

HVAC PLAN
SCALE: 1/8" = 1'-0"
NORTH

MECHANICAL VENTILATION CALCULATIONS
BASED ON THE 2015 INTERNATIONAL MECHANICAL CODE

ZONE	OCCUPANCY CATEGORY	DOAS / SZ / MZ	AREA (sf)	PEOPLE OA RATE (cfm/per)	AREA OA RATE (cfm/sf)	OCCUPANT DENSITY (#/1,000 sf)	OCCUPANTS	BREATHING ZONE OA FLOW Vol (cfm)	ZONE AIR DISTRIBUTION EFF. Ez	ZONE OA FLOW Vol (cfm)	SYSTEM VENTILATION EFF. Ev	OA INTAKE FLOW REQUIRED Vol (cfm)
SALES	SALES	SZ	7536	75	0.12	15	113	1753	0.8	2191	N/A FOR SINGLE ZONE	2191
STOCK	SHIPPING & RECEIVING	SZ	1341	0.0	0.12	0	0	161	0.8	201	N/A FOR SINGLE ZONE	201
TOTAL			8874				113	1914		2392		2392

GENERAL MECHANICAL NOTES

- EXISTING HVAC TO REMAIN. REVISE DUCTWORK AND DISTRIBUTION SYSTEM AS REQUIRED BY NEW PLAN. PROVIDE SHOP DRAWINGS AS REQUIRED BY THE BUILDING DEPARTMENT.
- CONTRACTOR SHALL SERVICE EXISTING AIR-CONDITIONING SYSTEM COMPLETELY INCLUDING, BUT NOT LIMITED TO, CLEANING INTERIOR AND EXTERIOR OF ALL COMPONENTS, TOUCH-UP PAINTING, REPLACING AIR FILTERS, INSPECTING AND REPLACING FAN BELTS (IF REQUIRED), CHECKING EVAPORATOR AND CONDENSER FANS AND FAN MOTORS, CLEANING AND COMBING EVAPORATOR AND CONDENSER COILS, CHECKING AND TRIMMING REFRIGERANT CHARGE, CHECKING COMPRESSOR AMP DRAW, INSPECTING HEAT EXCHANGER (OR HEAT STRIPS AND/OR REVERSING VALVE AS REQUIRED), INSPECTING AND VERIFYING OPERATION OF GAS TRAIN, CHECKING DAMPER OPERATION AND DAMPER MOTORS, CLEANING CONDENSATE TRAP, ETC., TO INSURE PROPER OPERATION. SHOULD ANY REPAIRS BE REQUIRED, CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE AND SUBMIT A WRITTEN COST PROPOSAL INCLUDING COMPLETE COST TO PLACE UNIT IN "LIKE NEW" CONDITION AND TIME ESTIMATE TO COMPLETE REPAIRS.
- VERIFY HVAC IS IN THE OFFICE, STOCKROOM, TOILET AND CORRIDOR AND EXTEND SYSTEM AS REQUIRED. FOR THE OFFICE, PROVIDE "TITUS" TMSA 24" X 24" DIFFUSER, WITH A 12" Ø NECK, LOCATED DIRECTLY ABOVE THE OFFICE. ADJUST FOR FULL VERTICAL DISCHARGE INTO THE OFFICE AREA.
- INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY PRECAUTIONS AND PROCEDURES.
- COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.
- REFER TO ATTACHED ENERGY MANAGEMENT DRAWINGS FOR ADDITIONAL WORK ON TENANT SUPPLIED ENERGY MANAGEMENT SYSTEM. CONTRACTOR SHALL REFER TO THE TEMPERATURE SENSOR MOUNTING DETAIL FOR PLACEMENT & INSTALLATION INSTRUCTIONS PRIOR TO INSTALLING.

MECHANICAL NOTES (WHERE REQUIRED)

- INSTALL ALL HVAC EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS, INCLUDING REQUIRED MAINTENANCE CLEARANCES, PIPING, DUCTWORK AND CONDENSATE ROUTING SHALL NOT BLOCK REQUIRED ACCESS TO EQUIPMENT DOORS OR PANELS.
- FABRICATE NEW DUCTWORK FROM MILL GALVANNED SHEET, MATERIAL GAUGES, FABRICATION DETAILS, INSTALLATION AND DUCT SUPPORT SHALL BE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARD. DETAIL ALL JOINTS PER SMACNA STANDARDS.
- THE INDICATED DUCT ROUTING AND SIZES ARE DIAGRAMMATIC. DO NOT FABRICATE FROM THESE DRAWINGS. FIELD VERIFY DUCT ROUTING AND AVAILABLE CLEARANCES. WHEN REQUIRED BY FIELD CONDITIONS, DUCTWORK MAY BE RESIZED UTILIZING AAS/SMACNA EQUIVALENT SIZES. NOTIFY ENGINEER AND OBTAIN APPROVAL FOR REQUIRED ROUTING AND SIZES CHANGES PRIOR TO BEGINNING FABRICATION.
- SMACNA EQUIVALENT ROUND DUCT OR RECTANGULAR DUCT SIZES MAY BE SUBSTITUTED FOR THE DUCT SIZES INDICATED ON THE PLANS. RECTANGULAR SUBSTITUTIONS SHALL MAINTAIN A MINIMUM OF 3:1 ASPECT RATIO.
- NEW ROUND SUPPLY DUCTWORK SHALL BE INTERNALLY INSULATED WITH 1/2 INCH THICK DUCT LINER, MINIMUM R-6 INSIDE CONDITIONED BUILDING ENVELOPE. EXHAUST DUCTWORK OUTSIDE BUILDING ENVELOPE SHALL BE PROVIDED WITH 2 INCH THICK DUCTWORK, MINIMUM R-8. INSULATION SHALL HAVE A FIRE SMOKE RATING OF 25/50. EXHAUST DUCT DOES NOT REQUIRE INSULATION.
- INSULATED FLEXIBLE DUCT SHALL BE UL LISTED, CONSTRUCTED OF A CPE INNER LINER, COATED SPRING STEEL WIRE HELIX WITH FIBERGLASS BLANKET AND VAPOR BARRIER EQUAL TO THERMAFLEX 6-KM BY FLEXIBLE TECHNOLOGIES. INSULATION SHALL HAVE A FIRE/SMOKE RATING OF 25/50.
- MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 5 FEET, UNLESS OTHERWISE NOTED.
- SECURE FLEXIBLE DUCT CONNECTIONS WITH STAINLESS STEEL WORM GEAR CLAMPS AND DUCT TAPE.
- TENANT'S CONTRACTOR SHALL INSTALL TENANT PROVIDED CO2 SENSOR ON COLUMN, AT 6'-0" A.F.F. SEE EMS DRAWINGS FOR MORE INFORMATION.

DEMAND CONTROLLED VENTILATION

- TENANT'S CONTRACTOR SHALL REVIEW THE LANDLORD'S MECHANICAL DRAWINGS FOR THE CODE REQUIRED OUTSIDE AIR VALUE OR MAXIMUM OUTSIDE AIR SETTINGS. IN THE EVENT THE TENANT'S CONTRACTOR IS UNABLE TO OBTAIN THE LANDLORD'S MECHANICAL DRAWINGS, THE TENANT'S CONTRACTOR SHALL ADJUST THE PROVIDED EQUIPMENT TO DELIVER THE TOTAL OUTSIDE AIR SETTINGS TO DELIVER THE INDICATED VENTILATION AIR PER SCHEDULE WITH A NOMINAL MAXIMUM OF 25% RATION OF VENTILATION AIR TO TOTAL SUPPLY AIR PER UNIT. CONTRACTOR SHALL SET MINIMAL OUTSIDE AIR FOR DEMAND CONTROL TO APPROXIMATELY 30% OF THE TOTAL REQUIRED VENTILATION AIR PER UNIT.

EXAMPLE:
5-TON UNIT - NOMINAL 2000 CFM TOTAL SUPPLY AIR - 150/500 OUTSIDE AIR MIN/MAX CFM.
8.5-TON UNIT - NOMINAL 3400 CFM TOTAL SUPPLY AIR - 255/850 OUTSIDE AIR MIN/MAX CFM.
- TENANT'S CONTRACTOR SHALL SET THE MINIMUM AND MAXIMUM OUTSIDE AIR SETTINGS ON THE ECONOMIZER OF EACH HVAC UNIT BASED ON THE VALUES OF THE CALCULATIONS LISTED IN ITEM 1 ABOVE.
- THE TOTAL MAXIMUM AND MINIMUM OUTSIDE AIR VALUES SHALL BE EQUALLY DISTRIBUTED BETWEEN EACH HVAC UNIT WITH RESPECT TO UNIT LINE SIZE.
- REFER TO EM DRAWINGS FOR MORE INFORMATION.

TESTING AND BALANCING NOTES

- THE TENANT'S CONTRACTOR SHALL MAKE EVERY POSSIBLE EFFORT TO OBTAIN THE LANDLORD'S MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.

A. IF THE LANDLORD DRAWINGS HAVE BEEN OBTAINED, THE TENANT'S CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT NEBB OR AABQ CERTIFIED AIR BALANCE AND TESTING AGENCY TO BALANCE, ADJUST AND TEST HVAC EQUIPMENT AND DUCT SYSTEMS. WORK SHALL BE PERFORMED AFTER THE COMPLETE INSTALLATION AND STARTUP OF ALL EQUIPMENT, DUCT SYSTEMS AND TEMPERATURE AND ENERGY MANAGEMENT CONTROLS, AND COMPLETED PRIOR TO TURNOVER OF STORE FOR THE START OF STOCKING. BALANCE AND TESTING CONTRACTOR SHALL SUBMIT SIGNED AND SEALED BALANCE AND TESTING REPORT TO CONTRACTOR FOR SUBMITTAL TO DOLLAR TREE PROJECT MANAGER FOR REVIEW.

B. BALANCING OF AIR DEVICES SHALL BE ACCOMPLISHED BY ADJUSTING BRANCH TAKE-OFF DAMPER AT MAIN TRUNK DUCT. DAMPERS IN THE NECKS OF AIR DEVICES SHALL BE USED FOR FINAL TRIM ONLY AND IN NO CASE FOR GREATER THAN 10% OF THE INDICATED VOLUME FOR THE INDIVIDUAL DEVICE.
- THE INDEPENDENT NEBB OR AABQ CERTIFIED AIR BALANCE AND TESTING AGENCY SHALL ALSO INSPECT THE COMPLETED AND OPERATIONAL HVAC EQUIPMENT, DUCT SYSTEMS AND TEMPERATURE AND ENERGY MANAGEMENT CONTROLS PRIOR TO TURNOVER OF STORE FOR THE START OF STOCKING. BALANCE AND TESTING CONTRACTOR SHALL SUBMIT COMPLETED DOLLAR TREE HVAC FIELD INSPECTION REPORT TO CONTRACTOR FOR SUBMITTAL TO DOLLAR TREE PROJECT MANAGER FOR REVIEW.

3. IN THE EVENT THAT THE TENANT'S CONTRACTOR CANNOT OBTAIN A SET OF THE LANDLORD'S MECHANICAL CONSTRUCTION DOCUMENTS, THE TENANT'S CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT COMMISSIONING AUTHORITY (CA). THE CA SHALL PERFORM FUNDAMENTAL COMMISSIONING AND PROVIDE THE TENANT'S CONSTRUCTION MANAGER, ARCHITECTURAL PROJECT MANAGER, AND THE GENERAL CONTRACTOR WITH A REPORT PRIOR TO ANY CORRECTIVE ACTION BEING TAKEN. THE FUNDAMENTAL COMMISSIONING REPORT SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING:

A. PERFORM COMPLETE TESTING OF THE LANDLORD'S HVAC SYSTEM AIR BALANCE INCLUDING SUPPLY, RETURN AND OUTDOOR AIR VOLUMES.

B. PROVIDE A SKETCH SHOWING LOCATIONS OF SUPPLY DIFFUSERS, RETURN GRILLES AND APPROXIMATE LOCATION OF HVAC UNITS).

C. DISCHARGE AIR TEMPERATURE AT THE SUPPLY DIFFUSERS.

D. OUTDOOR TEMPERATURES AT THE TIME OF AIR BALANCE TESTING.

E. GENERAL DESCRIPTION OF THE HVAC SYSTEM INCLUDING MAKE AND MODEL NUMBERS OF EACH HVAC UNIT, QUANTITY OF HVAC UNITS.

F. VERIFY THAT HVAC SYSTEMS ARE SATISFYING THE THERMOSTAT SET POINTS.

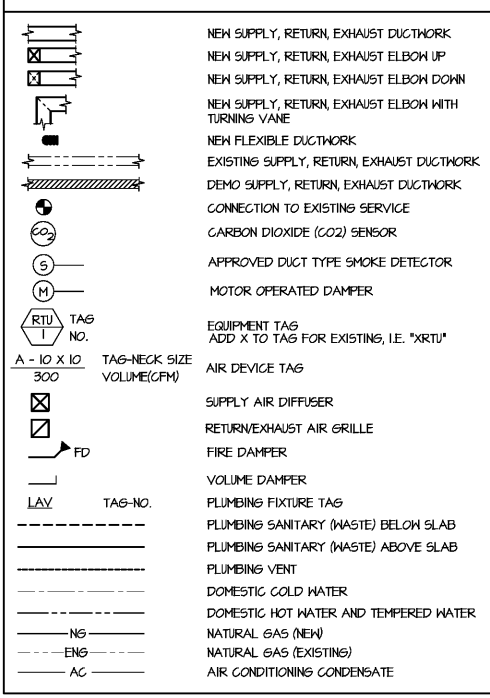
G. BRIEF DESCRIPTION OF SUPPLY AND RETURN AIR INSULATION.

H. DETERMINE IF AN ECONOMIZER IS INSTALLED AT EACH HVAC UNIT.

I. PROVIDE A LIST OF, IF ANY, INSTALLATION DEFICIENCIES OBSERVED AT EACH HVAC UNIT.

J. INSPECT EACH HVAC UNIT FOR BELT INSTALLATION, REFRIGERANT LINE FROSTING, AIR FILTER CLEANLINESS AND ANY OTHER OBSERVED DEFICIENCIES.

MECHANICAL/PLUMBING LEGEND



NOTE - HVAC CONTROLS:
CONTRACTOR SHALL REFER TO THE EM SHEETS FOR INSTALLATION INSTRUCTIONS FOR THE VENDOR FURNISHED. CONTRACTOR INSTALLED HVAC CONTROL SYSTEM AND TEMPERATURE AND CO2 SENSOR LOCATIONS PRIOR TO THE INSTALLATION OF ALL RELATED ITEMS. PLEASE NOTE THAT EM SHEETS INDICATE ROOF TOP UNITS. PLEASE REFER TO MANUFACTURER'S INSTRUCTIONS FOR SIMPLE STAT WIRING FOR ALL OTHER SYSTEMS. CONTACT EM SYSTEM PROVIDER PRIOR TO ENERGIZING SYSTEM. FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN CONTRACTOR REPLACING SYSTEM COMPONENTS WITH NO ADDITIONAL COST TO THE TENANT.

NOTE - HVAC TEMPERATURE SENSOR:
CONTRACTOR SHALL REFER TO THE TEMPERATURE SENSOR MOUNTING DETAIL FOR PLACEMENT AND INSTALLATION INSTRUCTIONS PRIOR TO INSTALLING.

mark	date	description



CASCO DIVERSIFIED CORPORATION
ARCHITECTURAL FIRM
LICENSE #000329
EXPIRES 12/31/14

CASCO DIVERSIFIED CORPORATION
ENGINEERING FIRM
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EXPIRES 12/31/14

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drawing PLAN NOTES 4 LEGEND
TESTING & BALANCING

TBI

Order Plans