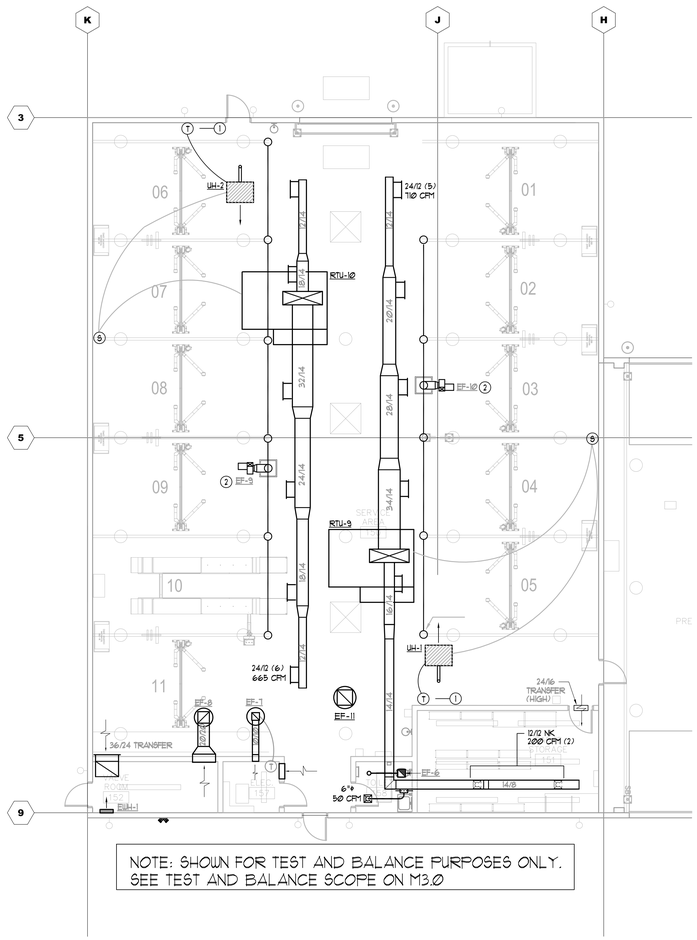


NOTE: SHOWN FOR TEST AND BALANCE PURPOSES ONLY.
SEE TEST AND BALANCE SCOPE ON M3.0

SERVICE AREA AIR BALANCE

TAG	OUTSIDE AIR	EXHAUST
RTU-9	4000 (1)	
RTU-10	4000 (1)	
EF-7		300
EF-8		2000
EF-9		1800
EF-10		1500
EF-11		1500
TOTAL	8000	71000

(1) RTU-9 & 10 FAN ON CONTINUOUSLY DURING OCCUPIED

PER TABLE 403.3.1.1 2018 IMC MINIMUM DIRECT EXHAUST .75 CFM/SF
REPAIR GARAGE

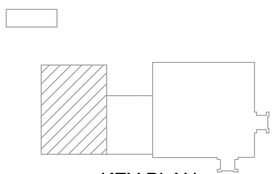
SERVICE GROSS AREA = 6200 SF
MIN EXH = (.75 CFM/SF)(6200 SF)
= 4650 CFM

SUM OF DIRECT EXHAUST FROM EF- 9, 10, 11 = 4800 CFM
SUM OF DIRECT & INDIRECT EXHAUST = 7,100 CFM

KEYED NOTES:

(1) NEW THERMOSTAT FOR GAS UNIT HEATER LITESTAT TGH2-KRO FIXED 68°F OCCUPIED/55°F SETBACK. NO OTHER IS ACCEPTABLE. REMOVE UNIT HEATER CONTROL FROM EMS AS 3RD STAGE HEAT FOR RTU

(2) CARMON MONOXIDE EXHAUST FAN



KEY PLAN

A.M. CERRA, JR. P.E.
1827 POWERS FERRY ROAD
BLDG # 18, SUITE # 100
ATLANTA, GEORGIA 30339
770-980-0581

22170.01

STATE OF TEXAS
A. M. CERRA JR.
65370
REGISTERED
PROFESSIONAL ENGINEER
1/16/22

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NOT RELEASED FOR CONSTRUCTION

APPROVAL

CARMAX PE

REVISIONS

REV. NO	DATE	DESCRIPTION

CARMAX
THE AUTO SUPERSTORE

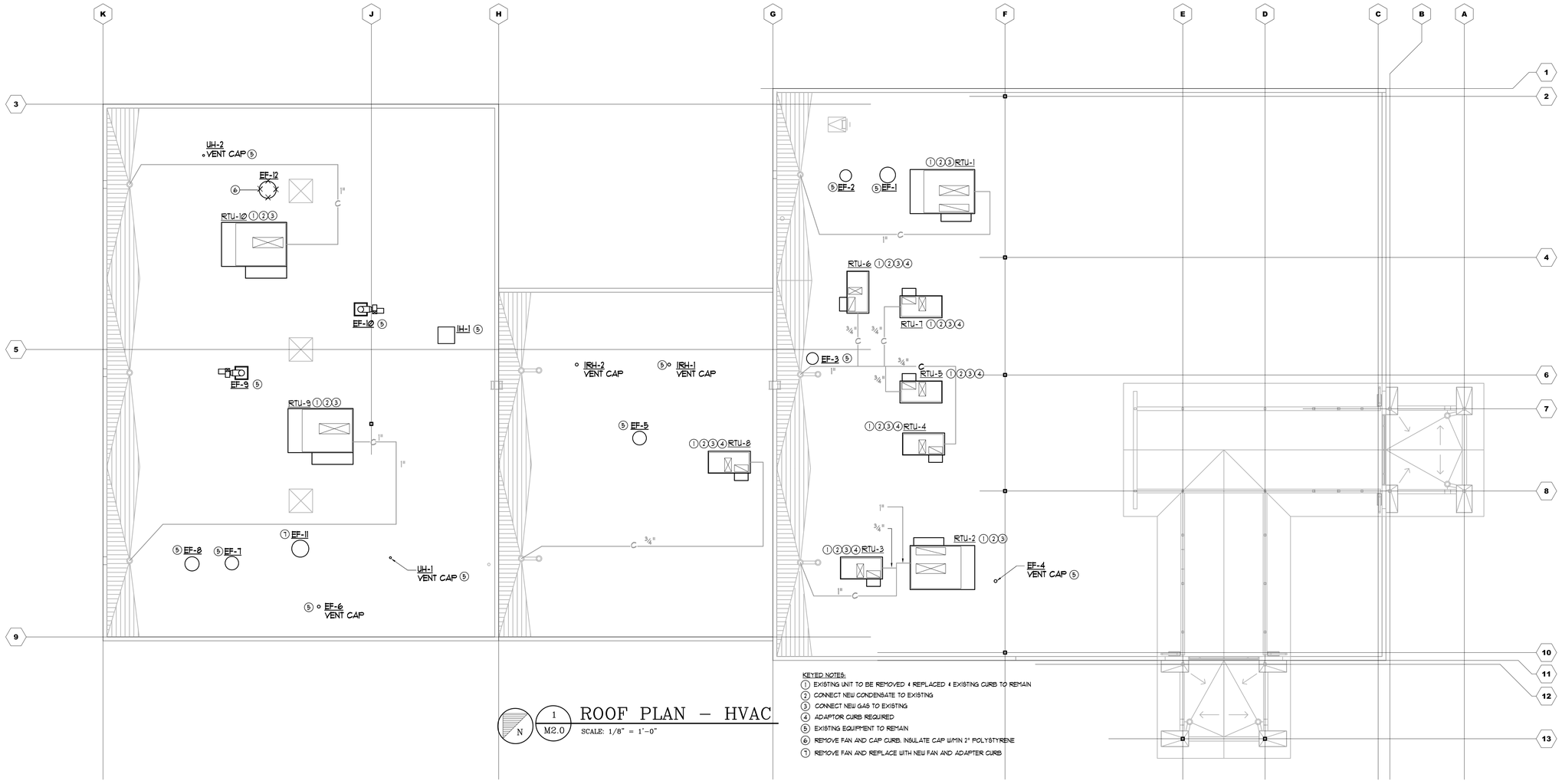
CARMAX THE AUTO SUPERSTORE, INC.
12800 TUCKAHOE CREEK PKWY RICHMOND, VA 23238
(804) 747-0422

STORE NO. 7190
4400 SOUTH INTERSTATE HIGHWAY 35
AUSTIN, TEXAS 78745

PROJECT NO	22170.01
DATE	11 JAN 2022
SHEET TITLE	

SERVICE PART PLAN
– HVAC

SHEET NO M1.0



KEYED NOTES:

1. EXISTING UNIT TO BE REMOVED & REPLACED & EXISTING CURB TO REMAIN
2. CONNECT NEW CONDENSATE TO EXISTING
3. CONNECT NEW GAS TO EXISTING
4. ADAPTOR CURB REQUIRED
5. EXISTING EQUIPMENT TO REMAIN
6. REMOVE FAN AND CAP CURB. INSULATE CAP W/MIN 2" POLYSTYRENE
7. REMOVE FAN AND REPLACE WITH NEW FAN AND ADAPTER CURB

N

1 / M2.0

ROOF PLAN – HVAC

SCALE: 1/8" = 1'-0"

A.M. CERRA, JR. P.E.
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BLDG # 18, SUITE # 100
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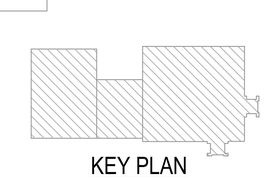

KEY PLAN

PROJECT NO	22170.01
DATE	11 JAN 2022
SHEET TITLE	ROOF PLAN – HVAC
SHEET NO	M2.0

HVAC GENERAL NOTES

1. ALL CONTROL WIRING SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF N.F.P.A. 70. ALL WIRING SHALL BE CONCEALED.
2. CONTRACTOR SHALL INSTALL ALL ROOF CURBS FOR ROOFTOP UNITS LEVEL TO HORIZON AT (4) CORNERS.
3. AIR TEST AND BALANCE REQUIRED BY INDEPENDENT T&B CONTRACTOR AABC OR NEBB CERTIFIED. SEE TEST AND BALANCE SCOPE ON THIS SHEET
4. EXISTING SMOKE DETECTORS TO REMAIN AND BE REUSED.
5. LENNOX START UP TECH SHALL PROGRAM THE PRODIGY BOARDS IN ALL NEW RTU'S. PRODIGY BOARDS SHALL BE PROGRAMMED PRIOR TO CSUSA RECOMMISSIONING THE NOVAR SYSTEM.
6. CONTRACTOR SHALL PROVIDE CLEAN FILTERS IN ROOFTOP UNITS PRIOR TO AIR BALANCE AND AGAIN PRIOR TO OWNER ACCEPTANCE.
7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL CODE AND THE 2018 NORTH CAROLINA FUEL GAS CODE WITH LOCAL AMENDMENTS. ALL EQUIPMENT AND MATERIALS CAPABLE OF BEING U.L. LABELLED OR LISTED SHALL BEAR THE U.L. LABEL.
8. CONTRACTOR SHALL PROVIDE A GASKET BETWEEN BASE OF ROOF MOUNTED FANS AND ROOF CURBS TO PROVIDE AN AIRTIGHT JOINT.
9. PROVIDE MISCELLANEOUS STEEL AND/OR WOOD BLOCKING AND SUPPORT AT ROOF CURBS AND OPENINGS AS REQUIRED TO SUPPORT ROOF AND EQUIPMENT. SPECIFIC REQUIREMENTS SHALL BE VERIFIED WITH STRUCTURAL ENGINEER AND APPROVED EQUIPMENT DRAWINGS PRIOR TO PLACEMENT.
10. NEW SUPPY AND EXHAUST DUCT SHALL BE 2.0 IN PRESSURE CLASS.
11. NEW DUCT SHALL HAVE PAINT GRIP FINISH AND BE EITHER GALVANNEALED OR MILL PHOSPHATIZED.
12. ANY NEW SUPPLY DUCT SHALL BE INTERNALLY INSULATED WITH 1" DUCT LINER EQUAL TO OWENS CORNING ACOUSTITEX, 1.5 LB DENSITY, R=3.8.

PIPING GENERAL NOTES

1. ANY NEW GAS PIPING SHALL BE ASTM A-120, SCHEDULE 40, BLACK STEEL WITH 150 LB. MALLEABLE IRON SCREWED FITTINGS.
2. ANY NEW EXTERIOR GAS PIPE SHALL BE PAINTED WITH RUST PROHIBITIVE PAINT.

HVAC LEGEND

A.F.F.	ABOVE FINISHED FLOOR
VD	VOLUME DAMPER
B.O.S.	BOTTOM OF STEEL
B.O.D.	BOTTOM OF DUCT
U.N.O.	UNLESS NOTED OTHERWISE

- VD — VOLUME DAMPER
- SUPPLY GRILLE WITH FLEX DUCT DROP
- RETURN/EXHAUST GRILLE
- R, D — R = RISE, D = DROP
- (T) — THERMOSTAT
- (S) — LENNOX ROOM TEMPERATURE/HUMIDITY SENSOR 72" AFF
- SPIN-IN FITTING
- EXISTING DUCT
- EXISTING DUCT TO BE REMOVED
- ——OG—— ORIGINAL GAS
- ——AG—— ADDITION GAS
- — —EG— — ESTIMATED EXISTING GAS
- ——G—— NEW GAS

ROOFTOP UNIT NOTES

1. CARMAX AUTO SUPERSTORE, LLC HAS A NATIONAL ACCOUNT WITH LENNOX INDUSTRIES, INC., FOR PRICING AND DELIVERY OF PACKAGED ROOFTOP UNITS IN ACCORDANCE WITH THE FOLLOWING. NO SUBSTITUTIONS WILL BE ALLOWED.

   A. ROOFTOP UNITS SHALL BE AS SCHEDULED.

   THE ELECTRICAL PACKAGE SHALL INCLUDE:
   - -UNIT DISCONNECT (INSTALLED AND WIRED)
   - -BOTTOM GAS/POWER ENTRY
   - -STANDARD LOW AMBIENT CONTROL
   - -DUAL 120V GFCI TYPE OUTLETS (TO BE FIELD WIRED)
   - -GLOBAL DRY BULD ECONOMIZERS W/FAN POWERED EXHAUST (7.5T AND LARGER UNLESS OTHERWISE NOTED)
   - -GLOBAL DRY BULD ECONOMIZERS W/BAROMETRIC RELIEF (6T AND SMALLER)
   - -STAINLESS STEEL HEAT EXCHANGER AND FRESH AIR TEMPERING FOR RTU-8&9

2. THE LENNOX NATIONAL ACCOUNT CONTACT IS:

   RON JOHNSON
   704-621-2606

3. HVAC EQUIPMENT PERFORMANCE CHECK (EPC)

   UPON COMPLETION OF THE HVAC INSTALLATION AND STARTUP, THE OWNER'S SERVICE CONSULTANT, AT THE OWNER'S EXPENSE, IS TO INSPECT THE JOB AND PERFORM AN (EPC). THIS EPC WILL AID THE CONTRACTOR IN CHECKING EACH MACHINE FOR PROPER OPERATION, CHECKING THE CONTROL PANEL AND ADJUSTING CONTROLS AS NECESSARY.

   THE OWNER'S SERVICE CONSULTANT:
   COMFORT SYSTEMS
   ATTN: VALERIE BEDEL
   P: 317-246-5181
   valerie.bedel@comfortsystemsusa.com

   ALL PROBLEMS DISCOVERED WITH THE EQUIPMENT OR ITS INSTALLATION (EXCLUDING NOVAR INSTALLATION) SHALL BE CORRECTED BY THE HVAC SUBCONTRACTOR IN ACCORDANCE WITH THE OWNER'S SERVICE CONSULTANT.

   AFTER ALL PROBLEMS HAVE BEEN CORRECTED, CARMAX AUTO SUPERSTORE, LLC SHALL VERIFY ALL EQUIPMENT IS OPERATING PROPERLY THROUGH THE NOVAR CONTROLLERS.

   PRIOR TO PERFORMANCE OF THE EPC, THE CONTRACTOR SHALL HAVE SET AND CONNECTED ALL COMPONENTS, COMPLETED THE POWER WIRING, CONNECTED ALL PIPING, REMOVED ALL SHIPPING BLOCKS, COMPLETED THE STARTUP OF ALL UNITS AND FURNISHED THE PRE-EPC CHECKLIST TO THE OWNER'S SERVICE CONSULTANT.

   THE EPC INCLUDES A FULL WRITTEN REPORT. COPIES WILL BE SENT TO THE GENERAL CONTRACTOR, AND CARMAX AUTO SUPERSTORE, LLC. COPIES OF THE EPC SHALL BE INCORPORATED IN TO THE O & M MANUALS BY THE GENERAL CONTRACTOR.

   A. RTU AIR FILTERS SHALL BE CAMFIL FARR AEROPLEAT III PLEATED, 2" THICK MERV 13, OR EQUAL. MARK FILTERS WITH INSTALLATION DATE

   B. THE PACKAGE COMPONENTS WILL BE CLEARLY LABELLED (IN LEGIBLE FORM) ON THE EXTERIOR OF ALL BOXES OR CRATES.

   C. SUBMIT RTU SUBMITTALS IN PDF FORMAT TO THE ENGINEER FOR APPROVAL.

CONTROLS SCOPE OF WORK:

EXISTING RTU'S ARE ON LOGIC ONE BUSS. SAVVY COMMUNICATIONS TO IOM ALL RTUS WITH ETM 2051'S I/O IS BY THE INTEGRATED IOM IN THE SAVVY.

1. ALL NEW RTU'S WILL BE BACNET.
2. THE GENERAL CONTRACTOR SHALL RETAIN COMFORT STSTEMS USA (CSUSA) TO FURNISH AND INSTALL CONTROLS AS INDICATED BELOW. THE CONTACT AT CSUSA IS:
   VALERIE BEDEL 317-246-5181
3. PROVIDE PRE-CONSTRUCTION SCREEN SHOTS FROM NOVAR EMS MONITORING TO INCLUDE UNIT STATUS, MODULE COMMUNICATIONS STATUS AND ACTIVE ALARMS.
4. NOT USED
5. CONNECT NEW RTU'S W/PRODIGY BOARDS TO BACNET COMMUNICATION.
6. FOR NEW RTU'S REPLACE RTU NOVAR TEMPERATURE SENSORS WITH LENNOX SENSORS.
7. REPLACE/UPGRADE SAVVY 31 WITH OPUS XCM10S PANEL. SAME BASE PLATE, MINIMAL RE-WIRING REQUIRED.
8. CONNECT BACNET NETWORK AS REQUIRED.
9. TURN OVER SAVVY 31 PANEL AND ETM'S TO CARMAX FOR FUTURE SERVICE CALL INVENTORY SHIP TO COMFORT SYSTEMS USA, ATTN VALERIE BEDEL, CARMAX EMS ACCOUNT CO-ORDINATOR.
10. UPDATE SOFTWARE PER NEW CARMAX TEMPLATE
11. COMMISSION EMS SYSTEM
12. PROVIDE POST CONSTRUCTION SCREEN SHOTS FROM NOVAR EMS MONITORING TO INCLUDE UNIT STATUS, MODULE COMMUNICATIONS STATUS AND ACTIVE ALARMS.
13. LENNOX/CARMAX RTU SET UP SHEET IS TO BE COMPLETED UPON UNIT STARTUP. A COMPLETED SHEET IS TO BE LEFT IN EACH NEW RTU AND A COPY SUBMITTED WITH CLOSE OUT DOCUMENTATION FOR EACH NEW RTU.
14. FURNISH AND INSTALL ADDITIONAL CONTROL WIRE FOR C02 SENSORS AND UNITS WITH HUMIDITROL.
15. ALL CONTROL, COMMUNICATIONS BUS AND SENSOR WIRING, NEW AND EXISTING, IS PART OF THE CONTROLS CONTRACTOR SCOPE OF WORK. REPLACE ANY DAMAGED WIRE.

ROOFTOP UNIT SCHEDULE

(SHOWN FOR REFERENCE ONLY)

MARK	ZONE	EER	VOLT/PH	FAN DATA				COOLING DATA			GAS DATA		MIN. O/A CFM	MODEL	(3) WEIGHT	REMARKS (1)
				CFM	TSP IN WC	ESP IN WC	HP	EAT DB/WB	TOTAL MBH	SENSIBLE MBH	INPUT MBH	OUTPUT MBH				
RTU-1	SHOWROOM	11.8	480/3	8000	1.04	.8	5.0	77.2/63.5	231.4	194.1	260	208	780	LENNOX LGA240H	2900	
RTU-2	SHOWROOM	12.2	480/3	5500	.88	.8	3.0	77.2/63.5	147.4	124.5	260	208	520	LENNOX LGC156H	2900	
RTU-3	CUSTOMER WAITING	11.3	480/3	1051	.62	.6	1.5	86.2/67.5	40.8	33.6	78	62.4	200	LENNOX LGA042H	900	
RTU-4	BUSINESS	11.0	480/3	1800	.72	.6	1.5	81.6/66.1	59.8	48.3	78	62.4	300	LENNOX LGA060H	900	
RTU-5	BUYERS	11.3	480/3	1300	.63	.6	1.5	80.6/65.3	40.6	33.3	78	62.4	200	LENNOX LGA042H	900	
RTU-6	BREAK/CONF	11.3	480/3	1600	.7	.6	1.5	79.2/65.6	58.5	42.8	78	62.4	250	LENNOX LGA060H	900	
RTU-7	DATA/PBX	11.2	480/3	960	.63	.6	1.5	76/67	34.3	28	-	-	-	LENNOX LCA036H	900	
RTU-8	SERVICE WRITER	11.0	480/3	1800	.72	.6	1.5	77.4/64	58.2	45.4	78	62.4	200	LENNOX LGA060H	900	
RTU-9	SERVICE AREA	11.0	480/3	5600	1.04	.8	5.0	91.6/71.6	256.2	195.2	470	376	4750	LENNOX LGA240H	4900	(2)
RTU-10	SERVICE AREA	11.0	480/3	5600	1.04	.8	5.0	91.6/71.6	256.2	195.2	470	376	4750	LENNOX LGA240H	4900	(2)

(1) PROVIDE WITH FACTORY INSTALLED NOVAR CONTROL MODULE: LGA UNIT SERIES (MODEL 2051)

(2) BY-PASS CURB AND MIXING BOX BYPASS 850 CFM IN CURB, 4750 CFM TO SERVICE.

(3) INCLUDES WEIGH OF UNIT AND CURB

ROOFTOP UNIT SCHEDULE

MARK	ZONE	EER (SEER)	VOLT/PH	FAN DATA				COOLING DATA (9)			GAS DATA		MIN. O/A CFM	MODEL (1)		WEIGHT (17)	REMARKS (2)(4)(12)
				CFM	TOT IN WC	ESP IN WC	HP	EAT DB/WB	TOTAL MBH	SENSIBLE MBH	INPUT MBH	OUTPUT MBH					
RTU-1	SHOWROOM	12.0	480/3	8000	1.02	.6	5.0	80/67	--	--	260	208	780	LENNOX	LGH240H4M	2600	(13) (14) (18)
RTU-2	SHOWROOM	12.0	480/3	5500	1.0	.8	3.0	80/67	--	--	260	208	520	LENNOX	LGH156H4M	2300	(13) (14) (18)
RTU-3	CUSTOMER	(17.0)	480/3	1280	.80	.6	.75	80/67	--	--	65	52	200	LENNOX	LGH048H4E	1000	(6) (11) (18)
RTU-4	BUSINESS	(17.0)	480/3	1800	.80	.6	1.0	80/67	--	--	65	52	300	LENNOX	LGH060H4E	1000	(6) (11) (18)
RTU-5	BUYERS	(17.0)	480/3	1300	.80	.6	.75	80/67	--	--	65	52	200	LENNOX	LGH048H4E	1000	(6) (11) (18)
RTU-6	BREAK ROOM	(17.0)	480/3	1600	.80	.6	1.0	80/67	--	--	65	52	250	LENNOX	LGH060H4E	1000	(6) (11) (18)
RTU-7	PBX	(17.0)	480/3	975	1.0	.8	.50	75/63	--	--	--	--	--	LENNOX	LCH036H4M	1000	(5) (11)
RTU-8	SERVICE WRITER	(17.0)	480/3	1800	.80	.6	1.0	80/67	--	--	65	52	200	LENNOX	LGH060H4E	1000	(6) (11) (18)
RTU-9	SERVICE AREA (BP)	12.0	480/3	5600	1.25	.8	5.0	87/71	234	169	480	384	4000	LENNOX	LGH240H4B	3600	(3) (7) (8) (10) (14) (15) (16) (18)
RTU-10	SERVICE AREA (BP)	12.0	480/3	5600	1.25	.8	5.0	87/71	234	169	480	384	4000	LENNOX	LGH240H4B	3600	(3) (7) (8) (10) (14) (15) (16) (18)

(1) ONLY ACCEPTABLE MANUFACTURER IS LENNOX. SEE "ROOFTOP UNIT NOTES"

(2) FIELD ADJUST SUPPLY FAN R.P.M. TO PROVIDE AIR QUANTITIES AS SCHEDULED ABOVE. INSTALL FIELD-SUPPLIED MOTOR AND/OR DRIVE AS REQ'D

(3) INSTALL F.A.T. DISCHARGE AIR TEMPERATURE SENSOR. SHIPPED LOOSE IN RTU CABINET, INSTALL SENSOR IN SUPPLY IN SUPPLY DUCT APPROX 3FT BELOW ROOF DECK. SEE DETAIL 4/M4.0

(4) BACNET CONTROL, NEW TEMP SENSOR OR COMBO TEMP/HUMIDITY SENSOR

(5) 14" HYBRID CURB

(6) GLOBAL ECONOMIZER WITH BAROMETRIC RELIEF

(7) STAINLESS STEEL HEAT EXCHANGER

(8) FRESH AIR TEMPERING, 100% OUTSIDE AIR

(9) 105°F CONDENSER AIR

(10) MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION OF WIRING HARNESS SHIPPED LOOSE W/ RTU THAT ARE ASSOCIATED WITH OUTSIDE AIR DAMPER.

(11) ADAPTER CURB

(12) DRAIN PAN OVERFLOW SWITCH MODEL Z1SNSR90A1

(13) GLOBAL ECONOMIZER WITH POWERED EXHAUST

(14) 2 STAGE HEAT

(15) REUSE EXISTING BY-PASS CURB, NEW MIXING BOX

(16) 5600 CFM ACROSS COIL, 1600 CFM BYPASSED IN CURB, 4000 CFM OUTSIDE AIR AND SUPPLY TO SERVICE

(17) INCLUDES WEIGHT OF EXISTING CURB AND ADAPTER CURB WHERE APPPLICABLE

(18) FURNISH HUMIDIROL DEHUM OPTION

FAN SCHEDULE

MARK	LOCATIONS AND AREAS SERVED	CFM	ESP IN. WC	MAX FAN RPM	FAN TYPE	DAMPER	VOLT/PH	HP (WATTS)	MANUFACTURER / MODEL	SC	REMARKS
EF-11	SALES TOILETS	1500	.375	1725	ROOF CENT	BACKDRAFT	120/1	1/2	GREENHECK CUE-121-A	SC	(1)(2)(3)(4)(5)(6)

(1) ROOF CURB CAP SHALL NOT OVERLAP CURB MORE THEN 1/2" ON ALL SIDES. ATTACH CURB CAP TO CURB ON ALL SIDES. MIN. 2 SCREWS PER SIDE.

(2) PROVIDE ADAPTER CURB, GASKET BETWEEN CURB AND FAN

(3) PROVIDE WITH DISCONNECTS

(4) PROVIDE FANS MARKED "SC" ABOVE WITH SOLID STATE SPEED CONTROLLERS

(5) PREVIOUS FAN MOTOR 3/4 HP @ 120V

(6) FAN TO BE CONTROLLED FROM EMS. ON OCCUPIED/OFF SETBACK

TEST & BALANCE SCOPE

MARK	TOTAL AIR ACROSS COIL	OUTSIDE AIR	BYPASS AIR	SUPPLY AIR TO REGISTERS	OTHER
RTU-1 THRU 8	AS SCHEDULED	AS SCHEDULED	--	--	
RTU-9 & 10	5600	4000	1600	4000	REGISTER AIR QTY AS SHOWN ON 1/M1.0
EF-11	--	--	--	--	1500 CFM EXHAUST AS ASCHEDULED

SUGGESTED TEST & BALANCE PROCEDURE FOR BYPASS UNITS:

RTU- 9 & 10

1. CLOSE BYPASS DAMPER & MAKE AIR QTY 5600 CFM.
2. GRADUALLY OPEN BYPASS DAMPER UNTIL OUTSIDE AIR IS 4000 CFM. THIS MEANS 1600 CFM IS BEING BYPASSED IN THE CURB
3. OUTSIDE AIR SHOULD EQUAL SUPPLY AIR TO THE REGISTERS
4. TEST AND BALANCE CONTRACTOR TO NOTIFY COMFORT SYSTEMS AND INCLUDE IN T&B REPORT REGARDING MINIMUM POSITION OF OUTSIDE AIR DAMPER. SEE RTU NOTES FOR CONTACT INFO.

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22170.01

STATE OF TEXAS
A. M. CERRA, JR.
65370
REGISTERED PROFESSIONAL ENGINEER
1/10/22

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APPROVAL

CARMAX PE

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REV. NO	DATE	DESCRIPTION

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THE AUTO SUPERSTORE
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12800 TUCKAHOE CREEK PKWY RICHMOND, VA 23238
(804) 747-0422

STORE NO. 7190
4400 SOUTH INTERSTATE HIGHWAY 35
AUSTIN, TEXAS 78745

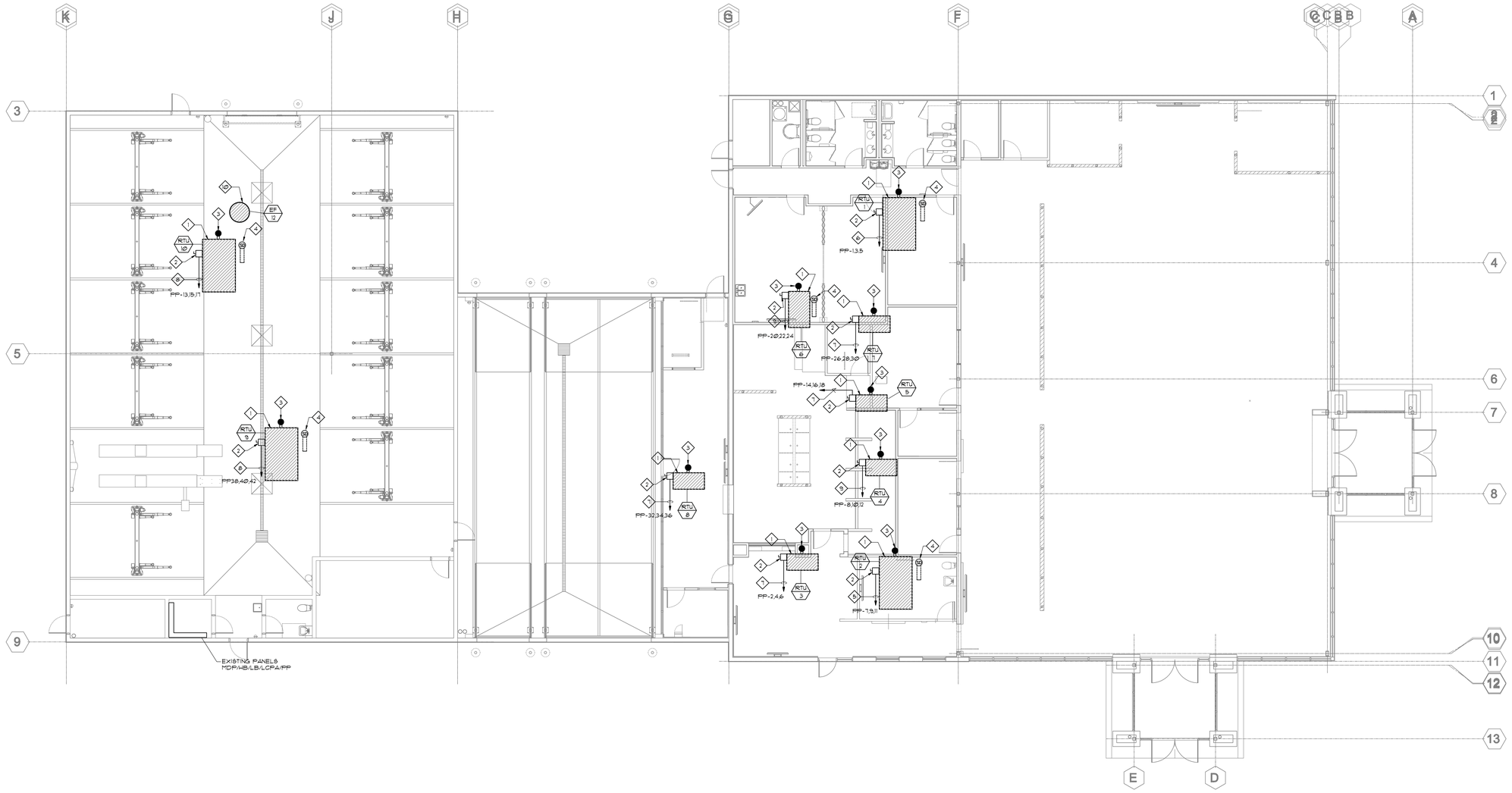
PROJECT NO 22170.01

DATE 11 JAN 2022

SHEET TITLE

SCHEDULES – HVAC

SHEET NO M3.0



SALES/SERVICE MECHANICAL/PLUMBING EQUIPMENT CONNECTION PLAN

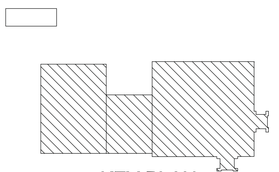
1 / E1.0 SCALE: 3/32" = 1'-0"

GENERAL NOTES:

1. ALL LINE VOLTAGE WIRING & CONDUIT IS FURNISHED & INSTALLED BY ELECTRICAL CONTRACTOR.
2. ROUTE ALL CONDUITS INSIDE ROOF CURBS. NO CONDUITS SHALL PENETRATE THROUGH ROOF DECK.
3. WHERE NEW CIRCUIT BREAKERS ARE INSTALLED IN EXISTING PANELBOARDS, NEW CIRCUIT BREAKER SHALL MATCH MANUFACTURER & A.I.C. RATING OF EXISTING CIRCUIT BREAKERS CURRENTLY IN PANELBOARD.
4. FIELD VERIFY ALL EXISTING CIRCUIT NUMBERS CURRENTLY SERVING EQUIPMENT BEING REPLACED.
5. RECONNECT ALL TEMPERTURE SENSORS TO EACH NEW ROOF TOP UNIT WITH EXISTING LOW VOLTAGE CABLE. PROVIDE NEW LOW VOLTAGE CABLE TO MATCH EXISTING CABLE IF DEFECTIVE.
6. RE-CONNECT EXISTING REMOTE TEST SWITCH CABLING TO EACH ROOF TOP UNIT WHERE EXISTING TEST SWITCHES ARE CURRENTLY INSTALLED.
7. IF CONDUCTOR LENGTH TO NEW R.T.U.'s NEED TO BE EXTENDED, CONTRACTOR SHALL SPLICE EXISTING CONDUCTORS TO NEW CONDUCTOR OF SAME SIZE. SPLICE SHALL OCCUR IN A J-BOX LOCATED DIRECTLY BELOW ROOF DECK NEAR AFFECTED R.T.U.
8. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDUCTOR SIZES SPECIFIED IN LEGEND NOTES AND RECONNECT EXACT SIZE CONDUCTORS SPECIFIED. IN THE EVENT CONDUCTORS SPECIFIED ARE SMALLER THAN INDICATED IN LEGEND NOTES, CONTRACTOR SHALL INSTALL NEW CONDUCTORS TO MATCH SPECIFIED CONDUCTORS STATED IN LEGEND NOTES.
9. TEST ENTIRE FIRE ALARM SYSTEM AT COMPLETION OF FIRE ALARM WORK AND MAKE ALL REQUIRED REPAIRS TO MAKE THE FIRE ALARM SYSTEM FULLY OPERATIONAL. PROVIDE A FIRE ALARM LOW VOLTAGE CONTRACTOR TO PERFORM TESTING OR THE FIRE ALARM MANUFACTURERS REPRESENTATIVE.

LEGEND NOTES THIS SHEET ONLY:

1. NEW ROOF TOP UNIT BEING INSTALLED AT SAME LOCATION AS EXISTING ROOF TOP UNIT BEING REMOVED.
2. FACTORY INSTALLED DISCONNECT SWITCH INTEGRAL TO ROOF TOP UNIT. MAKE CONDUCTOR CONNECTIONS TO DISCONNECT SWITCH. VERIFY DISCONNECT SWITCH LOCATION AT EACH R.T.U.
3. FACTORY INSTALLED G.F.C.I. WEATHERPROOF RECEPTACLE INTEGRAL TO ROOF TOP UNIT. CONNECT RECEPTACLE TO EXISTING ROOF TOP UNIT RECEPTACLE CIRCUIT.
4. EXISTING DUCT MOUNTED SMOKE DETECTOR INSTALLED IN DUCTWORK (VERYIFY DUCT DETECTOR IS FULLY OPERATIONAL.) DUCT DETECTOR MAY BE RE-USED IF FULLY OPERATIONAL. IF EXISTING DUCT DETECTOR IS NOT FULLY OPRATIONAL, FURNISH AND INSTALL NEW DUCT MOUNTED SMOKE DETECTOR IN DUCTWORK AND CONNECT TO FIRE ALARM PANEL AND RTU. NEW DUCT MOUNTED SMOKE DETECTOR TO MATCH MANUFACTURER OF EXISTING FIRE ALARM SYSTEM.
5. RECONNECT EXISTING 3 #8 & 1 #2G TO NEW R.T.U. REPLACE EXISTING 40A/3P CIRCUIT BREAKER IN PANEL "PP" WITH NEW 35A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION AT NEW CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
6. RECONNECT EXISTING 3 #6 & 1 #2G TO NEW R.T.U. REUSE EXISTING 50A/3P CIRCUIT BREAKER IN PANEL "PP"AND MAKE FINAL CONNECTION AT EXISTING CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
7. RECONNECT EXISTING 3 #12 & 1 #2G TO NEW R.T.U. REUSE EXISTING 15A/3P CIRCUIT BREAKER IN PANEL "PP"AND MAKE FINAL CONNECTION AT EXISTING CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
8. RECONNECT EXISTING 3 #4 & 1 #2G TO NEW R.T.U. REPLACE EXISTING 60A/3P CIRCUIT BREAKER IN PANEL "PP" WITH NEW 50A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION AT NEW CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
9. RECONNECT EXISTING 3 #2 & 1 #2G TO NEW R.T.U. REUSE EXISTING 20A/3P CIRCUIT BREAKER IN PANEL "PP"AND MAKE FINAL CONNECTION AT EXISTING CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
10. EXHAUST FAN IS BEING REMOVED/DELETED. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO CIRCUIT BREAKER. UPDATE PANELBOARD DIRECTORY AND MARK AS SPARE.



KEY PLAN

CRAIG L. MOLNAR
PROFESSIONAL ENGINEER
TEXAS FIRM #F-7357

10927 CRABAPPLE RD.
ROSWELL, GA 30075
(770) 992-5077 / (FAX) (770) 992-7593

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STATE OF TEXAS — CRAIG L. MOLNAR — 66918 — LICENSED PROFESSIONAL ENGINEER

RELEASED FOR CONSTRUCTION

APPROVAL

CARMAX PE

REVISIONS

REV. NO	DATE	DESCRIPTION

CARMAX

THE AUTO SUPERSTORE

CARMAX THE AUTO SUPERSTORES, INC.
12800 TUCKAHOE CREEK PKWY RICHMOND, VA 23238
(804) 747-0422

STORE NO. 7190
4400 SOUTH INTERSTATE HIGHWAY 35
AUSTIN, TEXAS 78745

PROJECT NO

DATE

SHEET TITLE

SALES/SERVICE
MECHANICAL/PLUMBING
EQUIPMENT
CONNECTION PLAN

SHEET NO **E1.0**

EXISTING PANELBOARD MDP

VOLTAGE: 480Y/277 V	FAULT DUTY: 65,000 AIC	BUS SIZE: 1200A	
MAINS: 1200A/3P MCB w/GFP	TOTAL LOAD: 663.4 KVA		

BRKR NUMBER	SERVES	BREAKER TRIP	BREAKER P	LOAD (KVA)	REMARKS
1	PANEL PP	400 A	3	169.0	
2	PANEL HA	100 A	3	33.5	
3	PANEL SLA	400 A	3	180.6	
4	PANEL 'HB'	150 A	3	52.4	
5	TRANSFORMER 'TLA'	150 A	3	66.1	
6	TRANSFORMER 'TLB'	150 A	3	53.3	
7	TRANSFORMER 'TLCP'	90 A	3	42.8	
8	PANEL 'HC'	100 A	3	65.7	
9	PHASE LOSS RELAY	15 A	3		
10	SURGE SUPPRESSOR	60 A	3		
11	SPACE ONLY	200 A	3		
12	SPACE ONLY	100 A	3		
13	SPACE ONLY	100 A	3		

LOAD ON EXISTING PANEL "DP" HAS DECREASED BY 47.1 KVA/ 56.6 AMPS DUE TO THE REPLACEMENT OF (10) ROOF TOP UNITS. THIS PANEL HAS A TOTAL AMPERAGE OF 799.3 AMPS.

EXISTING PANELBOARD PP

VOLTAGE: 480Y/277V	MAINS: M.L.O.	MOUNTING: SURFACE	REMARKS:
BUS SIZE: 400 A	TOTAL LOAD: 169.0 KVA	FAULT DUTY: 42,000 A	

NO	SERVES	NOTE	LOAD (KVA)	BREAKER TRIP	BREAKER P	PHASE A	PHASE B	PHASE C	BREAKER P	BREAKER TRIP	LOAD (KVA)	NOTE	SERVES	NO
1	RTU-1		29.4	50	3	●			3	15	8.8		RTU-3	2
3	---		--	--	-		●		-	--	--		---	4
5	---		--	--	-			●	-	--	--		---	6
7	RTU-2		19.0	35	3	●			3	20	11.4		RTU-4	8
9	---		--	--	-		●		-	--	--		---	10
11	---		--	--	-			●	-	--	--		---	12
13	RTU-10		27.2	50	3	●			3	15	8.8		RTU-5	14
15	---		--	--	-		●		-	--	--		---	16
17	---		--	--	-			●	-	--	--		---	18
19	SPACE				1	●			3	20	11.4		RTU-6	20
21	SPACE				1		●		-	--	--		---	22
23	SPACE				1			●	-	--	--		---	24
25	SPACE				1	●			3	15	8.8		RTU-7	26
27	SPACE				1		●		-	--	--		---	28
29	SPACE				1			●	-	--	--		---	30
31	EF-9		2.8	15	3	●			3	20	11.4		RTU-8	32
33	---		--	--	-		●		-	--	--		---	34
35	---		--	--	-			●	-	--	--		---	36
37	EF-10		2.8	15	3	●			3	50	27.2		RTU-9	38
39	---		--	--	-		●		-	--	--		---	40
41	---		--	--	-			●	-	--	--		---	42

LOAD SUMMARY

CURRENT: 203.6 A

LIGHTING	0.0 KVA	A/C	163.4 KVA
RCPT	0.0 KVA	HEATING	0.0 KVA
MOTOR	5.6 KVA	MISC	0.0 KVA

LOAD ON EXISTING PANEL "PP" HAS DECREASED BY 47.0 KVA/ 56.6 AMPS DUE TO THE REPLACEMENT OF (10) ROOF TOP UNITS. THIS PANEL HAS A TOTAL AMPERAGE OF 203.6 AMPS.

KEYED ELECTRICAL NOTES PANELBOARD:

(A) REMOVE EXISTING 40A/3P CIRCUIT BREAKER, INSTALL NEW 35A/3P CIRCUIT BREAKER.

(B) EXISTING 50A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.

(C) EXISTING 15A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.

(D) REMOVE EXISTING 60A/3P CIRCUIT BREAKER, INSTALL NEW 50A/3P CIRCUIT BREAKER.

(E) EXISTING 20A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.

CIRCUIT BREAKER NOTE:

ALL NEW AND REPLACED CIRCUIT BREAKERS SHALL BE HACR TYPE AND SHALL MATCH THE MANUFACTURER OF EACH EXISTING PANEL AND MATCH THE AIC RATING OF EXISTING PANEL.

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PROJECT NO

DATE

SHEET TITLE

PANEL SCHEDULES

SHEET NO E2.0