

**HVAC OUTDOOR AIR REQUIREMENTS**

MECHANICAL CODE REFERENCE:  
FOR REQUIRED OUTDOOR VENTILATION AIR IN RETAIL -- "SALES/STORAGE ROOM"

1. SHOWROOM = 3168 SQUARE FEET  
2. HARD PARTS = 4182 SQUARE FEET

SHOWROOM (SALES)  
3168 (SQUARE FEET) ÷ 1000 (SQUARE FEET) = 3.1680  
3.1680 x 15 (PERSONS/1000 SQUARE FEET) = 48 PERSONS  
(CFM/ PERSON x PERSONS) + (CFM/SQUARE FEET x SQUARE FEET) = CFM  
(7.5 x 48 ) + (.12 x 3168 ) = 736.56 CFM OF OUTSIDE AIR REQUIRED

736.56 + .8 (EFFECTIVENESS) = 920.70 CFM

HARD PARTS (STORAGE ROOM)  
4182 x .12 (CFM/SQUARE FEET) = 501.84 CFM OF OUTSIDE AIR REQUIRED

501.84 + .8 (EFFECTIVENESS) = 627.30 CFM

921 CFM + 627 CFM = 1548 TOTAL CFM

TOTAL OUTSIDE AIR MINIMUM REQUIRED BY CODE: 1548 CFM  
OUTSIDE AIR SPECIFIED ON PLAN SHEET M1: 1550 CFM

**HVAC - KEYNOTES**

1. 12"x12" DUCT WITH ELBOW FROM "R2" TO JUST ABOVE THE CEILING PLATFORM.

2. WALL CAP 500 CFM EXHAUST. ARCHITECTURAL ELEVATIONS SHOW DIMENSIONED LOCATION.

**HVAC ROOF BRACING CONFLICTS**

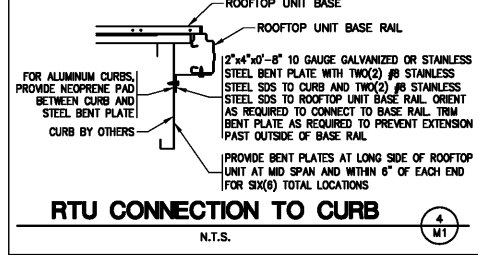
CONTRACTOR TO FIELD VERIFY ROOF'S HORIZONTAL ROD BRACING LOCATIONS. IF NECESSARY, SHIFT ROOFTOP UNITS AND DUCTS AS REQUIRED TO AVOID CONFLICT WITH BRACING.

**OUTSIDE AIR SETUP:**

CONTRACTOR TO SET DAMPERS AS FOLLOWS:

ECONOMIZER MODE MAXIMUM CFM PER UNIT  
5 TON RTU1 = 2,000  
5 TON RTU2 = 2,000  
5 TON RTU3 = 2,000  
5 TON RTU4 = 2,000

MINIMUM OUTSIDE AIR CFM PER GROUND MOUNTED ROOFTOP UNIT:  
RTU1: 385 DURING OCCUPIED HOURS ONLY.  
RTU2: 385 DURING OCCUPIED HOURS ONLY.  
RTU3: 390 DURING OCCUPIED HOURS ONLY.  
RTU4: 390 DURING OCCUPIED HOURS ONLY.



**HVAC SYSTEMS TESTING & BALANCING**

THE HVAC SYSTEM SHALL BE TESTED AND BALANCED (TAB) BY THE CONTRACTOR AND IN ACCORDANCE WITH THE PROCEDURES OF ABC OR NECA. CONTRACTOR SHALL SUBMIT WRITTEN TAB REPORTS TO THE OWNER, SINCE THIS O'REILLY STORE IS LESS THAN 50,000 SQ. FT. THEN SYSTEM COMMISSIONING IS NOT REQUIRED PER ASHRAE 90.1.

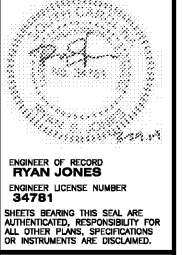
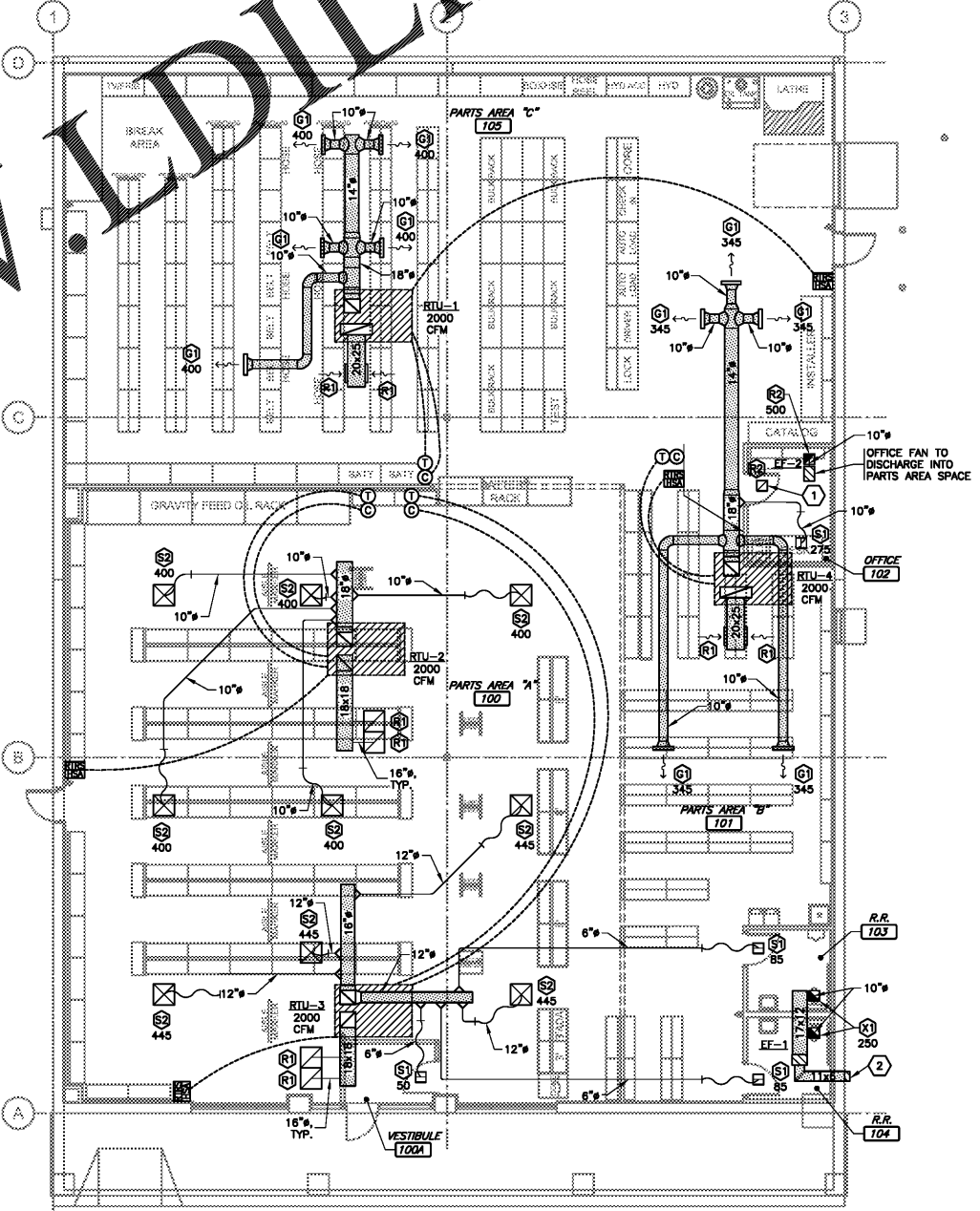
**SEISMIC RESTRAINTS (ONLY REQUIRED FOR SEISMIC DESIGN CATEGORIES C,D,E,F)**

**CONTRACTOR TO REFER TO ARCHITECTURAL SHEET T1.1 FOR SEISMIC DESIGN CATEGORY.**

IF REQUIRED SEE SEISMIC DETAILS SHEET ME1.

**HVAC GENERAL NOTES**

- DRAWING IS DIAGRAMMATIC AND IS NOT TO BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE CODE(S) NOTED ON THE CODE SUMMARY SHEET.
- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONSTRUCTION PRIOR TO SUBMITTING HIS BID. NO EXTRAS WILL BE PAID DUE TO UNANTICIPATED EXISTING CONDITIONS.
- THE CONTRACTOR SHALL COORDINATE WITH THE STATE AND LOCAL BUILDING REGULATION AGENCIES AND UTILITY COMPANY(S) IN THE PROCUREMENT OF AND PAYMENT ALL PERMITS, LICENSES, FEES AND CHARGES REQUIRED FOR THE PERFORMANCE OF THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL FEES AND DIRECT EXPENSES INVOLVED IN ANY INSPECTION REQUIRED FOR THE PROJECT.
- ALL ROOF AND WALL PENETRATIONS REQUIRED SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL FLASHING, CHIMES, REINFORCING ANGLES, SUPPORTING FRAMES, ETC. WHICH ARE REQUIRED UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS IN THE SUBMITTAL.
- A SUBMITTAL OF ALL MATERIALS AND EQUIPMENT PROPOSED TO BE USED FOR THIS JOB SHALL BE PROVIDED AS SOON AS POSSIBLE AFTER AWARD OF THE CONTRACT. THE SUBMITTAL WILL BE REVIEWED BY THE OWNER FOR EQUIPMENT QUALITY AND PERFORMANCE TO THE TERMS SPECIFIED. ALL CONTROL DEVICES SHALL BE PROVIDED IN THE SUBMITTAL.
- THE PROPER PERFORMANCE OF THE CONTROL SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS WORK WITH THE WORK OF OTHER SUBCONTRACTORS OF THE PROJECT. COORDINATION DOES NOT MEAN "I WAS HERE FIRST".
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE AND FUNCTIONAL SYSTEM IN ACCORDANCE WITH THE INTENT OF THE PLANS, WHETHER OR NOT EVERY ELEMENT THEREOF IS SPECIFICALLY CALLED OUT.
- DUCT DIMENSIONS ON PLANS ARE TO BE FINISHED INSIDE DIMENSIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE AND FUNCTIONAL SYSTEM IN ACCORDANCE WITH THE INTENT OF THE PLANS, WHETHER OR NOT EVERY ELEMENT THEREOF IS SPECIFICALLY CALLED OUT.
- DUCT DIMENSIONS ON PLANS ARE TO BE FINISHED INSIDE DIMENSIONS.
- INSULATE HVAC CONDENSATE DRAIN PIPING WITH 1/2" ARMAFLEX.
- NO EQUIPMENT OR FIXTURE SUBSTITUTIONS (THAT ARE NOT CURRENTLY LISTED) WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER.
- UPON COMPLETION BALANCE SYSTEMS TO AIR FLOWS SHOWN. REPORT THE BALANCING MEASUREMENTS ON THE "AS BUILT" DRAWINGS.
- MOUNT ALL DUCTWORK, HVAC UNITS, CONDENSATE AND REFRIGERANT LINES AS HIGH AS POSSIBLE.
- CONTROL WIRING BY HVAC CONTRACTOR, FINAL CONNECTIONS BY HVAC CONTRACTOR.
- INSTALL ACCESS PANELS OR DOORS WHERE EQUIPMENT AND/OR VALVES ARE LOCATED IN CONCEALED SPACES.
- THE HVAC SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 101:7-2 and NFPA 90A "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS".
- ALL HVAC SYSTEM FLUES & VENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 54 (LATEST EDITION).
- PROVIDE AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8.
- COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION, OR DURING STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM.
- ALL HVAC CONDENSATE LINES SHALL RUN AT A MINIMUM SLOPE OF 1/8-INCH PER FOOT.



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**HVAC PLAN**

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CHECKED BY: CRF  
DATE: 03/29/2019  
REVISION:  
PROJECT NUMBER: 19035-HHL  
SHEET NUMBER

**M1**