. PROVIDE U.L. LISTED 125 F FIRESHOT IN RETURN AIR OF EACH SYSTEM UNDER 2,000 CFM TO SHUT DOWN FAN IN THE EVENT OF FIRE.
11. PROVIDE U.L. RATED FIRE DAMPERS WHERE REQUIRED AT ALL DUCT PENETRATIONS OF FIRE–RATED ASSEMBLIES AND WHERE REQUIRED BY CODE, INCLUDING OUTSIDE AIR INTAKES.
12. ALL AIR HANDLING SYSTEMS TO BE BALANCED TO ASSURE PROPER AIR FLOWS PER PLANS.
13. EXHAUST FAN EQUAL TO BROAN MODEL NO. 100 CF. OR EQUAL. FAN SHALL BE CONTROLLED BY SWITCH ON WALL AT LIGHT SWITCH. PROVIDE BACK DRAFT DAMPER.
14. PROVIDE AND INSTALL WATER PROOF GRILLE VENT ON ROOF FOR TOILET EXHAUST.
15. ALL ELECTRICAL, MECHANICAL AND PLUMBING PENETRATING FIRE PARTITIONS SHALL BE FIRE CAULKED. (PENETRATIONS THROUGH RATED CONSTRUCTION SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN TESTED IN ACCORDANCE WITH ASTM–E814.)



MECHANICAL PLAN
SCALE: 3/16" = 1'–0"

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PAPA JOHN'S PIZZA TENANT BUILDOUT

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70458

MECHANICAL PLAN

REV:

SCALE: AS NOTED
JOB#: 2119
DATE: 8/12/2011
SHEET 5

M–1

OF 10