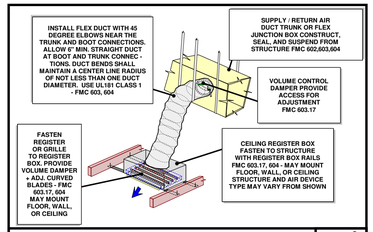
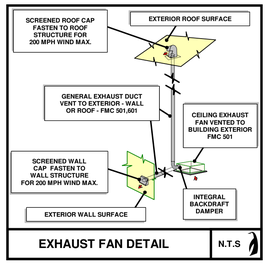
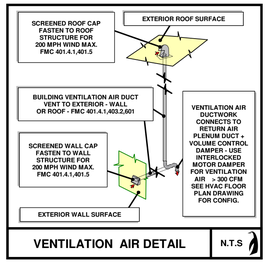


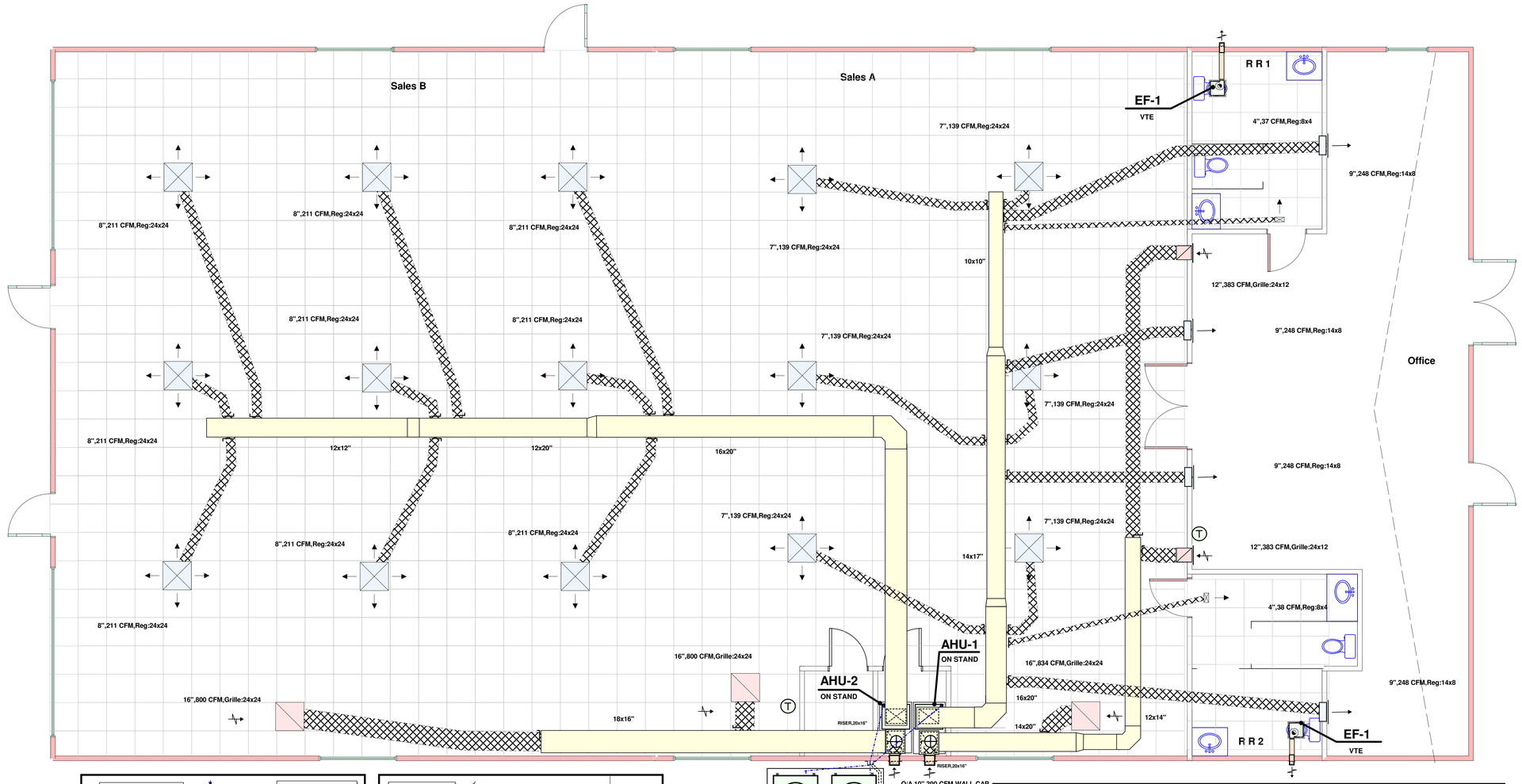
DUCTBOARD / FLEX DUCT DETAIL | N.T.S

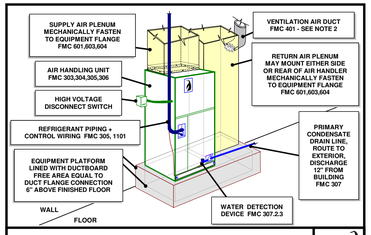


EXHAUST FAN DETAIL | N.T.S

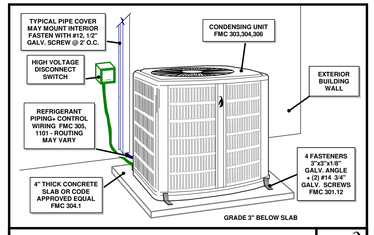


VENTILATION AIR DETAIL | N.T.S





AIR HANDLER / VERTICAL + RISER DETAIL | N.T.S



CONDENSER / SLAB DETAIL | N.T.S

HVAC NOTES - 2010 FLORIDA BUILDING CODE - EFF. 3/16/2012

THIS HVAC DRAWING IS NOT INTENDED TO SHOW EXACT DETAIL OF EVERY ITEM REQUIRED TO MEET CODE REQUIREMENTS. THE PROPOSED DUCT ROUTING SHOWN IS GENERAL IN NATURE; FIELD CONDITIONS WILL DICTATE EXACT CONFIGURATION OF THE HVAC SYSTEM. CODE SECTIONS ARE LISTED FOR EACH HVAC SYMBOL. HVAC CONTRACTOR SHOULD REFERENCE CODE SECTIONS PRIOR TO INSTALLATION. THIS DIAGRAM COMPLIES WITH 2010 FBC 105, 107.3.5 PERMIT / PLAN REVIEW CRITERIA.

ROOM AIR DEVICE SIZES, CFM VALUES, AND BRANCH DUCT SIZES SHOWN PER ROOM ARE BASED ON PEAK COOLING SEASON. SEE THE "ROOM LOAD SUMMARY" FOR HEATING CFM VALUES. ALTERNATE AIR DEVICE SIZES MUST EQUAL FREE AREA OF LISTED SIZE. THE DUCT SYSTEM DESIGN IS BASED ON MANUAL D - DON'T EXCEED 3:1 ASPECT RATIO FOR ALTERNATE DUCT SIZES. A 30" WIDE INTERIOR DOOR WITH A 1" UNDERCUT = ONLY 30 CFM OF RELIEF AIR. SIZE ALL TRANSFER AIR DUCTS 1.5 LARGER THAN THE SUPPLY AIR TO THE ENCLOSED ROOM(S). SIZE DIRECT THROUGH WALL TRANSFER GRILLES AT 50 SQ INCHES OF GRILLES FREE AREA TO 100 CFM.

1) HVAC INSTALLATION TO COMPLY WITH THE 2010 FLORIDA BUILDING, ENERGY CONSERVATION, AND MECHANICAL CODES. OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS.

2) PROVIDE ACCEPTABLE INDOOR AIR QUALITY PER THE 2010 FLORIDA MECHANICAL CODE (FMC) SECTION 403.3 AND FLORIDA ENERGY CONSERVATION (FEC) CODE SECTION 403.5. MECHANICAL VENTILATION IF SHOWN BECAUSE THIS STRATEGY IS THE BEST OPTION FOR ALL BUILDINGS IN OUR REGION. OCCUPIED COMMERCIAL BUILDINGS ALWAYS REQUIRE MECHANICALLY INDUCED VENTILATION AIR PER THE BUILDING VENTILATION CALCULATIONS + BUILDING AIR BALANCE SCHEDULE. RESIDENTIAL BUILDINGS WITH A BLOWER DOOR TEST (BUILDINGS NATURAL INFILTRATION CFM): RESULT LESS THAN THE VENTILATION AIR REQUIRED FOR OCCUPANT HEALTH REQUIRES MECHANICALLY INDUCED VENTILATION AIR. TO PRESSURIZE A RESIDENTIAL BUILDING, ADD A VENTILATION AIR DUCT TO THE RETURN AIR PLENUM SIZED FOR 15 CFM PER RESIDENTIAL OCCUPANT (VENTILATION CFM AMOUNT MUST EXCEED BUILDING INFILTRATION CFM. SEE BLOWER DOOR TEST TO VERIFY THE BUILDING IS SUBSTANTIALLY SEALED AND ABLE TO BE PRESSURIZED). INTERLOCK RESIDENTIAL VENTILATION AIR DUCT MOTOR DAMPER TO OUTDOOR RELATIVE HUMIDITY SENSOR SET AT 65% R.H. MAXIMUM. DAMPER CLOSED WHEN OUTDOOR CONDITIONS EXCEED 85% R.H. COMMERCIAL BUILDING MECHANICAL VENTILATION IS CONTINUOUS DURING OCCUPIED HOURS.

3) COORDINATE LOCATION OF ALL EQUIPMENT, FANS, AIR DEVICES, AND BUILDING PENETRATIONS WITH THE GENERAL CONTRACTOR - PROTECT THE STRUCTURE PER FMC 302. FABRICATE AND INSTALL HVAC SYSTEMS PER THE 2010 FLORIDA MECHANICAL CODE AND PRODUCT INSTALLATION INSTRUCTIONS, MANUFACTURERS INTALLATION INSTRUCTIONS MUST BE AVAILABLE ON THE JOB SITE AT TIME OF INSPECTION.

4) MECHANICAL INSTALLER TO FIELD VERIFY CLEARANCES AND ACCESSIBILITY PRIOR TO FABRICATION OR INSTALLATION OF ANY HVAC WORK. PROVIDE A MEANS FOR WIND RESISTANCE ON ALL EXTERIOR MOUNTED EQUIPMENT PER SECTION FMC 306.5. A STRUCTURAL ENGINEER'S SEALED DETAIL MAY BE REQUIRED FOR EQUIPMENT SUSPENDED FROM ATTIC TRUSSES OR FOR EXTERIOR EQUIPMENT MOUNTED ABOVE GROUND LEVEL PER FBC 1509.7 AND FBC 1522.2.

5) ALL DUCT DIMENSIONS SHOWN ARE CLEAR INTERIOR DUCT DIMENSIONS BASED ON FMC 603.2 MANUAL D DUCT DESIGN. ADD 3" TO LISTED SIZE FOR EXTERIOR DUCT DIMENSIONS. FIBERGLASS DUCTBOARD EQUAL TO KNAUF 1 1/2" R-6, INSTALL PER SMACNA STANDARDS. FLEXIBLE DUCTWORK EQUAL TO ATCO 36 SERIES R-6 CLASS ONE AIR DUCT. CONSTRUCT ALL DUCTS PER MANUFACTURERS INSTRUCTIONS FOR A MAXIMUM 1" W.C.. SUSPEND DUCTWORK FROM THE BUILDING STRUCTURE PER THE 2010 FLORIDA MECHANICAL CODE CHAPTER 603.10. MAKE ALL DUCTWORK MOUNTED OUTSIDE OF THE BUILDINGS THERMAL ENVELOPE (VENTILATED ATTIC) PER UL-181. AND FMC TABLE 6.03 - PROVIDE ACCESSIBLE VOLUME DAMPERS IN BRANCH DUCTS.

6) PROVIDE A CONDENSATE DRAIN SYSTEM PER THE 2010 FLORIDA MECHANICAL CODE SECTION 307, AND A REFRIGERANT PIPING SYSTEM PER FMC SECTION 1107. EXTEND CONDENSATE DRAIN DISCHARGE 12" FROM EXTERIOR WALL TO GRASS (OR OTHER APPROVED METHOD), PROVIDE PIPING SUPPORTS FOR BOTH CONDENSATE DRAINS AND REFRIGERANT PIPING PER FMC 305.

7) PROVIDE A BALANCED RETURN AIR SYSTEM PER THE 2010 FLORIDA MECHANICAL CODE SECTION 601.4. ALL CLOSEABLE ROOMS REQUIRE 1" UNDERCUT ON INTERIOR DOORS PLUS A MEANS FOR AIR TRANSFER OR AIR RETURN. PRESSURE DIFFERENTIALS NOT TO EXCEED .01 INCH W.G. PROVIDE ACCESSIBLE VOLUME DAMPERS ON DUCTED RETURNS. SPACES ON THE BUILDINGS EXTERIOR ENVELOPE SHOULD BE BALANCED SLIGHTLY POSITIVE.

8) ATTIC MOUNTED EQUIPMENT (RESIDENTIAL) MUST CONTAIN A DEVICE TO ALERT THE HOMEOWNER IF THE CONDENSATE DRAIN LINE IS NOT WORKING PROPERLY. POST A NOTICE ON THE ELECTRICAL PANEL INDICATING TO THE HOMEOWNER THE AIR HANDLER IS LOCATED IN THE ATTIC SPACE WITHIN 6' OF THE ACCESS PANEL. SEE FEC 403.2.4, 405 ENERGY CODE COMPLIANCE OF THE 2010 FL.FLORIDA ENERGY CONSERVATION CODE FOR FULL COMPLIANCE DESCRIPTION.

9) INSTALLING HVAC CONTRACTOR MUST PROVIDE A COPY OF THE HEAT LOAD CALCULATIONS, MANUAL D DUCT DESIGN CALCULATIONS, THE ENERGY CONSERVATION CODE FORM (405 OR 506), AND THE HVAC PERMIT SET DRAWING TO THE BUILDING OWNER FOR REVIEW AND APPROVAL. INSTALLING CONTRACTOR WILL CONDUCT A BUILDING OWNER INTERVIEW TO DISCUSS DESIRED DESIGN CONDITIONS, INDOOR AIR QUALITY, HEALTH PROBLEMS, COMBUSTION AIR SAFETY, ALLOWABLE SWINGS IN TEMPERATURE AND HUMIDITY, ZONING, USE OF INTERNAL AND EXTERNAL SHADING DEVICES, INTERIOR HEAT AND MOISTURE PRODUCING APPLIANCE OUTPUTS, VARIABLE OCCUPANCY DEMANDS, DERATED DEHUMIDIFICATION REQUIRED FOR PART LOAD CONDITIONS, AND ANY INFORMATION NOT SHOWN ON THIS DRAWING AND HEAT LOAD CALCULATIONS.

10) THIS HVAC DRAWING, HEAT LOAD CALCULATION, AND ENERGY CALCULATION WERE BASED ON THE ARCHITECTURAL DRAWINGS PROVIDED FOR PERMIT APPLICATION. ANY MODIFICATIONS TO THE BUILDING ROOM LAYOUT, OCCUPANCY, USE, CLASSIFICATION ,OR BUILDING ENVELOPE COMPONENTS MUST BE COMMUNICATED TO THE HVAC DESIGNER. HVAC CONTRACTOR MUST RED LINE SKETCH ON THIS DRAWING ANY FIELD CHANGES MADE DURING CONSTRUCTION AND SUBMIT THE "AS BUILT" CHANGES TO THE HVAC DESIGNER FOR REVIEW. THE HVAC DRAWINGS ARE BASED ON THE BUILDING HEAD LOAD CALCULATIONS, FOR DETAILED BUILDING ENVELOPE CONSTRUCTION INSULATION VALUES, CONSTRUCTION COMPONENT INFORMATION, TYES, ETC; SEE THE "TOTAL BUILDING LOAD SUMMARY" FORM. FIELD INSPECT THE BUILDING ENVELOPE COMPONENTS AND SIZES PRIOR TO HVAC INSTALLATION. VERIFY THE BUILDING CONSTRUCTED MATCHES THE PERMIT HVAC DRAWINGS, THE HEAT LOAD CALCULATION FORM, AND THE ENERGY CODE FORMS.

11) THIS DESIGN IS FOR PEAK COOLING LOAD CONDITIONS, HVAC CONTRACTOR MUST PROVIDE YEAR ROUND DEHUMIDIFICATION (DEDICATED), TEMPERATURE CONTROL, AIR MOVEMENT, AND FILTRATION TO MEET THE OWNERS NEEDS. SITE ADJUST AIRFLOW CFM VALUES FOR EACH ROOM TO MATCH THE HEAT LOAD CALCULATIONS. HVAC CONTRACTOR TO PROVIDE HVAC EQUIPMENT CAPACITIES CAPABLE OF HEATING, COOLING, DEHUMIDIFICATION, AND AIR MOVEMENT PER MANUAL S EQUIPMENT SELECTION PROCEDURE. USE 2 SPEED EQUIPMENT FOR INDOOR DESIGN CONDITIONS OTHER THAN REQUIRED BY THE FEC SECTION 302.1 (72 DEGREES HEAT / 75 DEGREES COOL) AND THE DESIGN CITY OUTDOOR CONDITIONS SHOWN FOR THE UNITED STATES AS LISTED BY ASHRAE TABLE 1A (TAMPA EXAMPLE = 91 OUTDOOR DESIGN TEMP).

12) THIS DESIGN COMPLIES WITH 2010 FLORIDA ENERGY CONSERVATION CODE, DESIGN CRITERIA 405 (RESIDENTIAL), 506 (COMMERCIAL) PERFORMANCE BASED COMPLIANCE METHOD WAS USED. THE BUILDING ENVELOPE DETAILS PER FEC 103.2.2 ARE SHOWN IN DETAIL ON THE HEAT LOAD CALCULATIONS PAGE "TOTAL BUILDING SUMMARY LOADS". G.C. MUST PROVIDE A CONTINUOUS AIR BARRIER IN SUBSTANTIAL CONTACT WITH THE THERMAL BARRIER IN EACH BUILDING ENVELOPE COMPONENT - FULLY SURROUNDING THE CONDITIONED SPACE. SEE SECTIONS FEC 303.402, TABLE 402.4.2 RESIDENTIAL AND SECTIONS FEC 502 AND TABLE 502.1.1.1 COMMERCIAL. BUILDING ENVELOPE THERMAL INSULATION VALUES ARE SHOWN ON BOTH THE 405 / 506 ENERGY CODE FORM AND THE HEAT LOAD CALCULATIONS PAGE "TOTAL BUILDING SUMMARY LOADS". ALL BUILDINGS REQUIRE A 7 DAY PROGRAMMABLE THERMOSTAT INITIALLY SET TO 70 MAX DEGREES FOR HEATING AND 78 DEGREES MAX FOR COOLING PER SECTION FEC 403.1.1. ON COMMERCIAL BUILDINGS, PROVIDE PROGRAMMABLE THERMOSTAT WITH A SETBACK PERIOD AND AUXILLARY CONTACT. CONNECT SETBACK AUXILLARY CONTACT WITH MOTORIZED (> 300 CFM ONLY) VENTILATION DAMPER, VENTILATION AIR IS ONLY DELIVERED TO THE BUILDING DURING OCCUPANCY. RESIDENTIAL VENTILATION SEQUENCE OF OPERATION IS DESCRIBED IN NOTE 2 ABOVE. COMMERCIAL BUILDINGS REQUIRE TEST AND BALANCE OF THE AIR DISTRIBUTION SYSTEMS PER FEC 503.2.9.1. - BALANCE TO MATCH THE BUILDING AIR BALANCE SCHEDULE.

13) FROM THE CONSTRUCTION DOCUMENTS THE FOLLOWING 5 STEP DESIGN PROCEDURE WAS PERFORMED: (1) THE ROOM BY ROOM HEAT LOAD CALCULATION WAS FIRST PERFORMED TO DETERMIN THE BUILDING DEMAND AND REQUIRED ZONES. (2) THE HEAT LOAD CALCULATION DATA WAS USED TO SELECT THE HVAC EQUIPMENT CAPACITIES. (3) THE SELECTED EQUIPMENT DATA WAS USED TO DESIGN THE DUCT SYSTEM(S). (4) AIR DEVICE TYPE AND SIZES WERE BASED ON THE ROOM HEAT LOAD CALCULATION AND DUCT SYSTEM TYPE. (5) THE ENERGY CALCULATION WAS PERFORMED TO DETERMIN EQUIPMENT MINIMUM EFFICIENCY REQUIRED. ALL 5 CALCULATIONS ARE ELECTRONICALLY CONNECTED USING INTELLIGENT CAD SOFTWARE.

BUILDING AIR BALANCE SCHEDULE

ZONE	ROOM NAME	AREA	OCCUPANTS	DURATION	SUPPLY AIR CFM	RETURN AIR CFM	EXHAUST AIR CFM	FRESH AIR CFM
1	SALES A	1882	7	VARIES	831	834	0	248.10
1	R R 1	122	0	N/A	37	0	300	0.00
1	R R 2	143	0	N/A	38	0	300	0.00
1	OFFICE	728	5	> 3 HRS	994	766	0	68.68
ZONE	ROOM NAME	AREA	OCCUPANTS	DURATION	SUPPLY AIR CFM	RETURN AIR CFM	EXHAUST AIR CFM	FRESH AIR CFM
2	SALES B	2125	8	VARIES	1900	1600	0	283.54
BUILDING TOTALS		**5000**	**20**	**VARIES**	**3800**	**3200**	**600**	**600**

THIS BUILDING COMPLIES WITH THE 2010 FLORIDA MECHANICAL CODE SECTION 403.1 AND SECTION 403.3
THE OCCUPANTS SHOWN ARE ACTUAL EXPECTED OCCUPANTS AND MAY DIFFER FROM THE OCCUPANCY SHOWN FOR EGRESS / FIRE CODE
THE TEST AND BALANCE CONTRACTOR SHOULD ADJUST THE INTERIOR BUILDING PRESSURE SLIGHTLY POSITIVE

BUILDING VENTILATION CALCULATION

SQ FT	CLASSIFY	OCCUPANTS	OCCUPANT VA	AREA VA	MAX. VENT AIR	DURATION *	TOTAL AIR	CFM - PERSON
728	Office	5	5	0.06	68.68	1	68.68	13.74
4007	Street Level (sq ft) Sale	15	7.5	0.12	593.34	0.896	531.63264	35.44
BUILDING TOTALS		**20**				**VARIES**	**600**	**30.02**

THIS BUILDING COMPLIES WITH THE 2010 FLORIDA MECHANICAL CODE SECTION 403.1 AND SECTION 403.3 VENTILATION TABLE
THE OCCUPANTS SHOWN ARE ACTUAL EXPECTED OCCUPANTS AND MAY DIFFER FROM THE OCCUPANCY SHOWN FOR EGRESS / FIRE CODE
*** ASHRAE 6.2.6.2-2004 / 2007 ALTERNATE WAS USED TO DETERMINE FRESH AIR RATES FOR VARIABLE OCCUPANCY PER FMC 401.2**

HVAC SYMBOLS - 2010 FLORIDA BUILDING CODE

CEILING REGISTER 1 WAY THROW FMC 603.17	RECTANGULAR DUCTWORK FMC SECTION 603	THERMOSTAT / HUMIDISTAT@ 60" A.F.F. FEC 403.1	HORIZONTAL AIR HANDLER MOUNT FROM STRUCTURE FMC SECTIONS 303, 304, 306
CEILING REGISTER 2 WAY THROW FMC 603.17	FLEXIBLE DUCTWORK FMC SECTION 603	DUCT MOUNTED SMOKE DETECTOR FMC SECTION 606	
CEILING REGISTER 3 WAY THROW FMC 603.17	AIR DISTRIBUTION BOXES FMC SECTION 603	EXHAUST FAN EF-1 or as NOTED FMC 403, 501	DUCTLESS AIR HANDLER HIGH WALL OR CEILING MOUNT FMC SECTIONS 303, 304, 306
CEILING REGISTER 4 WAY THROW FMC 603.17	RETURN AIR PLENUM TRUNK FMC SECTION 602	ZONE / BYPASS AIR DAMPER FMC 303, 304, 306	
CEILING REGISTER CORNER THROW FMC 603.17	SUPPLY AIR PLENUM TRUNK FMC SECTION 602	MOTOR FOR AIR DAMPER FMC 303, 304, 306	PACKAGE UNIT SLAB OR ROOF MOUNTED FMC SECTIONS 303, 304, 306
WALL REGISTER 2 WAY THROW FMC 603.17	AIR VOLUME CONTROL DAMPER FMC 603.17	DE-HUMIDIFIER STANE ALONE EXPOSED SHOWN CONCEALED WITH DUCTWORK OPTION FMC 303, 304, 306	TYPICAL ENCLOSABLE ROOM
FLOOR REGISTER 2 WAY THROW FMC 603.17.1	DUCT MOUNTED FIRE DAMPER FMC SECTION 607		PROVIDE ACCESSIBLE VOLUME CONTROL DAMPER AT MAIN TRUNKLINE
FLOOR GRILLE FILTER RETURN AIR FMC 603.17.1	EXHAUST VENT ROOF / WALL CAP FMC 504, 505	ENERGY RECOVERY VENTILATOR - (4) 6" FLEXIBLE DUCTS SEE FLOOR PLAN FOR CONFIGURATION FMC 303, 304, 306	TYPICAL BRANCH DUCT; TYPICAL SUPPLY AIR REGISTER ONE WAY CEILING TYPE SHOWN; 6",109 CFM,Reg:12x6; TYPICAL AIR DEVICE MAY MOUNT CEILING, WALL, FLOOR, OR EXPOSED; 6",109 CFM,Grille:12x12; TYPICAL RETURN OR TRANSFER AIR GRILLE
CEILING GRILLE FILTER RETURN AIR FMC 603.17 +	INTAKE VENT ROOF / WALL CAP FMC 401		
WALL GRILLE FILTER RETURN AIR FMC 603.17	CONTROL / REFRIGERANT PIPING FMC 1101	CONDENSING UNIT ON SLAB, RAISED STAND, OR ROOF FMC SECTIONS 303, 304, 306	
CEILING GRILLE DUCTED T/ A FMC 603.1 + 601.4	CONDENSATE GUTTER / GRASS FMC SECTION 307		
WALL GRILLE DIRECT T/ A FMC 603.17 + 601.4	CONDENSATE TO DRYWELL FMC SECTION 307	VERTICAL AIR HANDLER / STAND PEAK PLENUM FMC SECTIONS 303, 304, 306	
1" UNDERCUT DOOR TYPICAL ALL INTERIOR DOORS FMC 601.4	EQUIPMENT ACCESS PANEL FMC SECTION 306		

AFF = ABOVE FINISH FLOOR
AHU = AIR HANDLING UNIT
BP = BYPASS DAMPER
BD = BAROMETRIC DAMPER

CFM = CUBIC FEET / MINUTE
CU = CONDENSING UNIT
DH = DE-HUMIDIFIER
E/A = EXHAUST AIR

EF = EXHAUST FAN
FPM = FEET PER MINUTE
MUA = MAKE UP AIR
O/A = OUTSIDE AIR

PKG = PACKAGE UNIT
R/A = RETURN AIR
RTU = ROOFTOP UNIT
S/A = SUPPLY AIR

SF = SUPPLY FAN
T/A = TRANSFER AIR
VTE = VENT TO EXTERIOR
ZD = ZONE DAMPER

North

5'- 0"

X
HVAC CONTRACTOR
LIC #

PROJECT NAME: 330 11th Ave FUMCP Thrift Shop 5000 e	Designed By: Neil Fimbel HVAC Designs 813-685-2258 FL BERS 884-959 HVACDESIGNS.COM	DRAWING DATE 10/23/2012 PERMIT SET	HVAC DRAWING 1 OF 1
PROJECT ADDRESS: 330 11th Avenue			
PROJECT STATE, ZIP: Palmetto Florida			
CONDITIONED SQ. FT.: 5000		SCALE 1/4"=1'-0"	
CLASSIFICATION: New Thrift Store			