HVAC NOTES

1. GENERAL

A. ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE NATIONAL, STATE (FLORIDA BUILDING CODE 2023 8TH EDITION) AND LOCAL CODES, RULES AND ORDINANCE.

B. MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. DO NOT SCALE DRAWINGS FOR THE EXACT LOCATION OF EQUIPMENT, PIPING, DUCTWORK, ETC.

C. THESE DRAWINGS ARE NOT INTENDED TO SHOW EVERY MINOR DETAIL, BUT THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE ACCEPTABLE WORKING INSTALLATION.

D. ALL WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETE SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTANCE BY THE ARCHITECT AND / OR ENGINEER MUST BE CONDITION OF THE CONTRACT.

E. ALL REQUIRED INSURANCE SHALL BE PROVIDED BY THE CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

F. THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD NOT LESS THAN 1 YEAR FROM THE DATE OF ACCEPTANCE, UNLESS OTHERWISE NOTED.

G. CONTRACTOR WILL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTS.

H. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE WITH EXISTING CONDITIONS.

I. PRIOR TO INSTALLING EQUIPMENT AND / OR FABRICATING DUCTWORK, HVAC CONTRACTOR SHALL CHECK THAT THERE IS SUFFICIENT CLEARANCES FOR EQUIPMENT, DUCTWORK, ETC. AND ALSO TO AVOID ANY INTERFERENCE WITH THE PROCESS OF CONSTRUCTION.
DUCTWORK TRUNK LINE AND DROP LOCATIONS MAY VARY FROM PLAN DUE TO TRUSS CONFIGURATION.

J. AS BUILT DRAWINGS SHALL BE SUBMITTED TO OWNER AT THE COMPLETION OF PROJECT.

2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT, FOR REVIEW PRIOR TO PURCHASING.

3. DESIGN PARAMETERS:

A. OUTDOOR DESIGN TEMPERATURE (SUMMER): 91°F DB AND 77°F WB
B. OUTDOOR DESIGN TEMPERATURE (WINTER): 46°F
C. INDOOR DESIGN TEMPERATURE (SUMMER): 75°F DB
D. INDOOR DESIGN TEMPERATURE (WINTER): 70°F DB

4. ALL THERMOSTATS SHALL HAVE HEATING MODE MAXIMUM SETTING OF 75 F, AND COOLING MODE MINIMUM SETTING OF 70 F. THE THERMOSTAT SHALL BE ARRANGED TO PREVENT THE SIMULTANEOUS OPERATION OF HEATING AND COOLING.

5. ELECTRICAL CONTROLS AND POWER WIRING: UNDER ELECTRICAL CONTRACT.

6. EQUIPMENT SPECIFIED BY MANUFACTURER'S NUMBER SHALL INCLUDE ALL ACCESSORIES, CONTROLS, ETC., LISTED IN THE CATALOG AS STANDARD WITH THE EQUIPMENT. OPTIONAL OR ADDITIONAL ACCESSORIES SHALL BE FURNISHED AS SPECIFIED.

7. MATERIALS:

A. REFRIGERANT PIPING: SHALL BE TYPE L SOFT DRAWN, COPPER TUBING, DEHYDRATED FOR REFRIGERANT USE. SIZED AS SHOWN ON DRAWINGS OR AS PER AIR CONDITIONING EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

B. INSULATION: REFRIGERANT SUCTION PIPING SHALL BE INSULATED WITH 1/2" THICK FOAMED PLASTIC INSULATION, FIRE RETARDANT TYPE. INSULATION SHALL BE INSTALLED IN PIPING BEFORE ASSEMBLY. NO SPLIT INSULATION WILL BE ACCEPTABLE. SEAL JOINTS WITH MANUFACTURER'S APPROVED ADHESIVE AND GREY TAPE.

8. DUCTWORK:

A. ALL HVAC DUCTWORK SHALL CONFORM TO SMACNA STANDARDS. ALL EXTERIOR DUCTWORK SHALL BE GALVANIZED SHEET METAL WITH INTERNAL R-8 INSULATION. ALL INTERIOR DUCTWORK TO BE FIBERGLASS BOARD UNLESS OTHERWISE NOTED AND CONFORM WITH LOCAL CODES. FIBERGLASS DUCT BOARD SHALL BE RESISTANT TO CONDENSATION, MOLD, BACTERIAL GROWTH AND SHALL BE TREATED WITH AND EPA-REGISTERED ANTI MICROBIAL AGENT. DUCTWORK SHALL BE MINIMUM 1-1/2" THICK (R-6.0). OPERATING STATIC PRESSURE ±2 IN. WG. (500 PA)

B. EXHAUST AIR – MINIMUM 28 GAGE, GALVANIZED METAL OR MINIMUM 26 GAGE ALUMINUM.
- RANGE HOOD TO BE 400 CFM MAXIMUM. IF MORE THAN 400 CFM MAKE UP AIR MUST BE SHOWN AS PER FBC MECH 505.2. MECH. CONTRACTOR SHALL FIELD COORDINATE WITH EQUIPMENT MANUFACTURER PRIOR TO EQUIPMENT INSTALLATION.
- ALL EXHAUST DUCT TO BE INSULATED WHEN RUNNING IN CONDITIONED SPACE (INCLUDING UNVENTED ATTIC) AND BACK DRAFT DAMPER TO BE INSTALLED AT THE POINT OF EXITING THE BUILDING, THROUGH EITHER WALL CAP OR ROOF CAP.

C. ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS.

D. FLEXIBLE INSULATED DUCTWORK WITH 1 1/2" FIBERGLASS INSULATION WITH FRK VAPOR BARRIER, CLASS I AIR DUCT, U.L. R-6.0 MIN.

E. DRYER DUCTWORK: MINIMUM 26 GAGE, GALVANIZED STEEL, HAVING A SMOOTH INTERIOR SURFACE WITH JOINTS RUNNING IN THE DIRECTION OF AIRFLOW AND WITHOUT SHEET METAL SCREWS OR OTHER FASTENERS IN THE AIR STREAM. MAXIMUM LENGTH SHALL NOT EXCEED 25 FEET. MAXIMUM LENGTH SHALL BE REDUCED 2-1/2 FT FOR EACH 45° BEND AND 5 FT FOR EACH 90° BEND. EXHAUST DUCT SHALL BE A MINIMUM NOMINAL SIZE OF 4" DIAMETER. WALL CAP SHALL BE PROVIDED WITH BACK DRAFT DAMPER, NO SCREEN.

9. AIR DISTRIBUTION DEVICES AND ACCESSORIES SHALL BE TITUS OR APPROVED EQUAL.
10. ALL HVAC DUCT ELBOWS MUST BE FURNISHED WITH APPROVED TURNING VANES.
11. PROVIDE METAL ROUND FITTINGS WITH SCOOP AT ALL FLEXIBLE DUCT CONNECTION TO SUPPLY DUCT.
12. PROVIDE ACCESS DOORS AS REQUIRED FOR ALL MECHANICAL EQUIPMENT TO SERVICE AND VISUALLY CHECK ROTATION OF FANS AND MOTORS, ADJUST OR REPLACE CONTROLS, ETC.
13. TEST AND BALANCE: CONTRACTOR SHALL TEST AND BALANCE ALL VENTILATION AND AIR CONDITIONING SYSTEMS. SUBMIT FOUR COPIES OF TEST AND BALANCE REPORT TO OWNER FOR APPROVAL.
14. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENTS OR REPAIRS OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED OR IS NOT OPERATING PROPERLY.
15. ARCHITECTURAL AND / OR ENGINEERING EXPENSES THAT ARE INCURRED DUE TO REVISIONS FOR SUBSTITUTIONS BY THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR.
16. ALL MATERIALS SHALL BE NEW AND SHALL BEAR UNDERWRITER'S LABEL WHERE APPLICABLE.
17. CONTROLS: AIR CONDITIONING UNITS SHALL BE STARTED AND STOPPED THRU INDIVIDUAL THERMOSTAT. INDIVIDUAL THERMOSTATS SHALL START/STOP SUPPLY FANS AND ACTIVATE COOLING/HEATING SYSTEMS AS SELECTED.
18. IF THERE ARE ANY CHANGES IN ENGINEER'S DRAWINGS, IN DESIGN OR IN EQUIPMENT, WITHOUT ENGINEER'S CONSENT, THE AC. CONTRACTOR SHALL ASSUME ALL RESPONSIBILITIES FOR THE PROJECT.
19. NO SUBSTITUTION WILL BE CONSIDERED PRIOR TO BID UNLESS WRITTEN REQUEST FOR APPROVAL HAS BEEN RECEIVED BY THE ARCHITECT OR ENGINEER AT LEAST 10 DAYS PRIOR TO THE DATE OF BID. SUCH REQUEST SHALL INCLUDE THE NAME OF EQUIPMENT OR MATERIAL FOR WHICH IT IS TO BE SUBSTITUTED.
20. REFRIGERANT SUCTION LINE SHALL BE INSULATE WITH INSULATION HAVING A THERMAL RESISTIVITY OF NOT LESS THAN R-3 AND HAVING EXTERNAL SURFACE PERMEANCE NOT EXCEEDING 0.05 PERM WHEN TESTED IN ACCORDANCE WITH ASTM E 96

R- VALUES

-ROOF R-30
-EXPOSED FLOOR N/A
-EXT WALLS R-4.1
-GLASS IMPACT, FOR WINDOWS
U-0.90 SHGC-0.26 SC-0.30
-GLASS IMPACT, FOR SKYLIGHT N/A

AIR DISTRIBUTION SCHEDULE

SYMBOL	USE	TYPE	ACCESORIES	DESIGN MANUFACTURER & MODEL Mo.
A	SUPPLY AIR	LINEAR SLOT DIFFUSER	INSULATED PLENUM O.B.D.	TITUS FL-15 HIGHTRHOW
B	RETURN AIR/ TRANSFER	LINEAR SLOT DIFFUSER	–	TITUS FL-15 JETTHROW
C	RETURN AIR/ TRANSFER	RETURN AIR	O.B.D.	TITUS 350-FL
D	OUTSIDE AIR/ MAKE-UP	LINEAR 2 SLOT DIFFUSER	–	TITUS FL-20 JETTHROW

NOTE:
1. PROVIDE SPIN-IN COLLAR WITH VOLUME DAMPER AT TRUNK TO BRANCH CONNECTION.
2. PROVIDE 4 WAY DIFFUSION UNLESS NOTE ON PLAN.
3. REFER TO ARCHITECT PLANS FOR CEILING TYPE.
4. FINAL COLOR SELECTION SUBJECT TO ARCHITECT APPROVAL.
5. PROVIDE INSULATION ON THE BACK OF DIFFUSER IF IN UNCONDITIONED SPACE.
6. MAXIMUM NC 19.
7. ALL AIR DISTRIBUTION DEVICE & ACCESSORIES SHALL BE ALUMINUM CONSTRUCTION.

HVAC SYMBOL LEGEND

SYMBOL	DESCRIPTION
⊠	SUPPLY DUCT
▨	RETURN/EXHAUST DUCT
⌇	FLEXIBLE DUCT
⌐	ELBOW W/ TURNING VALVES
⧄ EF #	CEILING EXHAUST FAN # CFM
⧄ ←	EXHAUST REGISTER
⊠	CEILING DIFFUSERS
▯ ←	OUTDOOR AIR LOUVER / RETURN AIR GRILLE AT WALL
▯ →	SUPPLY AIR GRILLE AT WALL
Ⓣ	COOLING THERMOSTAT / HUMIDISTAT
TS	TEMPERATURE SENSOR
■	MOTORIZED DAMPER
⌴	VOLUME DAMPER
⬡X A X B #	X: AIR DEVICE TYPE AXB: NECK SIZE # CFM
—	CONDENSATE DRAIN LINE
—	REFRIGERANT LINES SET
AHU	AIR HANDLING UNIT
CFM	CUBIC FEET PER MINUTE
CU	CONDENSING UNIT
CD	CONDENSATE DRAIN LINE
EF–	EXHAUST FAN UNIT
GWH#–	GAS WATER HEATER
MD	MOTORIZED DAMPER
N/A –	NOT APPLICABLE.
RA	RETURN AIR
REF. G&L REG.	REFRIGERANT GAS & LIQUID LINES
SA	SUPPLY AIR
OBD	OPPOSED BLADE DAMPER
VD	VOLUME DAMPER
UD ←	UNDERCUT DOOR

FAN SCHEDULE

UNIT DESIGNATION		EF-1
AREA SERVED		BATHROOM
OPERATING WEIGHT, LBS		8.82
LOCATION		CEILING
FAN TYPE		CLG. BLOWER
FAN	TOTAL AIR, CFM	50-80-100
	DRIVE TYPE	SIROCCO
	FAN WHEEL TYPE	CENTRIFUGAL
	POWER CONS., W.	4.4-7.2-11.1
	FAN SPEED, RPM	--
	TOTAL STATIC PRESSURE, IN OF W.C.	0.25"
	FAN MOTOR (AMPS)	0.09-0.13-0.20
	FAN MOTOR STARTER TYPE	WALL SWITCH
	STARTER FURNISHED BY	MC
	ELECTRICAL SERVICE	120-1-60
	UNIT DIMENSIONS HXWXD (IN)	7 X 15 X 16
	SONES	0.1
	DESIGN MANUFACTURER	PANASONIC
	MODEL NUMBER	FV-0510VS1
ACCESSORIES	SERVICE SWITCH	YES
	SMOKE DETECTOR (U.L. APPROVED)	NO
	DUCT DIAM. INCH	4
	CONSTRUCTION	ALUM/PLASTIC
	BACKDRAFT DAMPER	YES
	BIRDSCREEN	NO
	THERMAL FUSE PROTECTION	YES
	THERMOSTAT CONTROL	NO
	MOUNTING OPENING	10.5" SQ
	FILTER AND FILTER FRAME	NO

NOTES:
1- UL LISTED FOR TUB/SHOWER ENCLOSURE.
2- MFG IN ISO 9001 CERTIFIED FACILITY.
3- ENERGY STAR QUALIFIED.
4- ALL FANS WITH BACKDRAFT DAMPER.
5- ALL FANS PROVIDE WITH SPEED CONTROLER.

HVAC DESIGN REQUIRES:	YES	NO
DUCT SMOKE DETECTOR	–	X
FIRE DAMPER(S)	–	X
SMOKE DAMPER(S)	–	X
FIRE RATED ENCLOSURE	–	X
FIRE RATED ROOF/FLOOR CEILING ASSEMBLY	–	X
FIRE STOPPING	–	X
SMOKE CONTROL	–	X

COMBUSTION, VENTILATION & DILUTION AIR CALCULATIONS:

GAS DRYER	23,000 BTU
GAS DRYER	23,000 BTU
GAS RANGE	120,200 BTU
TOTAL--------------	166,200 BTU

FBC-G.304.9,
MINIMUM COMBUSTION AIR RATE 0.35 CFM PER 1,000 BTU/HR
MINIMUM REQUIRED 58.17 CFM.

OUTSIDE AIR REQUIRED FOR PRINCIPAL HOUSE IS 510 CFM.
OUTSIDE AIR BY AIR HANDLER UNIT:

AHU#1--115CFM
AHU#2--45CFM
AHU#3--150CFM
AHU#4--120CFM
AHU#5--80CFM
AHU#6--80CFM
AHU#7------
AHU#8--50CFM

OUTSIDE AIR REQUIRED CALCULATION SCHEDULE (CFM)

UNIT	AREA SERVED	# OF PEOPLE	SFT	0.35 ACH	CFM/PEOPLE	O/A REQUIRED	O/A PROVIDED
AHU/CU-1	KITCHEN & DINING	3	1747	91.7	7.5	114.2	115
AHU/CU-2	JR. SUITE	1	612	32.1	7.5	39.6	45
AHU/CU-3	LIVING, STAIR & GYM	5	2109	110.7	7.5	148.2	150
AHU/CU-4	MASTER AREA	4	1621	85.1	7.5	115.1	120
AHU/CU-5	BEDROOM 211&214	2	1176	61.7	8.5	78.7	80
AHU/CU-6	BEDROOM 217&223	2	1156	60.7	8.5	77.7	80
AHU/CU-7	CAR GARAGE	0	860	-	-	-	-
AHU/CU-8	GUEST ROOM	2	600	31.5	7.5	46.5	50
NOTES:			9881			620.1	640

1. DESIGN BASED ON THE VENTILATION RATE PROCEDURE PER F.B.C. MECH. TABLE 403.3.
2. THE DESIGN WILL NEED TO BE RE-EVALUATED IF, AT A LATER TIME, CHANGES OCCUR IN THE USAGE OF THE SPACE, OR IF UNUSUALLY STRONG SOURCES OF SPECIFIC CONTAMINANTS ARE INTRODUCED INTO THE SPACE.

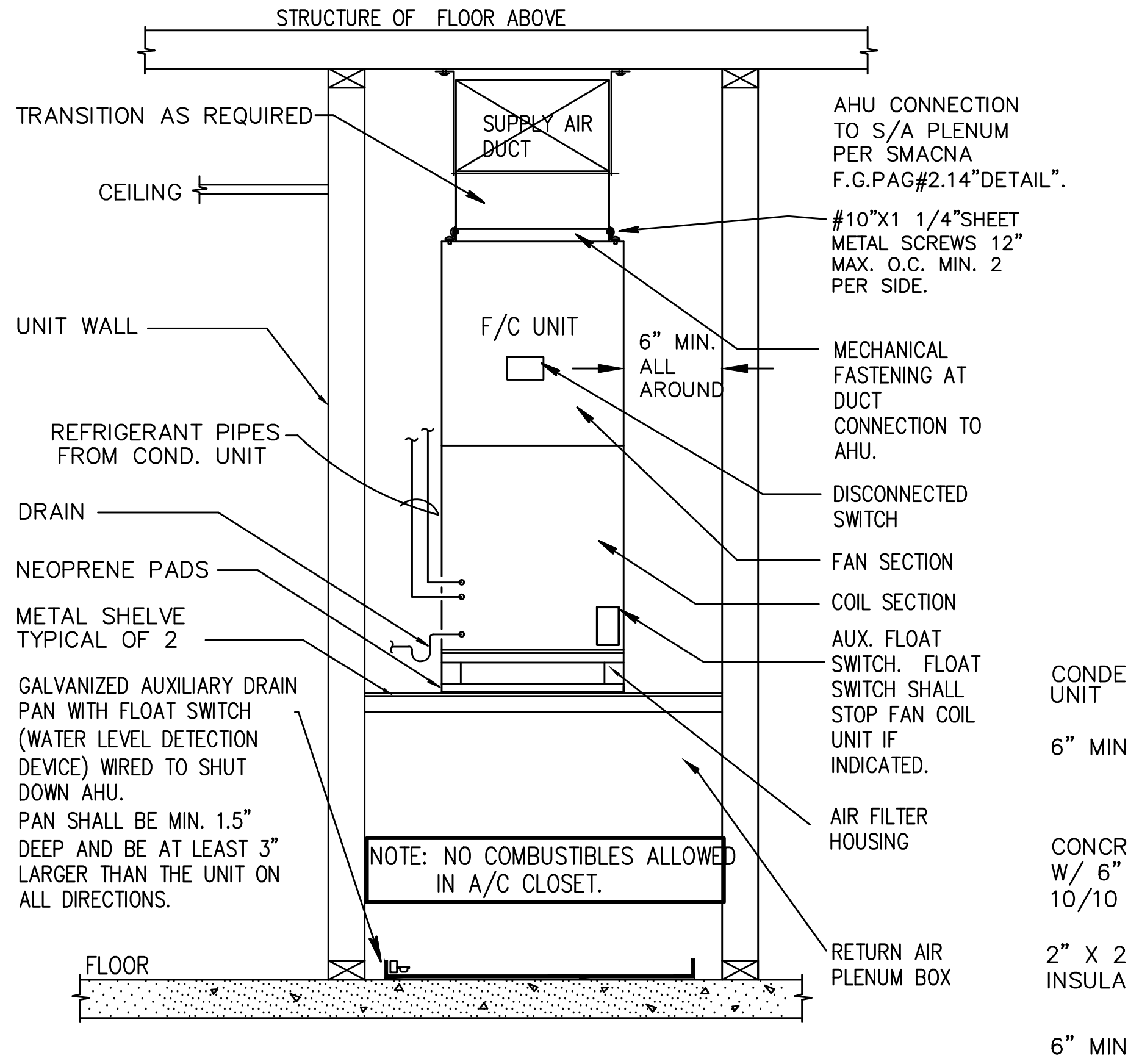
TECHNICAL SUMMARY OF CARRIER EQUIPMENTS

SINGLE CIRCUIT SPLIT SYSTEMS	(208-230/1/60)
NOM TONS	1.5
SYSTEM SEER	16.5
SYSTEM SEER2	15.5
MODEL NO:	24SPA618-3
MODEL NO:	FJ4DNX18
CFM	600 @ .5"
REFRIGERANT	R-410A
AMBIENT	95
CAP (MBH) @ 80/67 (TC/SC)	18.0 / 12.7
CAP (MBH) @ 75/62 (TC/SC)	16.5 / 12.9
CONDENSING UNIT DATA:	AHU-2
COMPRESSOR QTY / STAGES	1 / 1
COMPRESSOR 1 RLA - LRA	8.8 - 42.6
COND. FAN FLA	0.40
MCA	11.4
MOCP	20
DIMENSIONS (LxWxH) (IN)	26 x 26 x 29
STD WEIGHT (LBS)	141
AIR HANDLER DATA:	AHU-2
EVAP. FAN FLA - BHP	2.9 - 1/3
HEATER KW (208 / 230)	3.8 / 5.0
MCA (208 / 230)	26.3 / 28.6
MOCP (208 / 230)	30 / 30
DIMENSIONS (LxWxH) (IN)	22 x 13 x 43
STD WEIGHT (LBS)	120
REF. TUBES O.D. (IN):	
SUCTION LINE	3/4
LIQUID LINE	3/8

SINGLE CIRCUIT SPLIT SYSTEMS - INVERTER			(208-230/1/60)
NOM TONS	3.0	4.0	5.0
SEER	18.0	18.0	16.5
SEER2	17.5	18.0	16.5
MODEL NO:	24VNA936-3	24VNA948-3	24VNA960-3
MODEL NO:	FE4ANF005	FE4ANB006	FE4ANB006
CFM	1200 @ .5"	1600 @ .5"	2000 @ .5"
REFRIGERANT	R-410A	R-410A	R-410A
AMBIENT	95	95	95
CAP (MBH) @ 80/67 (TC/SC)	35.4 / 27.3	46.6 / 36.0	58.0 / 44.9
CAP (MBH) @ 75/62 (TC/SC)	34.0 / 24.9	44.8 / 32.8	55.8 / 40.8
CONDENSING UNIT DATA:	CU-5 & 6	C/U-1 & 4	C/U-3
COMPRESSOR QTY / STAGES	1 / Variable	1 / Variable	1 / Variable
COMPRESSOR 1 RLA	18.4	20.9	30.9
COND. FAN FLA	1.2	1.2	1.4
MCA	24.2	27.3	40
MOCP	40	40	60
DIMENSIONS (LxWxH) (IN)	24" x 24" x 39"	32" x 32" x 40"	32" x 32" x 43"
STD WEIGHT (LBS)	186	255	282
AIR HANDLER DATA:	AHU-5 & 6	AHU-1 & 4	AHU-3
EVAP. FAN FLA - BHP	4.3 - 1/2	6.8 - 3/4	6.8 - 3/4
HEATER KW	8.0	8.0	10.0
MCA (208 / 230)	44.7 / 48.5	44.7 / 48.5	53.8 / 58.5
MOCP (208 / 230)	45 / 50	45 / 50	60 / 60
DIMENSIONS (LxWxH) (IN)	22" x 22" x 54"	22" x 25" x 60"	22" x 25" x 60"
STD WEIGHT (LBS)	172	207	207
REF. TUBES O.D. (IN):			
SUCTION LINE	3/4	7/8	7/8
LIQUID LINE	3/8	3/8	3/8

NOTES:
1. PROVIDE FACTORY INSTALLED DOUBLE WALL INSULATED CABINET.
2. PROVIDE FACTORY INSTALLED ECM BLOWER MOTOR.
3. PROVIDE FACTORY INSTALLED NON CORROSIVE VERTICAL AND HORIZONTAL DRAIN PANS.
4. PROVIDE FACTORY INSTALLED ALUMINUM EVAPORATOR COIL WITH ELECTRONIC EXPANSION VALVE.
5. AIR HANDLER UNIT WITH CONDENSATE OVERFLOW SWITCH CONNECTION.

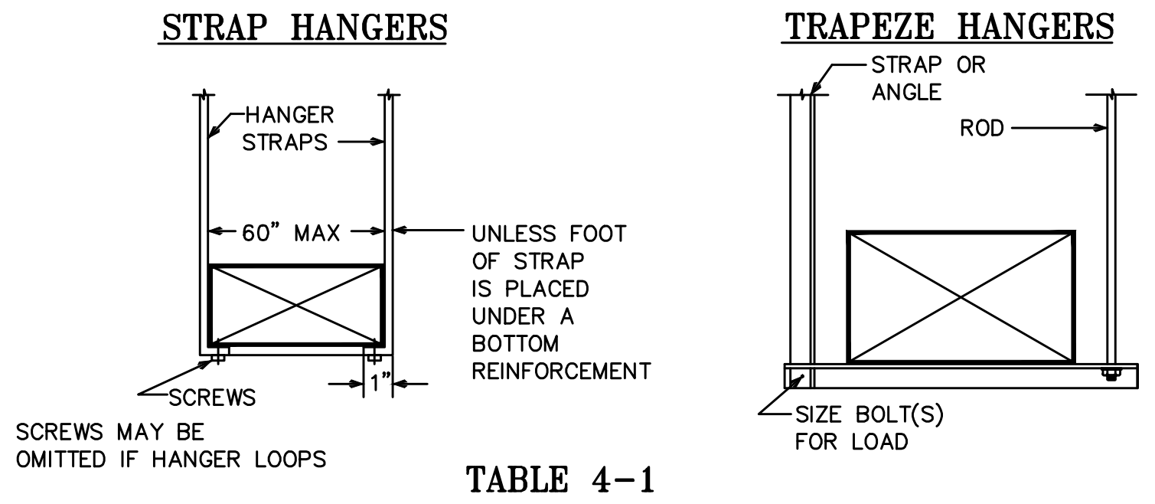
CU NOTES:
1. PROVIDE FACTORY INSTALLED COMPOSITE BASE FOR OUTDOOR UNIT.
2. PROVIDE FACTORY INSTALLED ALUMINUM CONDENSER COIL.
3. PROVIDE FIELD INSTALLED OEM PROGRAMMABLE THERMOSTAT.
4. UNITS SHALL CONFORM TO FLORIDA BUILDING CODE LATEST EDITION FOR HVHZ INSTALLATION.
5. CONTRACTOR MUST VERIFY TOTAL REFRIGERANT PIPING LENGTH AND PIPING LIFT THAT IS NOT GREATER THAN THOSE VALUES RECOMMENDED BY MANUFACTURER.


STRUCTURE OF FLOOR ABOVE
TRANSITION AS REQUIRED
CEILING
SUPPLY AIR DUCT
AHU CONNECTION TO S/A PLENUM PER SMACNA F.G.PAG#2.14"DETAIL".
#10"X1 1/4"SHEET METAL SCREWS 12" MAX. O.C. MIN. 2 PER SIDE.
UNIT WALL
F/C UNIT
6" MIN. ALL AROUND
MECHANICAL FASTENING AT DUCT CONNECTION TO AHU.
REFRIGERANT PIPES FROM COND. UNIT
DISCONNECTED SWITCH
DRAIN
FAN SECTION
NEOPRENE PADS
COIL SECTION
METAL SHELVE TYPICAL OF 2
AUX. FLOAT SWITCH. FLOAT SWITCH SHALL STOP FAN COIL UNIT IF INDICATED.
GALVANIZED AUXILIARY DRAIN PAN WITH FLOAT SWITCH (WATER LEVEL DETECTION DEVICE) WIRED TO SHUT DOWN AHU. PAN SHALL BE MIN. 1.5" DEEP AND BE AT LEAST 3" LARGER THAN THE UNIT ON ALL DIRECTIONS.
AIR FILTER HOUSING
NOTE: NO COMBUSTIBLES ALLOWED IN A/C CLOSET.
RETURN AIR PLENUM BOX
FLOOR

NOTE:
1. PROVIDE MINIMUM 6" SERVICE/ MAINTENANCE AREA AROUND AIR HANDLING UNIT.
2. PROVIDE FLOAT SWITCH IN DRAINPAN WIRED TO SHUT DOWN AC UNIT IN CASE OF CONDENSATE STOPPAGE. AS PER FBC 307.2.3.

AIR HANDLER UNIt MOUNTING DETAIL

N.T.S.


STRAP HANGERS

TRAPEZE HANGERS
HANGER STRAPS
60" MAX
UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT
1"
SCREWS
SCREWS MAY BE OMITTED IF HANGER LOOPS
STRAP OR ANGLE
ROD
SIZE BOLT(S) FOR LOAD

TABLE 4-1

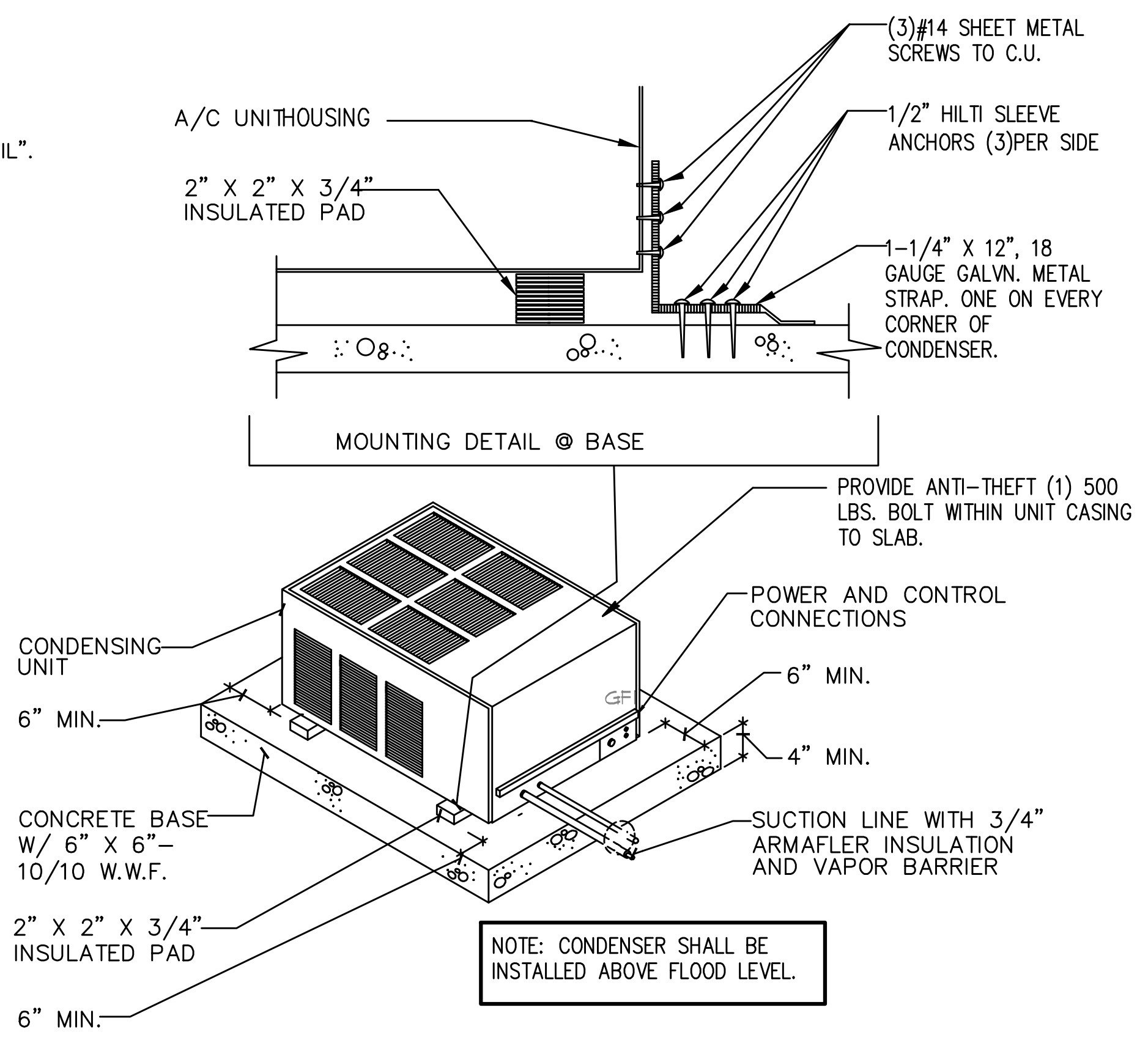
RECTANGULAR DUCT HANGERS
MINIMUM SIZE

MAXIMUM HALF OF DUCT PERIMETER	PAIR AT 10 FT SPACING		PAIR AT 8 FT SPACING		PAIR AT 5 FT SPACING		PAIR AT 4 FT SPACING	
	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD
$\frac{P}{2}$ = 30"	1"x22 GA.	10 GA. (.135")	1"x22 GA.	10 GA. (.135")	1"x22 GA.	12 GA. (.106")	1"x22 GA.	12 GA. (.106")
$\frac{P}{2}$ = 72"	1"x18 GA.	3/8"	1"x20 GA.	1/4'	1"x22 GA.	1/4"	1"x22 GA.	1/4"
$\frac{P}{2}$ = 96"	1"x16 GA.	3/8"	1"x18 GA.	3/8"	1"x20 GA.	3/8"	1"x22 GA.	1/4"
$\frac{P}{2}$ = 120"	1.5"x16 GA.	1/2"	1"x16 GA.	3/8"	1"x18 GA.	3/8'	1"x20 GA.	1/4"
$\frac{P}{2}$ = 168"	1.5"x16 GA.	1/2"	1.5"x16 GA.	1/2"	1"x16 GA.	1/2"	1"x18 GA.	3/8"
$\frac{P}{2}$ = 192"	–	1/2"	1.5"x16 GA.	1/2"	1"x16 GA.	1/2"	1"x16 GA.	3/8"
$\frac{P}{2}$ = 193" UP	SPECIAL ANALYSIS REQUIRED							

MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF INDOOR UNIT SCHEDULE

	System Tag	C/U-7	C/U-8
	Tag Reference	AHU-7	AHU-8
Nominal Data	Room Name		
	M-NET Address	N/A	N/A
	Model	NTXWST30C112AA	TPEADA0361AA80A
	Type	Wall -Mounted	Ceiling-Concealed (Ducted)
	Unit Dimensions (WxDxH)	46-1/16 x 11-5/8 x 14-3/8	55-1/8 x 28-7/8 x 9-7/8
	Unit Weight (Lbs)	45	84
	Nominal Cooling Capacity (BTU/h)	30,600	33,000
	Nominal Heating Capacity (BTU/h)	32,600	33,500
Design Conditions	Cooling Design Entering Temp DB/WB (°F) / [Water in temp]	80.0/67.0	80.0/67.0
	Heating Design Entering Temp DB/WB (°F) / [Water in temp]	70.0	70.0
	Cooling Diversity Full/Partial (See Note 5, 6)	FULL DEMAND	FULL DEMAND
	Heating Diversity Full/Partial (See Note 5, 6)	FULL DEMAND	FULL DEMAND
	Refrig Pipe Dim Liquid/Suction (inch)	5/8 / 1/4	5/8 / 3/8
Performance Data	Cooling Total Capacity (BTU/h)	30,041.3	33,340.6
	Cooling Sensible Capacity (BTU/h)	21,071.5	29,359.0
	Heating Capacity (BTU/h)	33,648.5	33,449.0
	Estimated Cooling Coil LAT (°F) / [LWT]	58.6	56.9
	Estimated Heating Coil LAT (°F) / [LWT]	103.5	95.8
Fan / Water Flow Data	Fan Speed Setting	HIGH	HIGH
	Peak Fan Airflow (cfm) / [Design gpm]	932	1201
	Max Fan ESP Setting 208V/230V (IN WG)		0.14/0.20/0.28/0.40/0.60
	Sound Pressure Per Fan Speed 208V/230V (dBA)	32-42-49-53/34-42-49-50	33-35-37-41
Electrical Data	Voltage / Phase	/	208/230V/1-phase
	Power Cooling 208V/230V (kW)		
	Power Heating 208V/230V (kW)		
	Electrical MCA/MFS	Powered by Outdoor	Powered by Outdoor
Notes / Options	Applicable System Notes - See Notes Below	1, 2, 3, 4	1, 2, 3, 4

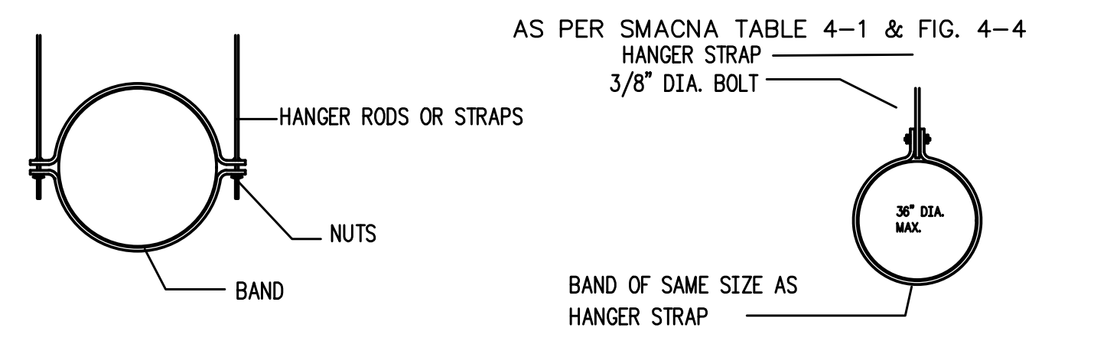
NOTES:
1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3. SEE OUTDOOR UNIT SCHEDULE FOR OUTDOOR AMBIENT CONDITIONS, CONNECTED CAPACITY, AND OTHER FACTORS ASSOCIATED WITH CORRECTED CAPACITIES
4. SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, SYSTEM CONTROLLERS, AND INTEGRATION DEVICES.
5. FULL DEMAND CORRECTED CAPACITY INCLUDES DE-RATE ASSOCIATED WITH INDOOR VS. OUTDOOR CONNECTED CAPACITY INDICATED ON OUTDOOR UNIT SCHEDULE FOR ASSOCIATED SYSTEM. PARTIAL CORRECTED CAPACITY ASSUMES SUFFICIENT DIVERSITY EXISTS SUCH THAT THE CONNECTED CAPACITY DE-RATE DOES NOT APPLY. IT IS THE DESIGNER'S RESPONSIBILITY TO ENSURE "DIAMOND SYSTEM BUILDER" IS SET IN THE APPROPRIATE OUTPUT CAPACITY SETTING (FULL DEMAND/PARTIAL DEMAND) PRIOR TO GENERATING THIS SCHEDULE.
6. IT IS RECOMMENDED TO ALWAYS BASE HEATING CORRECTED CAPACITY ON FULL DEMAND.


(3)#14 SHEET METAL SCREWS TO C.U.
A/C UNITHOUSING
1/2" HILTI SLEEVE ANCHORS (3)PER SIDE
2" X 2" X 3/4" INSULATED PAD
1-1/4" X 12", 18 GAUGE GALVN. METAL STRAP. ONE ON EVERY CORNER OF CONDENSER.
MOUNTING DETAIL @ BASE
PROVIDE ANTI-THEFT (1) 500 LBS. BOLT WITHIN UNIT CASING TO SLAB.
CONDENSING UNIT
POWER AND CONTROL CONNECTIONS
6" MIN.
6" MIN.
4" MIN.
CONCRETE BASE W/ 6" X 6"-10/10 W.W.F.
SUCTION LINE WITH 3/4" ARMAFLEX INSULATION AND VAPOR BARRIER
2" X 2" X 3/4" INSULATED PAD
NOTE: CONDENSER SHALL BE INSTALLED ABOVE FLOOD LEVEL.
6" MIN.

NOTE: CONCRETE CREWS SHALL BE RATED FOR 500 LBS. MIN. PULL-OUT CAPACITY.

CONDENSING UNIT MOUNTING DETAIL

TIE DOWN AS PER MAIMI-DADE APPROVED METHOD. N.T.S.



ROUND DUCT HANGERS

MINIMUM HANGER SIZES FOR ROUND DUCT							
DUCT DIAMETER	MAXIMUM SPACING	WIRE		ROD		STRAP	
		QUAN	SIZE	QUAN	SIZE	QUAN	SIZE
10" OR LESS	12'-0"	1	12 GAUGE	1	1/4"	1	1"x22 GAUGE
11"-18"	12'-0"	2	12 GAUGE	1	1/4"	1	1"x22 GAUGE
		1	8 GAUGE	---	---	---	---
19"-24"	12'-0"	2	10 GAUGE	1	1/4"	1	1"x22 GAUGE
25"-36"	12'-0"	2	8 GAUGE	1	3/8"	1	1"x20 GAUGE
37"-50"	12'-0"	---	---	2	3/8"	2	1"x20 GAUGE
51"-60"	12'-0"	---	---	2	3/8"	2	1"x18 GAUGE
61"-84"	12'-0"	---	---	2	3/8"	2	1"x18 GAUGE

NOTES :
1. STRAPS ARE GALVANIZED STEEL ; RODS ARE UNOATED OR GALVANIZED STEEL; WIRE IS BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED STEEL. ALL ARE ALTERNATIVES.
2. TABLE ALLOWS FOR CONVENTIONAL WALL THICKNESS, AND JOINTS SYSTEMS PLUS ONE LB/SF OF INSULATION WEIGHT. IF HEAVIER DUCTS ARE TO BE INSTALLED, ADJUST HANGER SIZES TO BE WITHIN THEIR LOAD LIMITS.

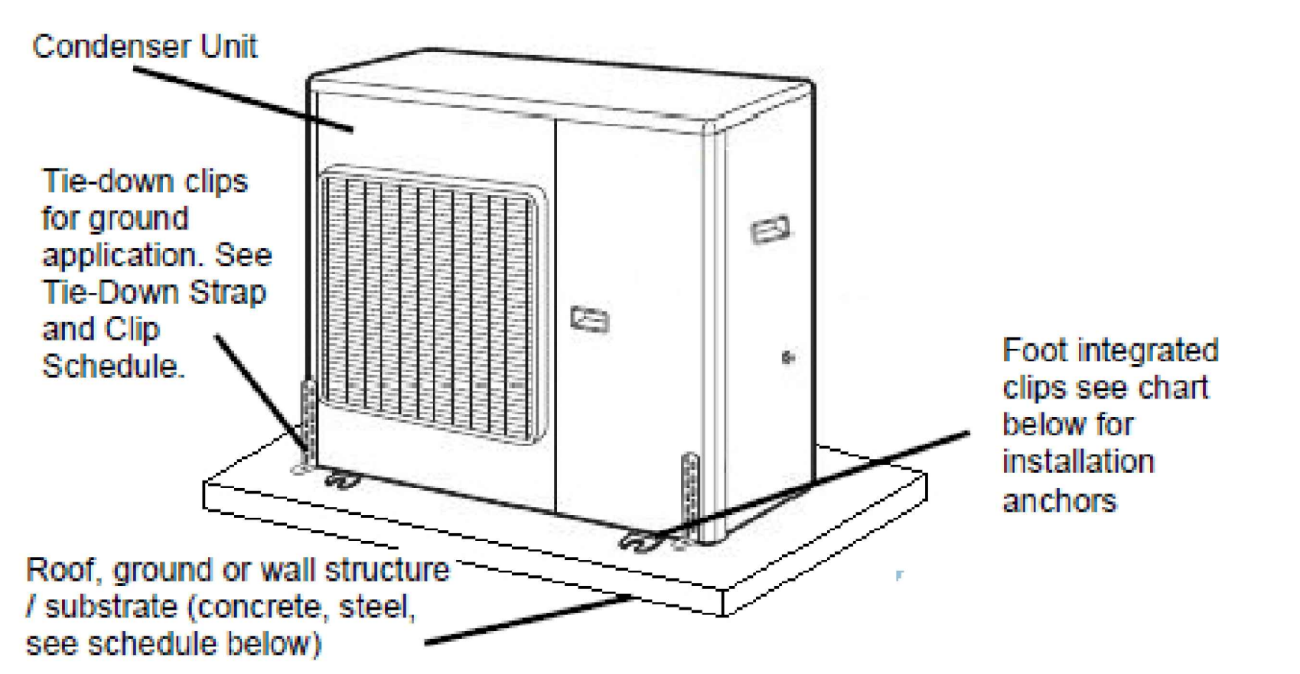
HVAC DUCTS HANGER SCHEDULE DETAILS

N.T.S.

MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF OUTDOOR UNIT SCHEDULE

	System Tag	SYSTEM 7	SYSTEM 8
	Tag Reference	C/U-7	C/U-8
Nominal Data	M-NET Address	N/A	N/A
	Model Number	NTXSST30C112AA	NTXSKS36A112AA
	Modules		
	Nominal Cooling Capacity (BTU/h)	30,600	33,000
	Nominal Heating Capacity (BTU/h)	32,600	33,500
	Cooling Efficiency (I)EER2 [SEER2]	9.2 [19.1]	9.1 [16.5]
	Heating COP @ 47°F [HSPF2]	2.86 [8.9]	3.0 [9.3]
	Unit Dimensions (WxDxH)	33-1/16 x 13 x 34-5/8	33-1/16 x 13 x 34-5/8
	Unit Weight (Lbs)	122	129
	Nom System Connected Capacity (% of NOM)	100.0 %	100.0 %
Design Conditions	Design Cooling Outdoor Temp DB (°F)	95.0	95.0
	Design Heating Outdoor Temp WB (°F)	43.0	43.0
	Max Pipe Length from BC or 1st Joint (feet)	0.0	0.0
	Refrig Pipe Dim High/Low Pressure (inch) (See Note 4)	1/4 / 5/8	3/8 / 5/8
Performance Data	Corrected Cooling Total Capacity (BTU/h)	30,041.3	33,340.6
	Corrected Heating Capacity (BTU/h)	33,648.5	33,449.0
	Sound Pressure (dBA)	55/57	55/55
Compressor Data	Compressor Type		
	Compressor Quantity		
Electrical Data	Voltage / Phase	208/230V /	208/230V / 1-phase
	MCA 208/230 or [460V]	22	17
	Recommended Fuse Size (RFS)		20
	MOCP	25	31
Notes / Options	Applicable System Notes - See Notes Below	1, 2, 3, 4, 5	1, 2, 3, 4, 5

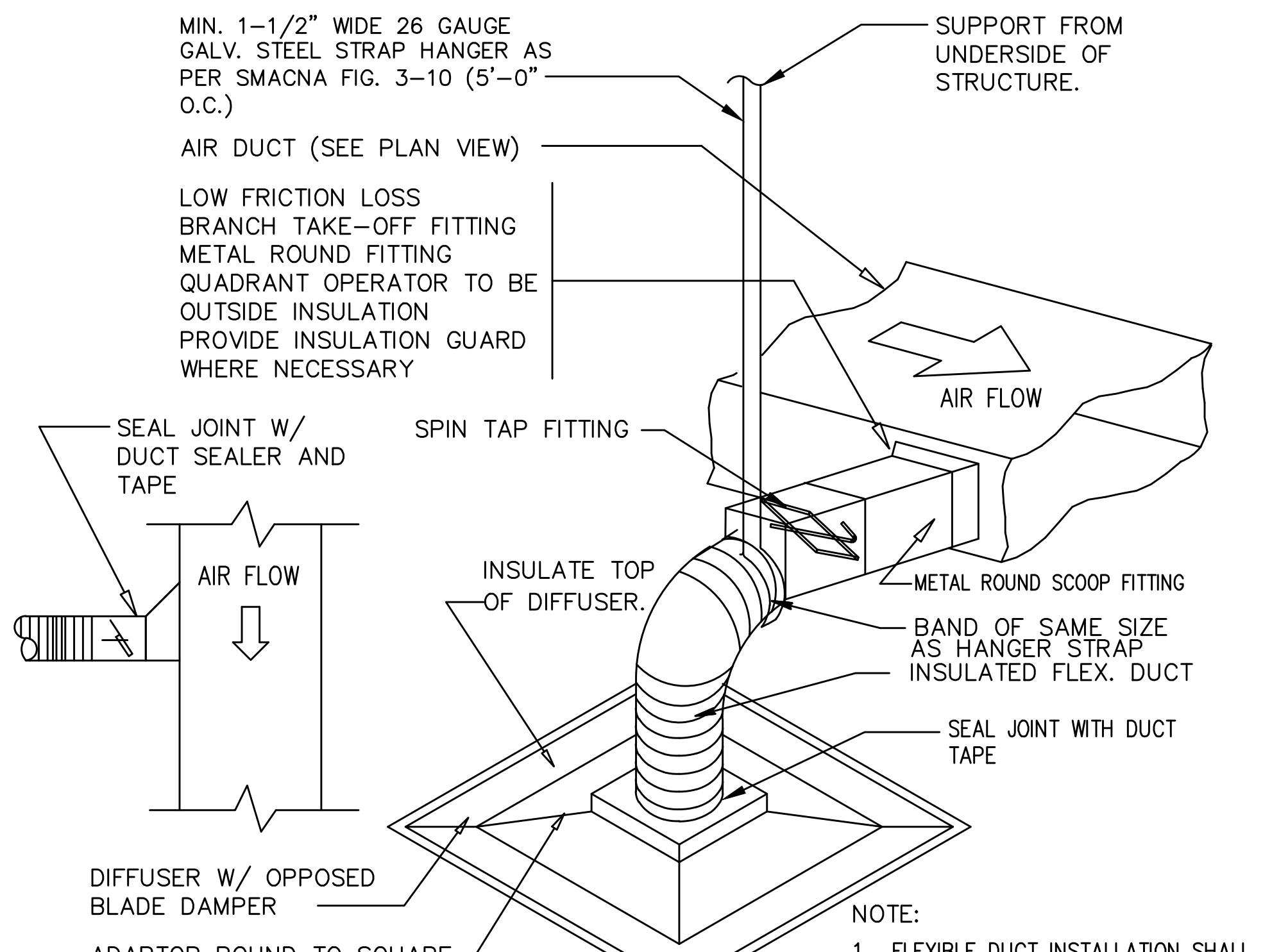
NOTES:
1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3. EFFICIENCY VALUES FOR EER, IEER, COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED & NON-DUCTED INDOOR UNITS.
4. FOR SYSTEMS WITH MULTIPLE MODULES, REFRIGERANT PIPE DIMENSIONS INDICATE TOTAL SYSTEM COMBINED PIPING DOWNSTREAM OF MODULE TWINNING.
5. ADDED FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING LAYOUT.
6. PROVIDE COATING FOR COASTAL USE


Condenser Unit
Tie-down clips for ground application. See Tie-Down Strap and Clip Schedule.
Foot integrated clips see chart below for installation anchors
Roof, ground or wall structure / substrate (concrete, steel, see schedule below)

NOTE: CONCRETE CREWS SHALL BE RATED FOR 500 LBS. MIN. PULL-OUT CAPACITY. CONDENSER SHALL BE INSTALLED ABOVE FLOOD LEVEL.

NEW CONDENSING UNIT#2 MOUNTING DETAIL

TIE DOWN AS PER MAIMI-DADE APPROVED METHOD. N.T.S.


MIN. 1-1/2" WIDE 26 GAUGE GALV. STEEL STRAP HANGER AS PER SMACNA FIG. 3-10 (5'-0" O.C.)
SUPPORT FROM UNDERSIDE OF STRUCTURE.
AIR DUCT (SEE PLAN VIEW)
LOW FRICTION LOSS BRANCH TAKE-OFF FITTING METAL ROUND FITTING QUADRANT OPERATOR TO BE OUTSIDE INSULATION PROVIDE INSULATION GUARD WHERE NECESSARY
AIR FLOW
SEAL JOINT W/ DUCT SEALER AND TAPE
SPIN TAP FITTING
AIR FLOW
INSULATE TOP OF DIFFUSER.
METAL ROUND SCOOP FITTING
BAND OF SAME SIZE AS HANGER STRAP
INSULATED FLEX. DUCT
SEAL JOINT WITH DUCT TAPE
DIFFUSER W/ OPPOSED BLADE DAMPER
ADAPTOR ROUND TO SQUARE IF REQUIRED

NOTE:
1. FLEXIBLE DUCT INSTALLATION SHALL MEET FBC. MECH. 603.5.6.6

FLEXIBLE DUCT CONNECTION DETAIL

N.T.S.

This item has been digitally signed and sealed by Amarilis Rodriguez, PE, on _________. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

JOB# 24-0307

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License Number 60236
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Signature ____________
Date ____________

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ISA CERTIFIED ARBORIST
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6545 SW 131 STREET PINECREST, FLORIDA 33156

PROJECT DESCRIPTION :
SINGLE FAMILY RESIDENCE

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SEAL:

FELIPE ALVARADO AR 91841

PHASE :
CONSTRUCTION DOCUMENTS

ISSUE DATE :
JUNE 4, 2024

SHEET TITLE :
MECHANICAL NOTES,
SCHEDULE & DETAILS

SHEET:
M-201