HVAC GENERAL NOTES

1. GENERAL

1.1. INSTALL IN ACCORDANCE WITH THE 2020 FBC 7TH EDITION, BUILDING, ENERGY CONSERVATION AND MECHANICAL, ASHRAE, SMACNA, NFPA AND LOCAL ORDINANCES.

1.2. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE OF THE WORK AND BECOMING FAMILIAR WITH THE CONDITIONS OF THE WORK PRIOR TO SUBMITTING A BID. THE CONTRACTOR IS REQUIRED TO BECOME FAMILIAR WITH ALL THE CONTRACT DOCUMENTS PERTAINING TO THE PROPOSED WORK. THE SUBMISSION OF A BID SHALL BE SUFFICIENT TO ESTABLISH THAT THE CONTRACTOR HAS INVESTIGATED THE SITE OF THE WORK AND IS SATISFIED TO ALL REASONABLE CONDITIONS BE ENCOUNTERED, THE WORK TO BE PERFORMED AND THE MATERIALS TO BE PROVIDED IN THE COMPLETION OF THE PROJECT.

1.3. THE CONTRACTOR MUST BE FAMILIAR WITH THIS TYPE OF INSTALLATION AND THOROUGHLY UNDERSTAND ALL THE REQUIREMENTS FOR THE INSTALLATION OF EACH PIECE OF EQUIPMENT HEREIN SHOWN. ITS PROPER OPERATION REQUIREMENTS AND TESTING PROCEDURES FOR CITY APPROVALS.

1.4. PROVIDE (FURNISH AND INSTALL) ALL NECESSARY MATERIALS AND LABOR FOR A COMPLETELY OPERATIONAL AIR CONDITIONING, HEATING AND VENTILATING SYSTEM AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED.

1.5. PAY FOR ALL FEES, INSPECTIONS AND CONNECTION CHARGES REQUIRED.

1.6. VERIFY AT JOB SITE ALL SPACE CONDITIONS, DIMENSIONS AND EQUIPMENT SIZES PRIOR TO DUCT FABRICATION OR INSTALLATION. COORDINATE REQUIREMENTS TO AVOID INTERFERENCE WITH OTHER TRADES.

1.7. NATURE OF DESIGN DRAWINGS: DESIGN DRAWINGS ARE DIAGRAMMATIC AND DO NOT INTEND TO SHOW EVERY FITTING, ELBOW, TRANSITION, ETC. THAT WILL BE NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM AS REQUIRED BY THESE SPECIFICATIONS.

1.8. COORDINATION DRAWINGS: PREPARE 1/4" SCALE COORDINATION DRAWINGS SHOWING MAJOR SYSTEM COMPONENTS FOR A/E APPROVAL. SUBMIT SHOP DRAWINGS FOR ARCHITECT/ENGINEER APPROVAL BEFORE PROCEEDING WITH THE PURCHASE OR INSTALLATION OF EQUIPMENT AND MATERIALS. SUBMIT ALL AT ONCE IN A BINDER WITH AN INDEX AND DIVIDERS AS REQUIRED TO SEPARATE ALL DIFFERENT MATERIALS AND EQUIPMENT.

1.9. GUARANTEE ALL WORK FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.

2. MATERIALS

2.1. DUCTWORK: ALL JOINTS SEALED WITH HIGH PRESSURE MASTIC.

2.1.1. GENERAL: ALL DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.

2.1.2. DUCTWORK MATERIALS:
A. AIR CONDITIONING DUCTWORK SHALL BE 1-1/2" STANDARD DUTY FOIL REINFORCED FIBERGLASS (R-6.0) MANUFACTURED LOGO PRINTED ON THE VAPOR BARRIER. DUCTWORK RUNNING IN ATTIC SPACE SHALL BE 2.0" STANDARD DUTY FOIL REINFORCED FIBERGLASS (R-8.0) MANUFACTURED LOGO PRINTED ON THE VAPOR BARRIER. ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SMACNA'S LOW PRESSURE DUCT MANUAL AND NAIMA FIBROUS GLASS DUCT CONTRUCTION STANDARDS. ALL DUCT JOINTS SHALL BE SEALED AND TAPED. DUCTS SHALL COMPLY WITH UL 181.
B. VENTILATION DUCTWORK (EXHAUST AND OUTDDOR AIR): GALVANIZED SHEET METAL, CONSTRUCTED, AND INSTALLED ACCORDING TO LATEST EDITION OF SMACNA'S. LOW PRESSURE CONSTRUCTION STD. (0.5" W.G.). SEAL ALL JOINTS WITH APPROVED FIRE RATED MASTIC. (30 GAUGE MINIMUM). OUTDOOR AIR INTAKE SHALL BE INSULATED R-8.0 WHEN IN ATTIC SPACE AND R-6.0 ELSEWHERE.
D. DRYER EXHAUST: GALVANIZED SHEET METAL, CONSTRUCTED, AND INSTALLED ACCORDING TO LATEST EDITION OF SMACNA'S. LOW PRESSURE CONSTRUCTION STD. (0.5" W.G.). INSTALLATION SHALL BE AS PER FMC. INSTALLATION SHALL BE AS PER FMC. (26 GAUGE MINIMUM).
E. ROUND INSULATED FLEXIBLE DUCT: PROVIDE AS SHOWN ON PLANS, WIREMOLD WCK W/ 1-1/2" INSULATION & REINFORCED ALUM. VAPOR OR APPROVED EQUAL.
F. RANGE EXHAUST DUCT SHALL BE GALVANIZED SHEET METAL (24 GAUGE MINIMUM) AND TERMINATING WITH ROOF OR WALL CAP WITH BACK DRAFT DAMPER. PROVIDE CORROSION RESISTANT SCREEN.

2.1.3. DUCTWORK ACCESSORIES:
A. PROVIDE DOUBLE THICKNESS TURNING VANES AT ALL SQUARE ELBOWS. WHERE THE ELBOWS ARE RECTANGULAR INSTALL SINGLE THICKNESS INSTEAD.
A.1. ALTERNATE A: PROVIDE 3-PIECE ELBOWS IN LIEU OF TURNING VANES FOR GLASS FIBER DUCTS ONLY.
A.2. ALTERNATE B: PROVIDE FULL RADIUS ELBOWS IN LIEU OF TURNING VANES.
B. PROVIDE VOLUME EXTRACTORS BEHIND EACH SUPPLY OUTLET AND AT EACH DUCT BRANCH.

2.2. AIR DISTRIBUTION PRODUCTS:
2.2.1. PROVIDE SUPPLY AND RETURN GRILLES AND DIFFUSERS AS INDICATED ON THE DRAWINGS.
2.2.2. PROVIDE EXTRUDED ALL ALUMINUM AIR DISTRIBUTION PRODUCTS.
2.2.3. PROVIDE FINISHES AND TYPES OF MOUNT IN COORDINATION WITH THE CEILING TYPES AS SHOWN ON ARCHITECTURAL DRAWINGS.
2.2.4. PROVIDE OPPOSED BLADE, KEY OPERATED DAMPERS BEHIND ALL AIR SUPPLY OUTLETS.

2.3. PIPING
2.3.1. REFRIGERANT PIPING. SEAMLESS COPPER TYPE "L" AND HARD OR SOFT DRAWN OC ACR COPPER TUBING WITH WROUGHT COPPER BRAZED JOINT FITTINGS, WITH SILVER BRAZING CONTAINING NOT LESS THAT 49% SILVER.
2.3.2. INSULTATION: INSULATE ALL REFRIGERANT SUCTION PIPING WITH 3/4" CLOSED CELL POLYETHYLENE PRE MOLDED INSULATION, WITH AND APPROVED PIPE AND SMOKE JACKET, PAINT ALL EXPOSED INSULATION WITH TWO COATS OF WHITE LATEX PAINT.

2.4. CONTROLS
2.4.1. GENERAL: PROVIDE THE NECESSARY AUTOMATIC CONTROLS FOR PROPER OPERATION OF ALL EQUIPMENT SPECIFIED HEREIN. FURNISH MAGNETIC
2.4.2. PROVIDE AIR CONDITIONING UNITS WITH PROGRAMMABLE MATCHING LOW VOLTAGE HEAT-COOL THERMOSTATS WITH ON-OFF AUTO SUB-BASE SWITCH, FURNISHED BY THE EQUIPMENT MANUFACTURER WITH HEAT-COOL STEPS AS REQUIRED. THERMOSTATS SHALL BE A COMBINATION COOLING/HEATING WITH SYSTEM COOL/AUTO/HEAT/OFF AND FAN ON/AUTO SELECTOR SWITCHES. 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.
2.4.3. CONTROL WIRING: INCLUDE STARTERS, DISCONNECTS AND REQUIRED ELECTRICAL DEVICES, INTERLOCK WIRING, RACEWAY, CONDUITS, PULL WIRES AND EXPOSED CONDUITS FOR TEMPERATURE CONTROL SYSTEM. ALL WIRING SHALL RUN IN CONDUITS, NO EXCEPTION.

2.5. IDENTIFICATION: LABEL ALL EQUIPMENT WITH ENGRAVED BLACK PLASTIC PLAQUES 12"x4" HIGH WITH 1.5" LETTERS.

3. EXECUTION

3.1. INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE WITH THE MANUFACTURES MANUAL AND RECOMMENDATIONS, FOR INSTALLATION, OPERATION AND SERVICE. VERIFY APPLIANCES CLEARANCE PER FBC RESIDENTIAL M1306.1 AND M1306.2. EQUIPMENT AND APPLIANCES INSTALLED OUTDOORS SHALL BE LISTED AND LABELED FOR OUTDOOR INSTALLATION. SUPPORT AND FOUNDATIONS SHALL PREVENT EXCESSIVE VIBRATION, SETTLEMENT OR MOVEMENT OF THE EQUIPMENT PER FBC M1401.4. SUPPORT AND FOUNDATIONS SHALL BE IN ACCORDANCE WITH SECTION M1305.1.4.1. IN FLOOD HAZARD AREAS PER TABLE R301.2(1), EQUIPMENT AND APPLIANCES SHALL BE LOCATED IN ACCORDANCE WITH SECTION R322.1.6.

3.2. SEAL ALL DUCT JOINTS WITH APPROVED FIRE AND SMOKE RATED HIGH PRESSURE MASTIC.

3.3. THERMOSTAT LOCATION IS CRITICAL TO PROPER EQUIPMENT OPERATION. INSTALL THERMOSTAT AT LOCATIONS SHOWN ON PLANS. RELOCATE ONLY WHEN APPROVED BY THE ARCHITECT/ENGINEER IN WRITING. SENSORS MUST BE BETWEEN 3 AND 6 FEET (BETWEEN 1 AND 2 METERS) ABOVE THE FLOOR.

3.4. WHERE RETURN AIR IS PROPOSED BY WAY OF DOOR UNDERCUTS, PROVIDE A MINIMUM 1" CLEAR SPACE BETWEEN THE BOTTOM OF THE DOOR AND THE FLOOR FINISH CARPET OR TILE.

3.5. EQUIPMENT MUST OPERATE FREE OF OBJECTIONABLE NOISE AND VIBRATION REPAIR AND/OR REPLACE ALL SOURCES OF NOISE AND VIBRATION FOUND TO BE OBJECTIONABLE, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.

3.6. BALANCE ALL SYSTEMS TO PROVIDE AIR QUANTITIES AND CAPACITIES TO MATCH SPECIFIED FLOWS AND CAPACITIES. NOTIFY A/E OF ANY DEFICIENCIES NOTED DURING TESTING & BALANCING CALIBRATE FLOWS TO NEW EQUIPMENT PER MANUFACTURES REQUIREMENTS. BEFORE COMPLETING TEST & BALANCE PROCEDURES. ALLOW NECESSARY TIME FOR IMPLEMENTING PROPOSED SOLUTIONS BEFORE CONTINUING WITH TEST & BALANCE. AT END OF TEST AND BALANCE ISSUE A COMPLETE REPORT FOR A/E APPROVAL AND ALLOW TIME AND PROVIDE NECESSARY INSTRUMENTS FOR SPOT CHECKING WITH ARCHITECT/ENGINEER. SUBMIT FINAL TEST AND BALANCE REPORT TO A/E FOR ACCEPTANCE. AIR QUANTITIES SHOWN ARE TO BE ADJUSTED AS REQUIRED TO MEET SPECIFIC JOB CONDITIONS.

3.7. PROVIDE NEW FILTERS FOR AHUs BEFORE STARTING. THESE FILTERS MUST ALSO BE REPLACED PRIOR TO FINAL ACCEPTANCE BY OWNER.

3.8. ALL OUTSIDE EQUIPMENT SHALL BE SECURED TO WITHSTAND 175 MPH WINDS.

3.9. STRICTLY FOLLOW ALL MANUFACTURERS INSTALLATION MANUALS AND INSTRUCTIONS IN THE INSTALLATION OF ALL EQUIPMENT. OBTAIN, FROM EACH MANUFACTURER, PROPER CERTIFICATION FOR THE ADEQUACY OF THE INSTALLATION OF ALL PIECES OF EQUIPMENT BEFORE PLACING SYSTEM IN OPERATION.

3.10. PROVIDE MAINTENANCE AND OPERATION MANUAL.

3.11. PROVIDE AS-BUILT REPRODUCIBLE DRAWINGS.

3.12. PROVIDE INSTRUCTION TO OWNERS DESIGNATED PERSONNEL.

3.13. PROVIDE ACCESS PANELS TO DAMPERS AS SHOWN ON PLANS. CABLE CONTROL FOR VOLUME DAMPERS MUST BE PROVIDED TO AVOID THE USE OF ACCESS PANELS.

DESIGN PARAMETERS

CLIMATE ZONE	1A
SUMMER INDOOR DESIGN CONDITIONS	75.0ºF DB/50.0% RH
WINTER INDOOR DESIGN CONDITIONS	72.0ºF DB
SUMMER OUTDOOR DESIGN CONDITIONS	91.9ºF DB/77.6ºF WB
WINTER OUTDOOR DESIGN CONDITIONS	48.8ºF DB/40.9ºF WB
GLASS U-VALUE/SHGC	0.48/0.35
WALL INSULATION R-VALUE	5.0
EXPOSED FLOORS R-VALUE	13.0
CEILING INSULATION R-VALUE	30.0

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

AIR DISTRIBUTION SCHEDULE

DESIGNATION	DESCRIPTION	MOUNTING	AIR PATTERN	MODULE DIMENSIONS (in)	MATERIAL	ACCESORIES	MANUFACTURER/ MODEL NO.	KEYNOTES
A	ARCHITECTURAL LINEAR DIFFUSER WITH CONTINUOUS SLOT PLENUM	CEILING/ SIDEWALL	N/A	N/A	ALUMINUM	CABLE CONTROL SYSTEM FOR VOLUME DAMPERS	TITUS FL-15 (JET THROW PATTERN CONTROLLER)	
B	ARCHITECTURAL LINEAR DIFFUSER WITH CONTINUOUS SLOT PLENUM	CEILING/ SIDEWALL	AS PER PLANS	N/A	ALUMINUM	CABLE CONTROL SYSTEM FOR VOLUME DAMPERS	TITUS FL-15 (HIGH THROW PATTERN CONTROLLER)	
C	ARCHITECTURAL LINEAR DIFFUSER	CEILING/ SIDEWALL	N/A	N/A	ALUMINUM	OPPOSED BLADE DAMPER	TITUS FL-15 (JET THROW PATTERN CONTROLLER)	
D	SQUARE DIFFUSER	CEILING	AS PER PLANS	N/A	ALUMINUM	OPPOSED BLADE DAMPER/ROUND TO RECTANGULAR TRANSITION	TITUS 250-AA	1
E	ALUMINUM LOUVERED SUPPLY AIR GRILLES	CEILING	0° DEFLECTION	N/A	ALUMINUM	N/A	TITUS 271FL	
F	ALUMINUM LOUVERED RETURN/EXHAUST AIR GRILLES	SIDEWALL/ CEILING	N/A	N/A	ALUMINUM	OPPOSED BLADE DAMPER	TITUS 355ZFL	2

KEYNOTES:
1. OPPOSED BLADE DAMPER ONLY FOR DUCT MOUNTED DIFFUSERS. CABLE CONTROL FOR VOLUME DAMPERS WHERE CONNECTED WITH FLEX DUCTS.
2. ELEMENTS THAT SERVE AS TRANSFER, DO NOT REQUIRE OPPOSED BLADE DAMPER.

NOTES:
1. REFER TO ARCHITECT PLANS FOR CEILING TYPE.
2. FINAL COLOR SELECTION SUBJECT TO ARCHITECT APPROVAL.
3. PROVIDE INSULATION ON THE BACK OF DIFFUSER IF IN UNCONDITIONED SPACE.
5. MAXIMUM NC 20.

SPLIT H/P UNITS SCHEDULE

			AHU-1.1/1.2	AHU-1.5/1.6	AHU-2.1	AHU-2.2
AIR HANDLING UNIT		UNIT DESIGNATION				
		AREA SERVED	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
		OPERATING WEIGHT, LB	162	130	141	141
		DIMENSIONS (WxHxD) in	24 1/2 x 55 1/2 x 21 11/16	21 x 50 1/2 x 21 11/16	21 x 50 1/2 x 21 11/16	21 x 57 x 21 11/16
		DESIGN MANUFACTURER	RHEEM	RHEEM	RHEEM	RHEEM
		MODEL NO.	RHMV6024MEACJC	RHMV2421HEACJC	RHMV2421HECJC	RHMV6021SEACJC
		NOMINAL CAPACITY, TON	5.0	2.0	4.0	3.0
		REFRIGERANT	R-410A	R-410A	R-410A	R-410A
		CONFIGURATION	VERTICAL	VERTICAL	VERTICAL	VERTICAL
		MCA/MOP	4.9/15.0	4.3/15.0	4.4/15.0	4.4/15.0
	FAN	TOTAL AIR, CFM	2,000	800	1,600	1,200
		OUTSIDE AIR, CFM	100	50	30	100
		EXT. STATIC PRESSURE, in w.g.	0.60	0.40	0.60	0.50
		FAN MOTOR HP	3/4	1/2	3/4	3/4
		ELECTRICAL SERVICE AVAILABLE	240V/1ph/60Hz	240V/1ph/60Hz	240V/1ph/60Hz	240V/1ph/60Hz
	COOLING	FACE VELOCITY, FPM	-----	-----	-----	-----
		TOTAL CAPACITY, Btu/h	57,800	22,800	39,900	35,500
		SENSIBLE CAPACITY, Btu/h	46,400	18,600	35,400	28,700
		ENTERING AIR TEMP, DB/WB, ºF	75.8/63.4	76.1/63.7	75.3/62.8	76.4/63.9
		LEAVING AIR TEMP, DB/WB, ºF	54.3/53.6	54.6/54.0	54.7/54.3	54.3/53.8
		EER/SEER	13.0/20.5	14.5/20.5	12.5/20.0	14.5/20.0
	HEATING	HSPF	11.0	11.0	11.0	11.5
		ENTERING AIR TEMP, DB, ºF	70.5	68.0	71.0	70.0
		CAPACITY @ 47°F, Btu/h	41,000	19,500	35,600	29,400
		COP @ 47°F	4.3	4.6	4.5	4.6
		CAPACITY @ 17°F, Btu/h	25,400	12,000	21,800	18,300
		COP @ 17°F	2.3	2.4	2.4	2.5
	FILTER	FILTER TYPE & THICKNESS	MERV4, 1"	MERV4, 1"	MERV4, 1"	MERV4, 1"
		QUANTITY AND SIZE	AS PER MANUF.	AS PER MANUF.	AS PER MANUF.	AS PER MANUF.
		MAX. FACE VELOCITY, FPM	400	400	400	400
CONDENSING UNIT		UNIT DESIGNATION	CU-1.1/1.2	CU-1.5/1.6	CU-2.1	CU-2.2
		TYPE OF FAN	PROPELLER	PROPELLER	PROPELLER	PROPELLER
		NO. OF FANS AND POWER, #/HP	1/ 1/2	1/ 1/2	1/ 1/2	1/ 1/2
		AMBIENT AIR TEMPERATURE, DB, ºF	91.9	91.9	91.9	91.9
		NO. OF COMPRESSORS/TYPE	1/ Scroll	1/ Scroll	1/ Scroll	1/ Scroll
		CAPACITY REDUCTION	25%-100%	25%-100%	25%-100%	25%-100%
		COMPRESSOR RLA/LRA	31.7/50.0	15.4/35.0	28.1/50.0	24.0/50.0
		MIN. CIRCUIT AMPACITY, MCA	45.0	28.0	46.0	33.0
		MAX. OVERCURRENT PROTECTION, MOP	70.0	45.0	70.0	50.0
		ELECTRICAL SERVICE AVAILABLE	240V/1ph/60Hz	240V/1ph/60Hz	240V/1ph/60Hz	240V/1ph/60Hz
		OPERATING WEIGHT, LB	355	223	293	273
		DIMENSIONS (WxHxD) in	35 3/4 x 51 x 35 3/4	35 3/4 x 35 x 35 3/4	35 3/4 x 45 x 35 3/4	35 3/4 x 45 x 35 3/4
		DESIGN MANUFACTURER	RHEEM	RHEEM	RHEEM	RHEEM
		MODEL NO.	RP2060AJVCA	RP2024AJVCA	RP2048AJVCA	RP2036AJVCA
		PIPING SIZES, SUCTION/LIQUID	7/8", 3/8"	3/4", 3/8"	7/8", 3/8"	7/8", 3/8"

NOTES:
1. ALL THERMOSTAT SHALL BE PROGRAMMABLE.
2. AIR HANDLING UNITS SHALL BE PROVIDED WITH FACTORY INSTALLED CIRCUIT BREAKER.
3. MECHANICAL CONTRACTOR SHALL SIZE LINES PER MANUFACTURER'S RECOMMENDATIONS.
4. REFER TO MANUFACTURER MANUAL FOR LONG REFRIGERANT LINE APPLICATION REQUIRED SIZES.
5. MERV4 FILTERS MAXIMUM PRESSURE DROP: 0.10 in w.g.
6. FAN EXTERNAL STATIC PRESSURE INCLUDES FILTERS.
7. UNITS SHALL BE INTERLOCKED TO STOP WHEN EXTERNAL/BALCONY DOORS ARE OPENED.
8. CONDENSING UNITS CABINET WILL BE CAPABLE OF WITHSTANDING ASTM B117 1000 HR SALT SPRAY TEST.
9. CONDENSING UNITS TIE-DOWN CLIPS AS PER NOA NO.20-1102.09.
10. EQUIPMENT CONSTRUCTED IN ISO9001 APPROVED FACILITY.

MINI-SPLIT H/P UNITS

			SEE PLANS	SEE PLANS
		AREA SERVED		
		NOMINAL COOLING CAPACITY, Btu/h	17,600	17,600
		MIN.-MAX. COOLING CAPACITY, Btu/h	9,000~20,200	9,000~20,200
		NOMINAL HEATING CAPACITY, Btu/h	21,600	21,600
		MIN.-MAX. HEATING CAPACITY, Btu/h	5,700~23,000	5,700~23,000
		EER/SEER	12.7/19.4	12.7/19.4
		HSPF/COP	10.3/3.8	10.3/3.8
		MCA/MOP	19.5/20.0	19.5/20.0
		ELECTRICAL SERVICE AVAILABLE	240V/1ph/60Hz	240V/1ph/60Hz
		REFRIGERANT	R-410A	R-410A
INDOOR UNIT		UNIT DESIGNATION	AHU-1.3	AHU-1.4
		DESIGN MANUFACTURER	DAIKIN	DAIKIN
		MODEL NO.	FDMQ18RVJU	FDMQ18RVJU
		CONFIGURATION	DUCTED	DUCTED
		INDOOR FAN FLA	1.22	1.22
		INDOOR FAN INPUT, W	230	230
		DIMENSIONS (WxHxD) in	39 3/8 x 9 5/8 x 31 1/2	39 3/8 x 9 5/8 x 31 1/2
		OPERATING WEIGHT, LB	82	82
	FAN	TOTAL AIR, CFM	670	470
		OUTDOOR AIR, CFM	0	100
		EXT. STATIC PRESSURE, in w.g.	0.30	0.30
	FILTER	FILTER TYPE & THICKNESS	WASHABLE, 1"	WASHABLE, 1"
		QUANTITY AND SIZE	AS PER MANUF.	AS PER MANUF.
		MAX. FACE VELOCITY, FPM	400	400
CONDENSING UNIT		UNIT DESIGNATION	CU-1.3	CU-1.4
		TYPE OF FAN	PROPELLER	PROPELLER
		NO. OF COMPRESSORS/TYPE	1/ Scroll	1/ Scroll
		CAPACITY REDUCTION	50%-100%	50%-100%
		COMPRESSOR RLA	18.25	18.25
		OUTDOOR FAN FLA	0.47	0.47
		DIMENSIONS (WxHxD) in	34 1/4 x 28 15/16 x 12 5/8	34 1/4 x 28 15/16 x 12 5/8
		OPERATING WEIGHT, LB	130	130
		DESIGN MANUFACTURER	DAIKIN	DAIKIN
		MODEL NO.	RXL18UMVJUA	RXL18UMVJUA
		PIPING SIZES, SUCTION/LIQUID	1/2", 1/4"	1/2", 1/4"

NOTES:
1. ALL THERMOSTAT SHALL BE PROGRAMMABLE.
2. MECHANICAL CONTRACTOR SHALL SIZE LINES PER MANUFACTURER'S RECOMMENDATIONS.
3. CONDENSING UNITS CABINET WILL BE CAPABLE OF WITHSTANDING ASTM B117 1000 HR SALT SPRAY TEST.
4. EQUIPMENT CONSTRUCTED IN ISO9001 APPROVED FACILITY.

FANS SCHEDULE

UNIT DESIGNATION	EF-1	EF-2	EF-3	EF-4
AREA SERVED	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
LOCATION	CEILING	CEILING	CEILING	CEILING
DUTY, SUPPLY/EXH.	EXHAUST	EXHAUST	EXHAUST	EXHAUST
FAN TYPE	INLINE/CENT.	INLINE/CENT.	INLINE/CENT.	INLINE/CENT.
DRIVE, DIRECT/BELT	DIRECT	DIRECT	DIRECT	DIRECT
FAN SPEED, RPM	820	940	1,068	986
AIRFLOW, CFM	50	100	130	320
TOTAL STATIC PRESSURE, in w.g.	0.40	0.35	0.35	0.30
OPENING REQUIRED, in	---	---	---	---
FAN MOTOR	15.0 W	15.0 W	25.0 W	60.0 W
FULL LOAD AMPS	0.29	0.20	1.50	3.50
ELECTRICAL SERVICE AVAILABLE	120V/1ph/60Hz	120V/1ph/60Hz	120V/1ph/60Hz	120V/1ph/60Hz
DESIGN MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	SP-LP0511	SP-110-VG	CSP-A390-VG	CSP-A710-VG
OPERATING WEIGHT, LB	8	12	24	37
REMARKS, SONES	1.30	2.00	0.80	0.60
ROOF CURB	---	---	---	---
SERVICE SWITCH	YES	YES	YES	YES
CONSTRUCTION	GALV./PLASTIC	ALUM/PLASTIC	ALUM/PLASTIC	ALUM/PLASTIC
BACKDRAFT DAMPER	YES	YES	YES	YES
THERMAL FUSE PROTECTION	YES	YES	YES	YES
NOTES	1-5	1-5	1-5	1-5

NOTES:
1. UL 507 LISTED-ELECTRIC FAN.
2. ADJUSTABLE EASY INSTALLATION MOUNTING BRACKET.
3. ENERGY STAR CERTIFIED.
4. POLYPROPYLENE WHEEL MATERIAL.
5. MANUFACTURED IN ISO 9001 CERTIFIED FACILITY.

VENTILATION SCHEDULE

Qoa = 0.01*Afloor+7.5(Nbr+1)

WHERE:

Qoa, CFM	Outdoor airflow rate
Afloor, ft²	Floor area
Nbr	Number of bedrooms, not to be less than one

MAIN HOUSE

Afloor	6,355 ft²
Nbr	5
Qoa	109 CFM

Provided

AHU-1.1	100 CFM
AHU-1.2	100 CFM
AHU-2.1	30 CFM
AHU-2.2	100 CFM

SERVICE HOUSE

Afloor	262 ft²
Nbr	1
Qoa	18 CFM

Provided

AHU-1.4	100 CFM

HVAC SYMBOL LEGEND

SYMBOL	DESCRIPTION
	SUPPLY DUCT
	RETURN/EXHAUST DUCT
	FLEX DUCT
T	THERMOSTAT
CFM	CUBIC FEET PER MINUTE
EF	EXHAUST FAN
CU	CONDENSING UNIT
AHU	AIR HANDLING UNIT
VD	VOLUME DAMPER
AD	AUTOMATIC LOUVERED DAMPER
AP	ACCESS PANEL
	DAMPER, TYPE AS NOTED: VD, AD
	SUPPLY AIR FLOW DIRECTION
	RETURN/EXHAUST AIR FLOW DIRECTION
AxB	RECTANGULAR DUCT SIZE (CLEAR INSIDE DIMENSION)
AØ	ROUND DUCT DIAMETER SIZE (CLEAR INSIDE DIMENSION)
	TRANSITION
	TRANSITION CENTER
	ELBOW W/ TURNING VANE
	45° BRANCH DUCT TAKE-OFF
	SUPPLY DIFFUSER/GRILLE
	RETURN/EXHAUST DIFFUSER/GRILLE

A — AxB OR #SLOT, # FT → SIZE; XXX → AIRFLOW (CFM)
DIFFUSER/ GRILLE TAG

— SHEET KEY NOTE (NEW WORK)

PACHECO-MARTINEZ
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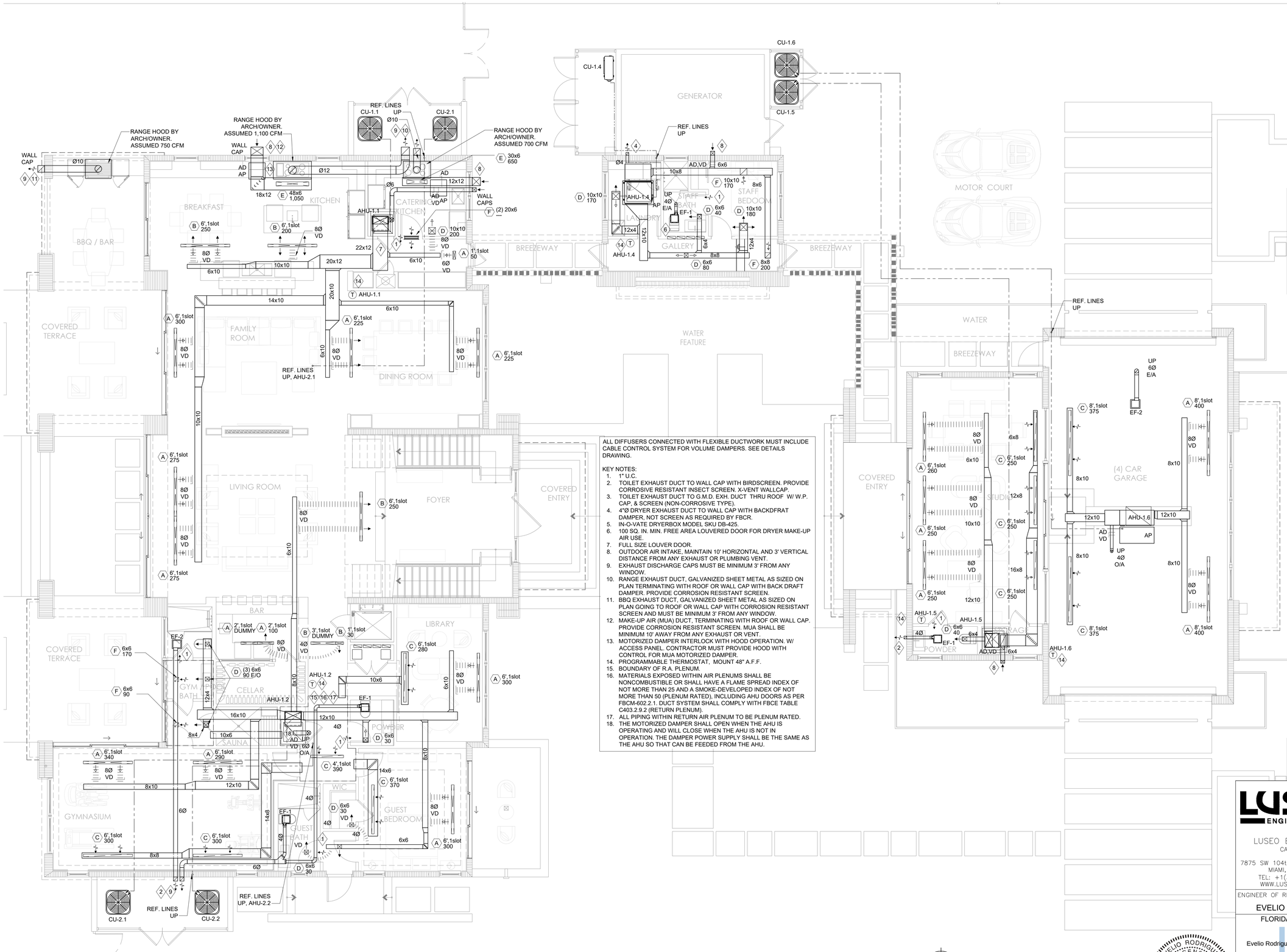

ALL DIFFUSERS CONNECTED WITH FLEXIBLE DUCTWORK MUST INCLUDE CABLE CONTROL SYSTEM FOR VOLUME DAMPERS. SEE DETAILS DRAWING.

KEY NOTES:

1. 1" U.C.
2. TOILET EXHAUST DUCT TO WALL CAP WITH BIRDSCREEN. PROVIDE CORROSIVE RESISTANT INSECT SCREEN. X-VENT WALLCAP.
3. TOILET EXHAUST DUCT TO G.M.D. EXH. DUCT THRU ROOF W/ W.P. CAP, & SCREEN (NON-CORROSIVE TYPE).
4. 4"Ø DRYER EXHAUST DUCT TO WALL CAP WITH BACKDFRAT DAMPER, NOT SCREEN AS REQUIRED BY FBCR.
5. IN-O-VATE DRYERBOX MODEL SKU DB-425.
6. 100 SQ. IN. MIN. FREE AREA LOUVERED DOOR FOR DRYER MAKE-UP AIR USE.
7. FULL SIZE LOUVER DOOR.
8. OUTDOOR AIR INTAKE, MAINTAIN 10' HORIZONTAL AND 3' VERTICAL DISTANCE FROM ANY EXHAUST OR PLUMBING VENT.
9. EXHAUST DISCHARGE CAPS MUST BE MINIMUM 3' FROM ANY WINDOW.
10. RANGE EXHAUST DUCT, GALVANIZED SHEET METAL AS SIZED ON PLAN TERMINATING WITH ROOF OR WALL CAP WITH BACK DRAFT DAMPER. PROVIDE CORROSION RESISTANT SCREEN.
11. BBQ EXHAUST DUCT, GALVANIZED SHEET METAL AS SIZED ON PLAN GOING TO ROOF OR WALL CAP WITH CORROSION RESISTANT SCREEN AND MUST BE MINIMUM 3' FROM ANY WINDOW.
12. MAKE-UP AIR (MUA) DUCT, TERMINATING WITH ROOF OR WALL CAP. PROVIDE CORROSION RESISTANT SCREEN. MUA SHALL BE MINIMUM 10' AWAY FROM ANY EXHAUST OR VENT.
13. MOTORIZED DAMPER INTERLOCK WITH HOOD OPERATION. W/ ACCESS PANEL. CONTRACTOR MUST PROVIDE HOOD WITH CONTROL FOR MUA MOTORIZED DAMPER.
14. PROGRAMMABLE THERMOSTAT, MOUNT 48" A.F.F.
15. BOUNDARY OF R.A. PLENUM.
16. MATERIALS EXPOSED WITHIN AIR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 (PLENUM RATED), INCLUDING AHU DOORS AS PER FBCM-602.2.1. DUCT SYSTEM SHALL COMPLY WITH FBCE TABLE C403.2.9.2 (RETURN PLENUM).
17. ALL PIPING WITHIN RETURN AIR PLENUM TO BE PLENUM RATED.
18. THE MOTORIZED DAMPER SHALL OPEN WHEN THE AHU IS OPERATING AND WILL CLOSE WHEN THE AHU IS NOT IN OPERATION. THE DAMPER POWER SUPPLY SHALL BE THE SAME AS THE AHU SO THAT CAN BE FEEDED FROM THE AHU.

GROUND FLOOR PLAN

SCALE 3/16" = 1'-0"

N

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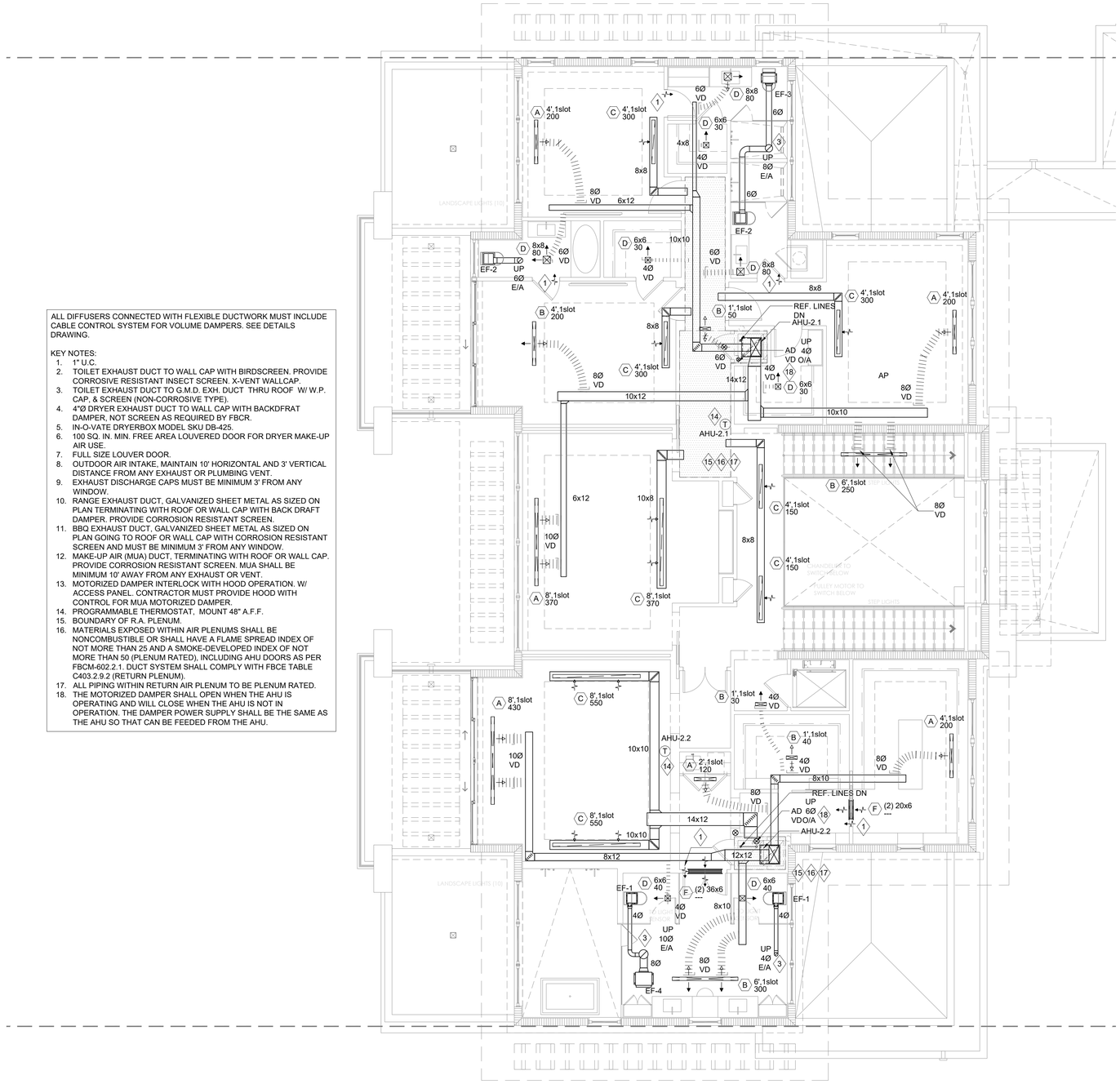

SECOND FLOOR PLAN

SCALE 3/16" = 1'-0"

N

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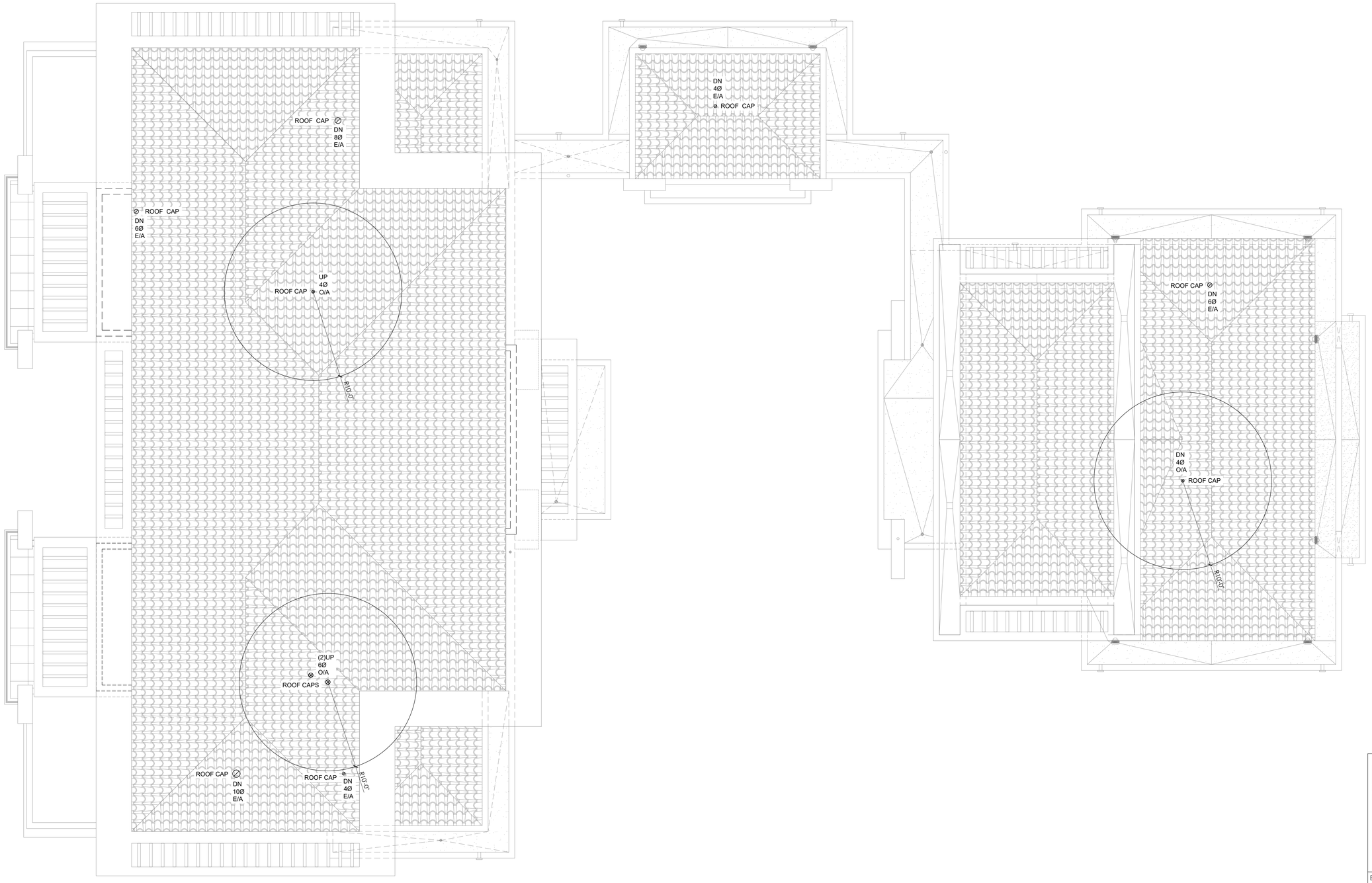

ROOF PLAN

SCALE: 3/16" = 1'-0"

N

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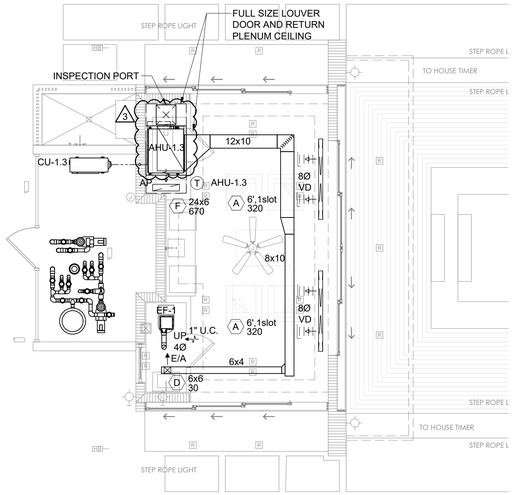
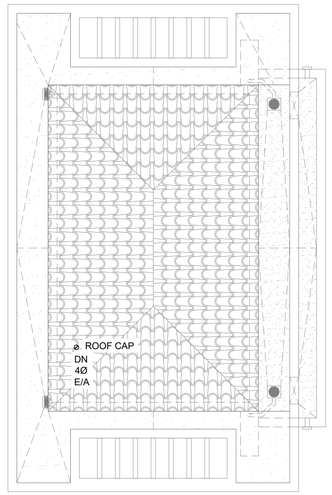


CABANA FLOOR PLAN

SCALE 3/16" = 1'-0"



CABANA ROOF PLAN

SCALE 3/16" = 1'-0"

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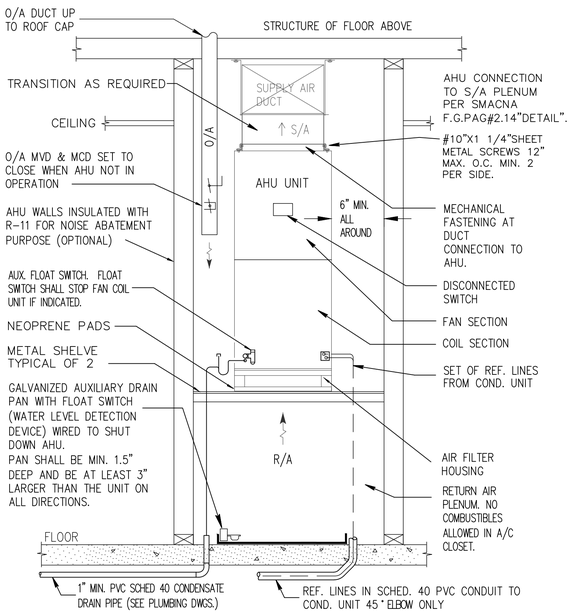
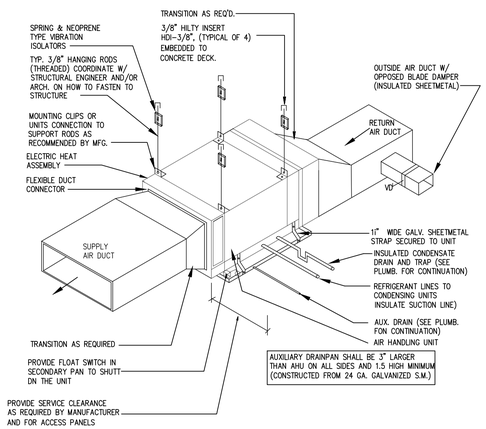


NOTES:

1. PROVIDE MINIMUM 4" 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.
3. NO COMBUSTIBLES ALLOWED IN A/C CLOSET.

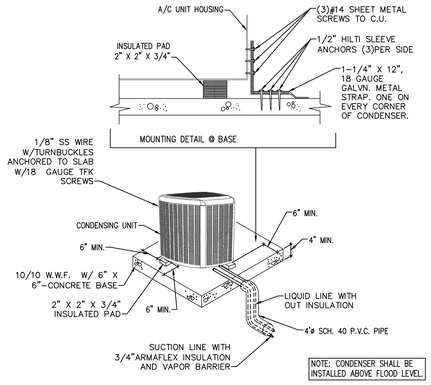
AHU UNIT PLENUM RETURN MOUNTING DETAIL

N.T.S.



HORIZONTAL A.H.U. HANGING DETAIL

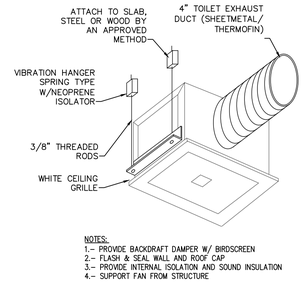
N.T.S.



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

CONDENSING UNIT MOUNTING DETAIL

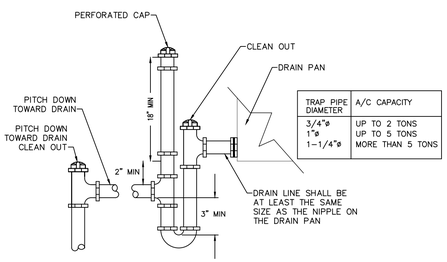
TIE DOWN AS PER MAIMI-DADE APPROVED METHOD. N.T.S.



NOTES:
1.- PROVIDE BACKDRAFT DAMPER W/ BIRDSCREEN
2.- FLASH & SEAL WALL AND ROOF CAP
3.- PROVIDE INTERNAL ISOLATION AND SOUND INSULATION
4.- SUPPORT FAN FROM STRUCTURE

CABINET EXHAUST FAN DETAIL

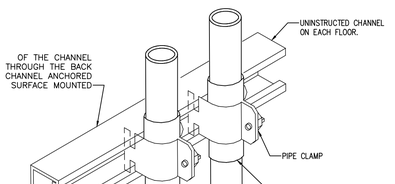
N.T.S.



TRAP PIPE DIAMETER	A/C CAPACITY
3/4"ø	UP TO 2 TONS
1"ø	UP TO 5 TONS
1-1/4"ø	MORE THAN 5 TONS

TYPICAL CONDENSATE DRAIN TRAP

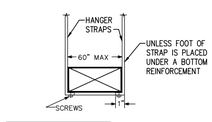
N.T.S.



REFRIGERANT PIPE RISER SUPPORT DETAIL

N.T.S.

STRAP HANGERS



TRAPEZE HANGERS

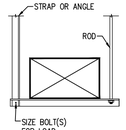


TABLE 4-1

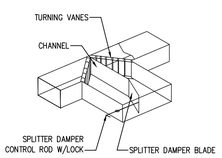
RECTANGULAR DUCT HANGERS
MINIMUM SIZE

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
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")
P/2 = 72"	1"x18 GA.	3/8"	1"x20 GA.	1/4"	1"x22 GA.	1/4"	1"x22 GA.	1/4"
P/2 = 96"	1"x16 GA.	3/8"	1"x18 GA.	3/8"	1"x20 GA.	3/8"	1"x22 GA.	1/4"
P/2 = 120"	1.5"x16 GA.	1/2"	1"x16 GA.	3/8"	1"x18 GA.	3/8"	1"x20 GA.	1/4"
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"
P/2 = 192"	–	1/2"	1.5"x16 GA.	1/2"	1"x16 GA.	1/2"	1"x16 GA.	3/8"
P/2 = 193" UP	SPECIAL ANALYSIS REQUIRED							

AS PER SMACNA TABLE 4-1 & FIG. 4-4

HVAC DUCT DETAILS

NTS



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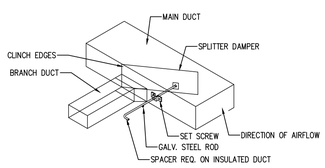
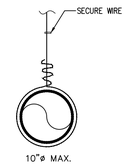


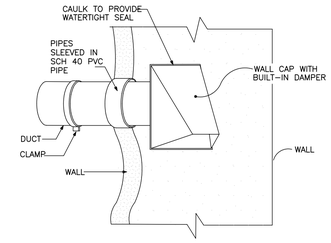
TYPICAL DUCT TAP-OFF

N.T.S.



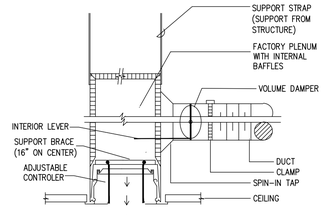
CIRCULAR DUCT DETAILS

N.T.S.



WALL CAP DETAIL

N.T.S.



NOTES:
1. REFER TO ARCH. FOR FRAMING
2. SIDE DISCHARGE LINEAR DIFFUSER MOUNTING PROCEDURE IS THE SAME BUT WITH AIR OUTLET FACING VERTICAL FACE OF SOFIT.

SECTION FLOWBAR DIFFUSER

N.T.S.

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Date: 2025.05.23 15:30:33-05'00'

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