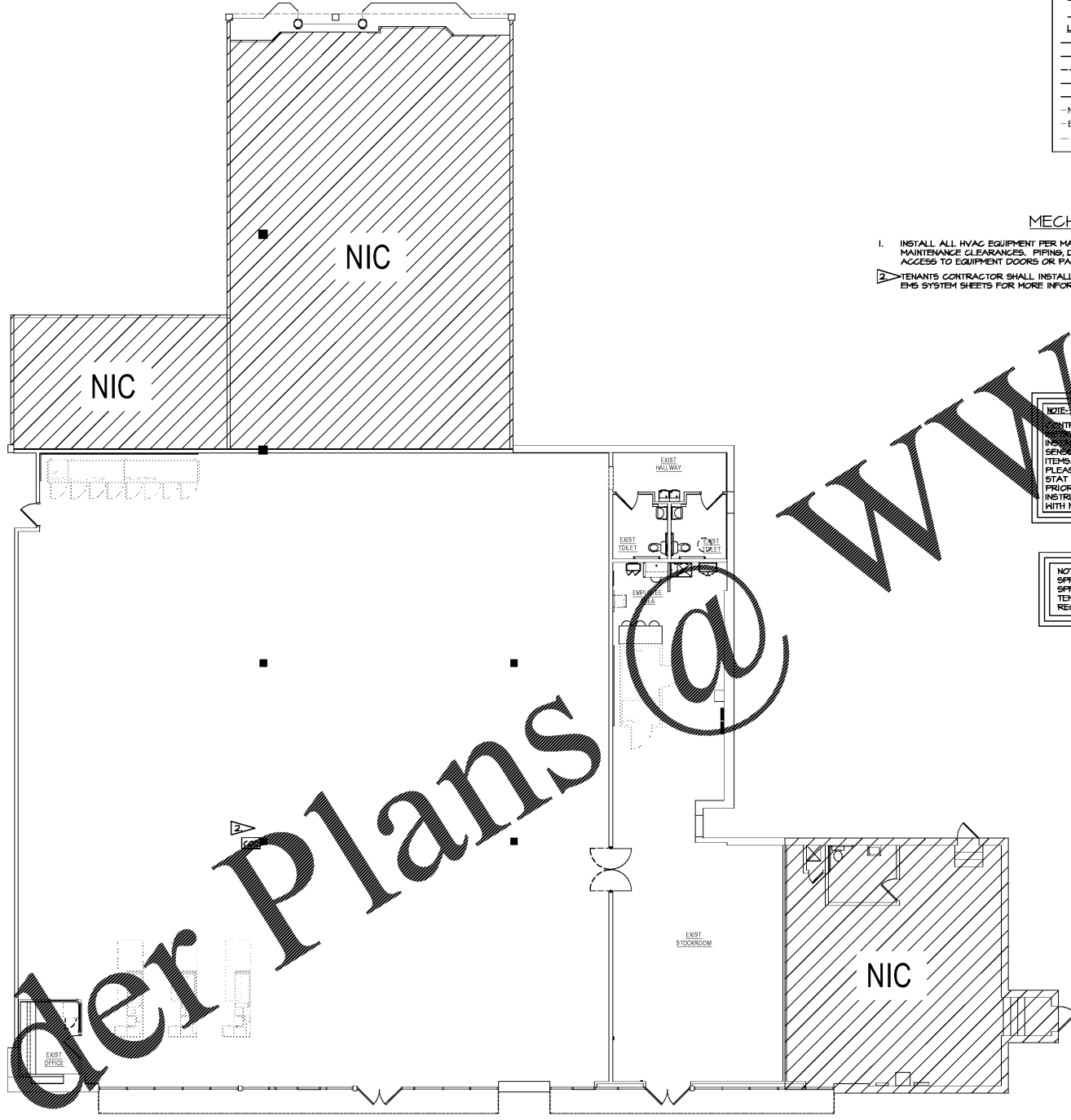


VENTILATION AIR CALCULATIONS												
Zone	Occupancy Category	DOAS / SZ / HZ	Area (sf)	People OA Rate (cfm/per)	Area OA Rate (cfm/sf)	Occupant Density (1/1000 sf)	Occupants	Breathing Zone OA Flow Vbz (cfm)	Zone Air Distribution Eff. Ez	Zone Outdoor Airflow Vozz (cfm)	System Ventilation Eff. Ev	OA Intake Flow Required Vol (cfm)
SALES	RETAIL	SZ	7862	15	0.12	15	110	112	1.0	112	0.8	240
STOCK	STORAGE	SZ	1112	0.0	0.12	0	0	218	1.0	218	0.8	266



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

MECHANICAL/PLUMBING LEGEND:	
	NEH SUPPLY, RETURN EXHAUST DUCTWORK
	NEH SUPPLY, RETURN EXHAUST ELBOW UP
	NEH SUPPLY, RETURN EXHAUST ELBOW DOWN
	NEH SUPPLY, RETURN EXHAUST ELBOW WITH TURNING VANE
	NEH FLEXIBLE DUCTWORK
	EXISTING SUPPLY, RETURN EXHAUST DUCTWORK
	DEMO SUPPLY, RETURN EXHAUST DUCTWORK
	CONNECTION TO EXISTING SERVICE
	CARBON DIOXIDE (CO2) SENSOR
	APPROVED DUCT TYPE SMOKE DETECTOR
	MOTOR OPERATED DAMPER
	EQUIPMENT TAG
	ADD X TO TAG FOR EXISTING, I.E. 'xR1P'
	AIR DEVICE TAG
	SUPPLY AIR DIFFUSER
	RETURN/EXHAUST AIR GRILLE
	FIRE DAMPER
	VOLUME DAMPER
	PLUMBING FIXTURE TAG
	PLUMBING SANITARY (WASTED) BELOW SLAB
	PLUMBING SANITARY (WASTED) ABOVE SLAB
	PLUMBING VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	NATURAL GAS (NEW)
	NATURAL GAS (EXISTING)
	AIR CONDITIONING CONDENSATE

- MECHANICAL NOTES**
- INSTALL ALL HVAC EQUIPMENT PER MANUFACTURER RECOMMENDATIONS, INCLUDING REQUIRED MAINTENANCE CLEARANCES. PIPING, DUCTWORK, AND CONDUIT ROUTING SHALL NOT BLOCK REQUIRED ACCESS TO EQUIPMENT DOORS OR PANELS.
 - TENANT'S CONTRACTOR SHALL INSTALL TENANT PROVIDED CO2 SENSOR ON COLUMN AT 8'-0" SEE EMS SYSTEM SHEETS FOR MORE INFORMATION.

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 INSTALLATION OF ALL RELATED ITEMS. PLEASE NOTE THAT EM SHEETS INDICATE ROOF TOP UNITS. PLEASE REFER TO MANUFACTURER'S INSTRUCTIONS FOR SIMPLE START WIRING FOR ALL OTHER SYSTEMS. CONTACT TELETRON PRIOR TO ENERGIZING SYSTEM. FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN CONTRACTOR REPLACING SYSTEM WITH NO ADDITIONAL COST TO THE TENANT.

NOTE: SPRINKLER SYSTEM IS EXISTING WITHIN TENANT SPACE.
SPRINKLER PIPING SHALL BE MODIFIED TO ACCOMMODATE NEW TENANT LAYOUT IN ACCORDANCE WITH NFPA 4 LANDLORD REQUIREMENTS.

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

FIRE PROTECTION STANDARDS

THE CONTRACTOR SHALL RETAIN AND PAY FOR A PROFESSIONAL OF RECORD FOR ALL FIRE PROTECTION WORK. THE DRAININGS AND ALL SPECIFICATIONS FOR ALL FIRE PROTECTION WORK ARE PERFORMANCE IN SCOPE AND INTENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN LAYOUT, DETAILS, DRAWINGS, DOCUMENTS, MATERIALS, EQUIPMENT, LABOR, AND ALL CRITERIA TO MEET GOVERNING AUTHORITIES CODES, REGULATIONS, AND UNDERWRITER'S REQUIREMENTS FOR ALL FIRE PROTECTION WORK.

ALL FIRE PROTECTION WORK SHALL BE SCHEDULED IN ADVANCE WITH THE LANDLORD'S FIELD REPRESENTATIVE. FIRE PROTECTION SYSTEM SHALL BE FULLY OPERATIONAL WHEN THE CONTRACTOR IS OFF THE SITE.

CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID.

A COMPLETE SET OF ALL REQUIRED DOCUMENTS SHALL BE PREPARED AND SUBMITTED TO THE PROPER AUTHORITIES WITHIN THIRTY (30) DAYS OF CONTRACT AWARD. THE LANDLORD'S DESIGN CRITERIA SHALL BE CONSIDERED PART OF THESE STANDARDS.

ALL FIRE PROTECTION WORK SHALL BE SCHEDULED IN ADVANCE WITH THE LANDLORD'S FIELD REPRESENTATIVE. FIRE PROTECTION SYSTEM SHALL BE FULLY OPERATIONAL WHEN THE CONTRACTOR IS OFF THE SITE.

WHERE CEILING ARE EXISTING TO REMAIN OR NEW CEILING ARE INSTALLED AND IN LIGHTING CONFLICTS WITH THE LOCATION OF EXISTING SPRINKLER HEADS, THE LIGHTING SHALL BE RELOCATED APPROXIMATELY 6-INCHES (OR AS REQUIRED TO MAINTAIN CLEARANCE) TO SPRINKLER HEADS FROM THE FOLLOWING HEADS FROM SPRINKLER HEADS TO REMAIN.

CONTRACTOR SHALL MODIFY EXISTING SPRINKLER PIPING AND HEADS AS REQUIRED FOR REDESIGNED SPACE.

THE CONTRACTOR SHALL PROVIDE DRY PENDANT HEATING WALK-COOLER AND FREEZER SECTIONS PER NFPA 13 REQUIREMENTS.

GENERAL MECHANICAL NOTES

- EXISTING HVAC REMAIN. REMOVE DUCTWORK AND DISTRIBUTION SYSTEM AS REQUIRED BY NEW PLAN. PROVIDE DRAININGS AS REQUIRED BY THE BUILDING DEPARTMENT.
- CONTRACTOR SHALL SERVICE EXIST AIR CONDITIONING SYSTEM COMPLETELY INCLUDING, BUT NOT LIMITED TO, CLEANING INTERIOR AND EXTERIOR OF ALL COMPONENTS, TOUCH UP PAINTING, REPLACING AIR FILTERS, INSPECTING AND REPAIRING FAN BELT (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 THE ESTIMATE TO COMPLETE REPAIRS.
- VERIFY HVAC SYSTEM IS IN THE OFFICE, STOCKROOM, TOILET, AND CORRIDOR AND EXTEND SYSTEM AS REQUIRED. FOR THE OFFICE, PROVIDE 11" X 24" X 24" DIFFUSER WITH A 12" 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 ON SHEET EM-3 FOR PLACEMENT & INSTALLATION INSTRUCTIONS PRIOR TO INSTALLING.

HVAC TEST AND BALANCING NOTES

- THE TENANT'S CONTRACTOR SHALL MAKE EVERY POSSIBLE EFFORT TO OBTAIN THE LANDLORD'S MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.
 - ONCE THE LANDLORD DRAWINGS HAVE BEEN OBTAINED, THE TENANT'S CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT NEBS OR AABC 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. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED BALANCE AND TESTING AGENCY'S REPORT TO CONTRACTOR FOR SUBMITTAL TO DOLLAR TREE PROJECT MANAGER FOR REVIEW.
 - BALANCING OF AIR DEVICES SHALL BE ACCOMPLISHED BY ADJUSTING BRANCH TAKEOFF 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% IF THE INDICATED VOLUME FOR THE INDIVIDUAL AIR DEVICE.
- THE INDEPENDENT NEBS OR AABC 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 TEST CONTRACTOR SHALL SUBMIT COMPLETED DOLLAR TREE HVAC FIELD INSPECTION REPORT TO CONTRACTOR FOR SUBMITTAL TO DOLLAR TREE PROJECT MANAGER FOR REVIEW.
- 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. 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:
 - PERFORM COMPLETE TESTING OF THE LANDLORD'S HVAC SYSTEM AIR BALANCE INCLUDING SUPPLY, RETURN AND OUTDOOR AIR VOLUMES.
 - PROVIDE A SKETCH SHOWING LOCATIONS OF SUPPLY DIFFUSERS, RETURN GRILLES AND APPROXIMATE LOCATION OF HVAC UNIT.
 - DISCHARGE AIR TEMPERATURE AT THE SUPPLY DIFFUSERS.
 - OUTDOOR TEMPERATURES AT THE TIME OF AIR BALANCE TESTING.
 - GENERAL DESCRIPTION OF THE HVAC SYSTEM INCLUDING MAKE AND MODEL NUMBERS OF EACH HVAC UNIT, QUANTITY OF HVAC UNITS.
 - VERIFY THAT HVAC SYSTEMS ARE SATISFYING THE THERMOSTAT SET POINTS.
 - BRIEF DESCRIPTION OF SUPPLY AND RETURN AIR INSULATION.
 - DETERMINE IF AN ECONOMIZER IS INSTALLED AT EACH HVAC UNIT.
 - PROVIDE A LIST OF IF ANY INSTALLATION DEFICIENCIES OBSERVED AT EACH HVAC UNIT.
 - INSPECT EACH HVAC UNIT FOR BELT INSTALLATION, REFRIGERANT LINE FROSTING, AIR FILTER CLEANLINESS AND ANY OTHER OBSERVED DEFICIENCIES.

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 - 30% 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 - 250/850 OUTSIDE AIR MIN/MAX CFM
- THE 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 EACH UNITS SIZE.
- REFER TO EM SHEETS FOR MORE INFORMATION.

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