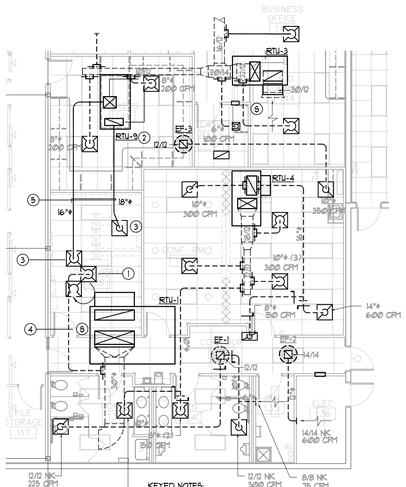


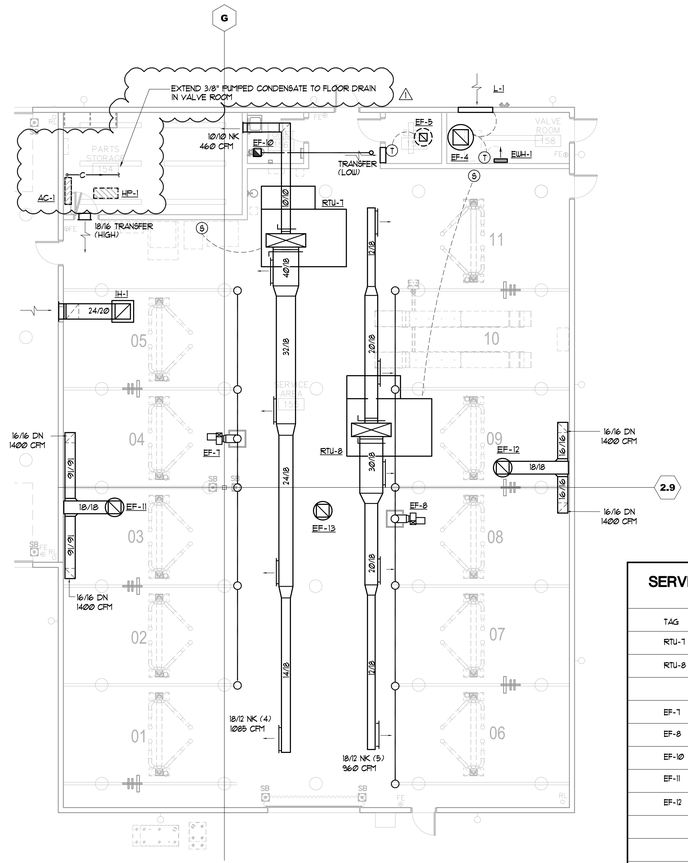
KEYED NOTES:
1. RELOCATE EXISTING VAV DIFFUSER
2. LINED SHEET METAL PLENUM FULL SIZE OF CONNECTION
3. TITUS CORE 50, 24/24, LINED SHEET METAL PLENUM ROUND COLLAR SIZE AS NOTED
4. RTU-9 SENSOR AT 78" AFF
5. INSULATED ROUND FLEXIBLE DUCT THERMAFLEX MKE. MAX LENGTH 6FT FOR CONNECTION TO CEILING SUPPLY/RETURN ONLY

F

N 2 M1.0

PART PLAN–HVAC

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



NOTE: SHOWN FOR TEST AND BALANCE PURPOSES ONLY.
ALL DUCT IS EXISTING TO REMAIN
SEE TEST AND BALANCE SCOPE ON M3.0

N 1 M1.0

PART PLAN – HVAC

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

SERVICE AREA AIR BALANCE

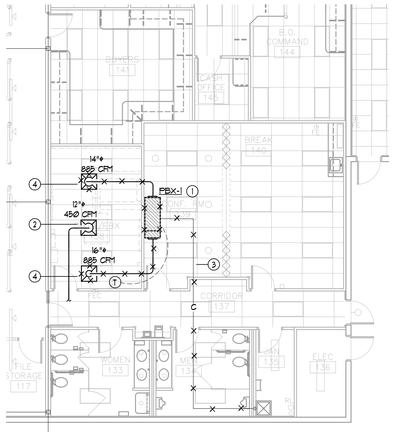
TAG	OUTSIDE AIR	EXHAUST
RTU-7	4800 (1)	
RTU-8	4800 (1)	
EF-7		1500
EF-8		1800
EF-10		110
EF-11		2800
EF-12		2800
TOTAL	9600	9310

(1) RTU-7&8 FAN ON CONTINUOUSLY DURING OCCUPIED

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

APPROX SERVICE NET AREA = 5512 SF
MIN EXH = (.75 CFM/SF X 5512 SF)
= 4134 CFM

FOR EXEMPTION TO CLASS 1 DIVISION 2
MINIMUM EXHAUST 1 CFM/SF AT THE FLOOR
SERVICE NET AREA = 5512 SF
SUM OF LOW EXHAUST FROM EF- 11 12 = 5,600 CFM



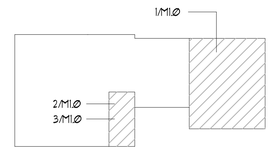
DEMO KEYED NOTES:
1. REMOVE DX FAN COIL UNIT FBX-1 AND ALL ASSOCIATED DUCT & REFRIGERANT PIPE & CONTROLS
2. EXISTING VAV DIFFUSER TO REMAIN
3. REMOVE CONDENSATE PIPE
4. REMOVE SUPPLY & RETURN

F

N 3 M1.0

DEMO PART PLAN–HVAC

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



KEY PLAN

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

22215.01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16446 A.M. CERRA, JR. 2/17/22

RELEASED FOR CONSTRUCTION

APPROVAL

CARMAX PE

REVISIONS

REV. NO	DATE	DESCRIPTION
1	6/17/22	RTU-8 EXISTING

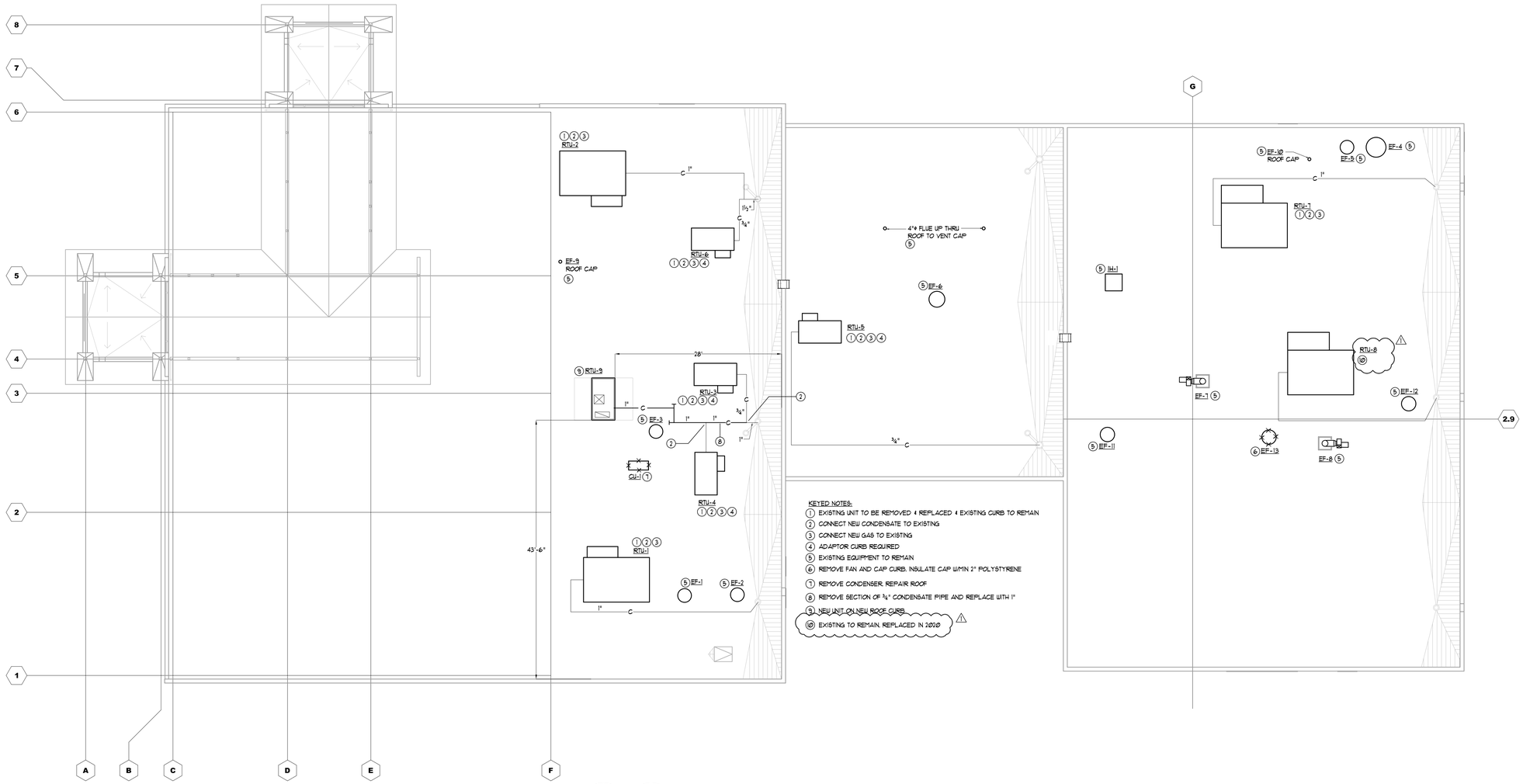
CARMAX
THE AUTO SUPERSTORE
CARMAX, THE AUTO SUPERSTORE, INC.
12800 TUCKER CREEK PKWY RICHMOND, VA 23238
(804) 747-0422

STORE NO. 7279
521 NORTH McPHERSON CHURCH ROAD
FAYETTEVILLE, NC 28303

PROJECT NO 22215.01
DATE 07 MAR 2022
SHEET TITLE

PART PLANS – HVAC

SHEET NO M1.0



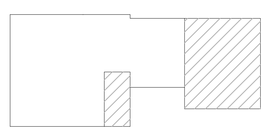
KEYED NOTES:

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 CONDENSER. REPAIR ROOF
8. REMOVE SECTION OF ¾" CONDENSATE PIPE AND REPLACE WITH 1"
9. NEW UNIT ON NEW ROOF CURB
10. EXISTING TO REMAIN. REPLACED IN 2020

N 1 / M2.0

ROOF PLAN – HVAC

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



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22215.01

NORTH CAROLINA PROFESSIONAL ENGINEER 16446 A.M. CERRA, JR. 2/7/22

RELEASED FOR CONSTRUCTION

APPROVAL

CARMAX PE

REVISIONS

REV. NO	DATE	DESCRIPTION
1	6/17/22	RTU-8 EXISTING

CARMAX
THE AUTO SUPERSTORE

CARMAX, THE AUTO SUPERSTORE, INC.
6830 TOWLES CREEK PKWY RICHMOND, VA 23238
(804) 747-0422

STORE NO. 7279
521 NORTH McPHERSON CHURCH ROAD
FAYETTEVILLE, NC 28303

PROJECT NO	22215.01
DATE	07 MAR 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 2015 INTERNATIONAL MECHANICAL CODE AND THE 2015 INTERNATIONAL FUEL GAS CODE WITH LOCAL AMENDMENTS. ALL EQUIPMENT AND MATERIALS CAPABLE OF BEING U.L. LABELED 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 (symbol)	VOLUME DAMPER
(symbol)	SUPPLY GRILLE WITH FLEX DUCT DROP
(symbol)	RETURN/EXHAUST GRILLE
R, D (symbol)	R = RISE, D = DROP
T	THERMOSTAT
S	LENNOX ROOM TEMPERATURE/HUMIDITY SENSOR 72" AFF
(symbol)	SPIN-IN FITTING
(symbol)	EXISTING DUCT
(symbol)	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-11&12

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 XCM105 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 CO2 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	LOCATIONS AND AREAS SERVED	EER	VOLT/PH	FAN DATA CFM	FAN DATA ESP IN WC	FAN DATA HP	COOLING DATA EAT DB/WB	COOLING DATA TOTAL MBH	COOLING DATA SENSIBLE MBH	GAS DATA INPUT MBH	GAS DATA OUTPUT MBH	MIN. O/A CFM	MODEL	WEIGHT (3)	REMARKS (1)
RTU-1	SHOWROOM	11.2	480/3	6000	.8	3.0	76.5/64.7	206.3	142.3	260	208	800	LENNOX LGA210H	2900	
RTU-2	SHOWROOM	11.2	480/3	6000	.8	3.0	76.5/64.7	206.3	142.3	260	208	800	LENNOX LGA210H	2900	
RTU-3	OFFICE	11.0	480/3	2000	.6	1.5	78.4/66.4	63.4	45.4	78	61.6	300	LENNOX LGA060H	900	
RTU-4	BREAK/REST	11.3	480/3	1200	.6	1.5	76.4/65.2	41.6	28	78	61.6	150	LENNOX LGA042H	900	
RTU-5	WRITE UP	11.3	480/3	1300	.6	1.5	76.4/65.1	42.1	29.2	78	61.6	150	LENNOX LGA042H	900	
RTU-6	WAITING	11.2	480/3	900	.6	1.5	81.9/67.8	37	25.5	78	61.6	200	LENNOX LGA036H	900	
RTU-7	SERVICE	10.0	480/3	7910	.8	5.0	85/76	356.6	206.8	476	376	5000	LENNOX LGA360H	4900	(2)
RTU-8	SERVICE	10.6	480/3	8400	--	--	--	--	---	480	384	4800	LENNOX LGH360H4B	4900	(2) (4)

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

(2) BY-PASS CURB AND MIXING BOX

(3) INCLUDES WEIGH OF UNIT AND CURB

(4) EXISITNG TO REMAIN. REPLACED IN 2020 (1)

ROOFTOP UNIT SCHEDULE

MARK	ZONE	EER (SEER)	VOLT/PH	FAN DATA CFM	FAN DATA TOT IN WC	FAN DATA ESP IN WC	FAN DATA HP	COOLING DATA (9) EAT DB/WB	COOLING DATA (9) TOTAL MBH	COOLING DATA (9) SENSIBLE MBH	GAS DATA INPUT MBH	GAS DATA OUTPUT MBH	MIN. O/A CFM	MODEL (1)	WEIGHT (17)	REMARKS (2)(4)(12)
RTU-1	SHOWROOM	12.0	480/3	6000	1.1	.8	3.0	80/67	--	--	260	208	800	LENNOX LGH210H4M	2700	(5)(13)(14)
RTU-2	SHOWROOM	12.0	480/3	6000	1.1	.8	3.0	80/67	--	--	260	208	800	LENNOX LGH210H4M	2700	(5)(13)(14)
RTU-3	OFFICE	(17.0)	480/3	2000	1.0	.6	1.0	80/67	--	--	65	52	300	LENNOX LGH060H4E	1100	(5)(6) (11)
RTU-4	BREAK/TOILETS	(17.0)	480/3	1280	1.0	.6	1/2	80/67	--	--	65	52	150	LENNOX LGH048H4E	1000	(5)(6) (11)
RTU-5	WRITE UP	(17.0)	480/3	1300	1.0	.6	1/2	80/67	--	--	65	52	150	LENNOX LGH048H4E	1000	(5)(6) (11)
RTU-6	WAITING	(17.0)	480/3	960	.8	.6	3/4	80/67	--	--	60	45	200	LENNOX LGH036H4E	1000	(5)(6) (11) (14)
RTU-7	SERVICE AREA (BP)	10.6	480/3	8400	1.4	.8	5.0	80/69	366	223	480	384	4800	LENNOX LGH360H4B	4500	(3)(7)(8)(10)(14)(15)
RTU-8	SERVICE AREA (BP)	10.6	480/3	8400	1.4	.8	5.0	80/69	366	223	480	384	4800	LENNOX LGH360H4B	4500	(3)(7)(8)(10)(14)(15)(19)
RTU-9	PBX	(17.0)	480/3	960	.9	.8	1/2	75/63	32	23.4	--	--	--	LENNOX LCH036H4E	600	(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) HUMIDITROL. SET 55% RH, PRIOROTY TO COOLING

(6) GLOBAL ECONOMIZER WITH BAROMETRIC RELIEF

(7) STAINLESS STEEL HEAT EXCHANGER

(8) FRESH AIR TEMPERING, 100% OUTSIDE AIR

(9) 95°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 ZISNSR90A1

(13) GLOBAL ECONOMIZER WITH POWERED EXHAUST

(14) 2 STAGE HEAT

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

(16) 8400 CFM ACROSS COIL, 3600 CFM BYPASSED IN CURB, 4,800 CFM OUTSIDE AIR AND SUPPLY TO SERVICE

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

(18) 14" HYBRID CURB

(19) EXISTING TO REMAIN. REPLACED IN 2020 (1)

TEST & BALANCE SCOPE

MARK	TOTAL AIR ACROSS COIL	OUTSIDE AIR	BYPASS AIR	SUPPLY AIR TO REGISTERS	OTHER
RTU-1 THRU 6 & 9	AS SCHEDULED	AS SCHEDULED	--	--	
RTU-7&8	8400	4800	3600	4800	SUPPLY REGISTER AIR QTY AS SHOWN ON 1/M1.0
EF-11&12	--	--	--	--	(4) 1400 CFM LOW EXHAUST AS SHOWN EXHAUST AT FAN AS SCHEDULED

SUGGESTED TEST & BALANCE PROCEDURE FOR BYPASS UNITS:

RTU- 8

1. CLOSE BYPASS DAMPER & MAKE AIR QTY 8400 CFM.
2. GRADUALLY OPEN BYPASS DAMPER UNTIL OUTSIDE AIR IS 4800 CFM. THIS MEANS 3600 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.

(1)

AIR CONDITIONING UNIT SCHEDULE

FAN COIL UNIT TAG	C.F.M.	O.A. C.F.M.	EXT. S.P.	FAN H.P.	BASIS OF DESIGN	WEIGHT LBS.	HEAT PUMP TAG	COOLING E.A.T.	COOLING TOT MBH	COOLING SEN MBH	HEAT (5) MBH	BASIS OF DESIGN	S.E.E.R.	HSPF	WEIGHT LBS.	NOM. TONS	NOTES
AC-1	450	-	-	-	LENNOX MHA018S4S	35	HP-1	75/63	17.8	14	11	LENNOX MPB018S4-1P	19.0	--	90	1.5	(1)(2)(3)(4)(6)(7)

(1) WIRELESS HANDHELD THERMOSTAT

(2) CONDENSING UNIT ON ROOF

(3) INSTALL CONDENSING UNIT ON & SECURED FLASHED EQUIPMENT CURB EQUAL TO PATE es-2b, HEIGHT = 14"

(4) HEAT PUMP AND FAN COIL UNIT @ 208V/1Φ

(5) @ 17° d.b, 70° E.A.T

(6) DIVERSITECH CONDENSATE PUMP Y5170, 8 GPM @ 35FT HEAD, 120V/240V

(7) AC-1 APPROX 9 FT AFF

GENERAL NOTES:

1. REFRIGERANT PIPE TO BE TYPE K COPPER LINE SETS.
2. INSULATE SUCTION LINE WITH 3/4" CELLULAR FOAM INSULATION.
3. REFRIGERANT PIPE PENETRATION OF ROOF THRU EXTERIOR WALL
4. CONDENSATE PIPE TYPE L COPPER, WITH 3/8" CELLULAR FOAM INSULATION.

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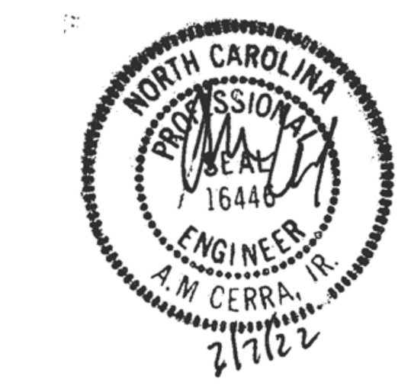

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CARMAX PE

REVISIONS

REV. NO	DATE	DESCRIPTION
1	6/17/22	RTU-8 EXISTING

CARMAX THE AUTO SUPERSTORE

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STORE NO. 7279
521 NORTH McPHERSON CHURCH ROAD
FAYETTEVILLE, NC 28303

PROJECT NO 22215.01

DATE 07 MAR 2022

SHEET TITLE

SCHEDULES – HVAC

SHEET NO M3.0

EXISTING PANELBOARD PP SCHEDULE

VOLTAGE: 480/277V, 3 PH, 4 W	MAINS: MAIN LUGS ONLY	MOUNTING: SURFACE	REMARKS:
BUS SIZE: 400A	TOTAL LOAD: (DIVERSIFIED LOAD) 215.0 KVA	FAULT DUTY: 42,000 A	

KEY	NO	SERVES	NOTE	LTG	RCPT	MTR	A/C	HTG	MISC	BRKR TRIP	BRKR P	PHASE A B C	BRKR P	BRKR TRIP	MISC	HTG	A/C	MTR	RCPT	LTG	NOTE	SERVES	NO	KEY
	1	RTU-1					32.4			45	3	A	3	20			10.2					RTU-3	2	
A	3	RTU-1					--			--	-	B	-	--			--					RTU-3	4	B
	5	RTU-1					--			--	-	C	-	--			--					RTU-3	6	
	7	RTU-2					32.4			45	3	A	3	15			9.0					RTU-4	8	
A	9	RTU-2					--			--	-	B	-	--			--					RTU-4	10	C
	11	RTU-2					--			--	-	C	-	--			--					RTU-4	12	
	13	SPACE										A	3	15			9.0					RTU-5	14	
	15	SPACE										B	-	--			--					RTU-5	16	C
	17	SPACE										C	-	--			--					RTU-5	18	
	19	SPACE										A	3	15			6.9					RTU-6	20	
	21	SPACE										B	-	--			--					RTU-6	22	C
	23	SPACE										C	-	--			--					RTU-6	24	
	25	SPACE										A	3	70			53.3					RTU-7	26	
	27	SPACE										B	-	--			--					RTU-7	28	D
	29	SPACE										C	-	--			--					RTU-7	30	
	31	SPACE										A	3	80			54.9					RTU-8	32	
	33	SPACE										B	-	--			--					RTU-8	34	H
	35	SPACE										C	-	--			--					RTU-8	36	
	37	SPACE										A	3	15			6.9					RTU-9	38	
	39	SPACE										B	-	--			--					RTU-9	40	E
	41	SPACE										C	-	--			--					RTU-9	42	

LOAD SUMMARY
CURRENT:
258.6 AMPS

LIGHTING: 0.0 KVA A/C: 215.0 KVA
RECEPTACLE: 0.0 KVA HEATING: 0.0 KVA
MOTOR: 0.0 KVA MISC: 0.0 KVA

NOTE: PANEL PP IS SERVED FROM A 400A/3P BREAKER IN PANEL BOARD MDP.

LOAD ON EXISTING PANEL "PP" HAS DECREASED BY 1.1 KVA/ 1.3 AMPS DUE TO THE REPLACEMENT OF (7) ROOF TOP UNITS AND THE ADDITION OF (1) ROOF TOP UNIT. THIS PANEL HAS A TOTAL AMPERAGE OF 258.6 AMPS.

EXISTING PANELBOARD LA SCHEDULE SECTION ONE

VOLTAGE: 208Y/120 V	MAINS: 225A/3P MCB	MOUNTING: SURFACE	REMARKS: FEED-THRU LUGS TO SERVE SECTION TWO
BUS SIZE: 225 A	TOTAL LOAD: 61.9 KVA	FAULT DUTY: 10,000 A	

NO	SERVES	NOTE	LOAD (kVA)	BREAKER TRIP	BREAKER P	PHASE A B C	BREAKER P	BREAKER TRIP	LOAD (kVA)	NOTE	SERVES	NO
1	RCPT, BUSINESS		0.8	20	1	A	1	20	1.2		RCPT, RESTROOMS	2
3	RCPT, BUSINESS		0.6	20	1	B	1	20	1.2		RCPT, CONFERENCE	4
5	FAX, BUYER'S		0.8	20	1	C	1	20	1.2		RCPT, SALES	6
7	VENDING		0.8	20	1	A	1	20	1.2		RCPT, SALES	8
9	VENDING		0.8	20	1	B	1	20	0.8		RCPT, SALES	10
11	VENDING		0.8	20	1	C	1	20	1.2		RCPT, SALES	12
13	VENDING		0.8	20	1	A	1	20	1.0		RCPT, SALES	14
15	REFRIGERATOR		0.8	20	1	B	1	20	0.8		RCPT, SALES	16
17	TIMECLOCK		0.2	20	1	C	1	20	1.2		RCPT, SALES	18
19	SPARE			20	1	A	1	20	1.2		RCPT, SALES	20
21	FAX, MGR ASST		0.8	20	1	B	1	20	0.8		RCPT, SALES	22
23	COPIER		0.8	20	1	C	1	20	1.4		RCPT, SALES	24
25	RCPT, BUSINESS		1.2	20	1	A	1	20	0.8		RCPT, SALES	26
27	SPARE			20	1	B	1	20	1.0		RCPT, SALES	28
29	RCPT, CUSTOMER		1.2	20	1	C	1	20	0.8		RCPT, SALES	30
31	DRINKING FOUNTAIN		0.8	20	1	A	1	20	0.2		DELI COUNTER	32
33	RCPT, SALES		0.8	20	1	B	1	20	1.6	7B	LTG, SALES	34
35	SPARE			20	1	C	1	20	1.6	7B	LTG, SALES	36
37	SPARE			20	1	A	1	20	1.6	7B	LTG, SALES	38
39	BREAK RCPT		0.8	20	1	B	1	30	2.0		HOT BOX HEAT	40
41	BREAK RCPT		0.8	20	1	C	1	30	2.0		HOT BOX HEAT	42

LOAD SUMMARY
CURRENT: 171.8 AMPS

LIGHTING 3.2 KVA A/C 0..0 KVA
RCPT 31.0 KVA HEATING 7.0 KVA
MOTOR 8.5 KVA MISC 12.2 KVA

LOAD ON EXISTING PANEL "LA" HAS DECREASED BY 5.0 KVA/ 13.8 AMPS DUE TO THE REMOVEL OF CU-1 AND PBX-1. THIS PANEL HAS A TOTAL AMPERAGE OF 171.8 AMPS.

EXISTING PANELBOARD LA SCHEDULE SECTION TWO

VOLTAGE: 208Y/120 V	MAINS: M.L.O.	MOUNTING: SURFACE	REMARKS:
BUS SIZE: 225 A	TOTAL LOAD: SEE SECTION ONE	FAULT DUTY: 10,000 A	

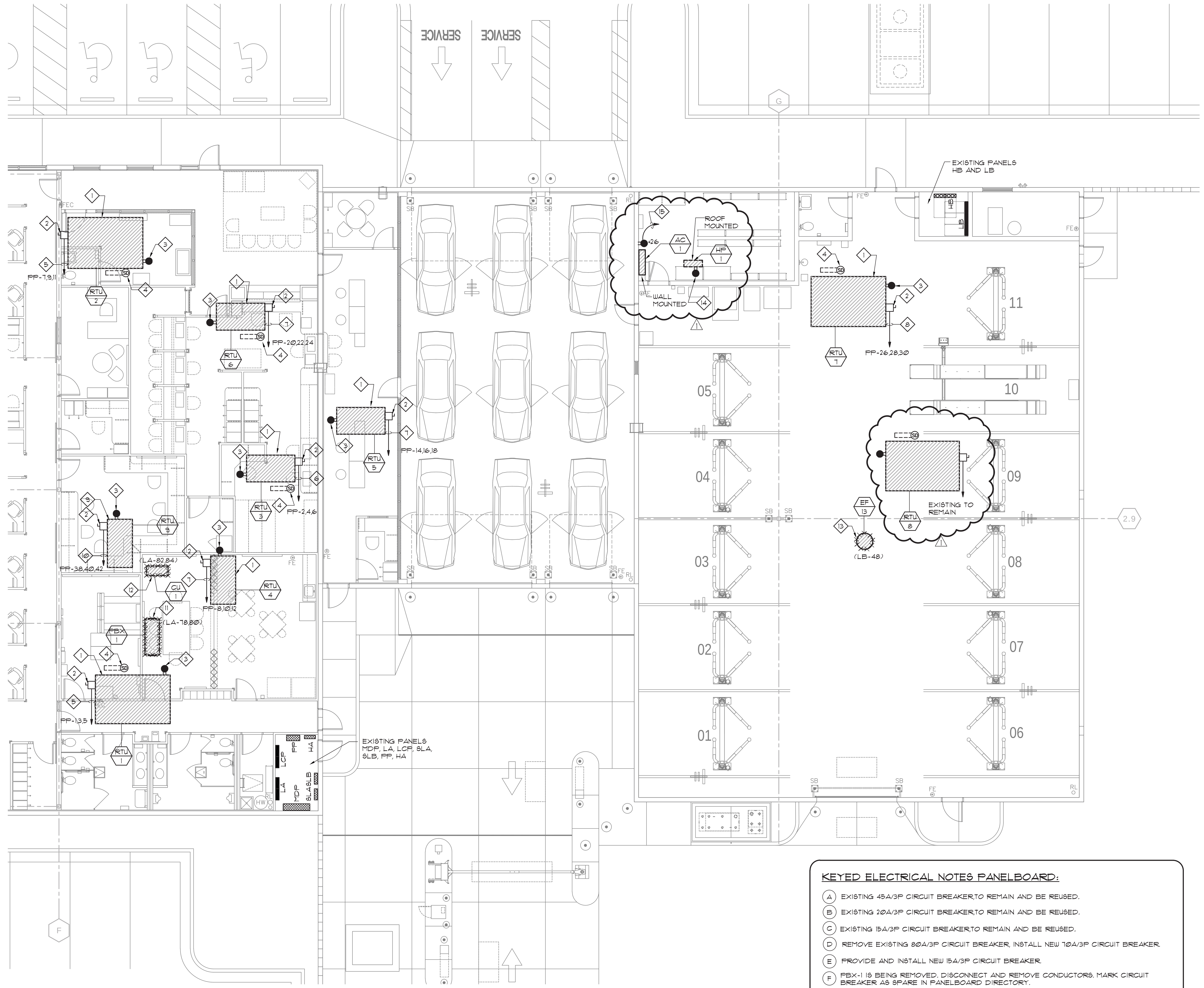
NO	SERVES	NOTE	LOAD (kVA)	BREAKER TRIP	BREAKER P	PHASE A B C	BREAKER P	BREAKER TRIP	LOAD (kVA)	NOTE	SERVES	NO	KEY
43	EF-1	7B	1.2	20	1	A	1	20	0.8		RCPT, BUSINESS	44	
45	EF-2, EF-3		0.5	20	1	B	1	20	1.2		RCPT, BUSINESS	46	
47	RCPT, RTU		1.2	20	1	C	1	20	0.8		SHUTTER	48	
49	SF-1, SF-2,SF-3, SF-4		0.4	20	1	A	1	20	1.2		RCPT, BUSINESS	50	
51	SPARE			20	1	B	1	20	0.8		SHUTTER	52	
53	IRH-1,IRH-2		0.2	20	1	C	1	20	0.8		SHUTTER	54	
55	EF-6		0.8	20	1	A	1	20	1.0		RCPT, BUSINESS	56	
57	SPARE			20	1	B	1	20			SPARE	58	
59	IH-1		0.2	20	1	C	1	20			SPARE	60	
61	PRESENTATION DOOR		1.2	25	1	A	1	20	1.2		COPIER, BUSINESS	62	
63	PRESENTATION DOOR		1.2	25	1	B	1	20			SPARE	64	
65	PRESENTATION DOOR		1.2	25	1	C	2	20	2.1		HP-1/AC-1 SPLIT SYSTEM	66	H
67	PRESENTATION DOOR		1.2	25	1	A	-	--			-----	68	
69	SPARE			20	1	B	1	20	0.2		CONDENSATE PUMP	70	I
71	SPARE			20	1	C	1				SPACE	72	
73	SPARE			20	1	A	2	20	3.0		WH-1	74	
75	SPARE			20	1	B	-	--	--		-----	76	
77	RCPT, SERVICE WRITE		0.6	20	1	C	2	45			SPARE	78	F
79	RCPT, SERVICE WRITE		1.2	20	1	A	-	--			-----	80	
81	RCPT, SERVICE WRITE		1.2	20	1	B	2	25			SPARE	82	G
83	RCPT, SERVICE WRITE		0.4	20	1	C	-	--			-----	84	

LOAD SUMMARY
CURRENT: SEE SECTION ONE

SPLIT SYSTEM EQUIPMENT ELECTRICAL CONNECTION SCHEDULE

ITEM NO.	DESCRIPTION	EQUIPMENT CHARACTERISTICS VOLTS	PH	KW	HP	FLA	CIRCUIT	FEEDER	DISCONNECT SWITCH SIZE	PL	FUSE	FEATURES	REMARKS
AC 1	FAN COIL UNIT - 1	208	1			0.11	SERVED FROM HP-1	3# 12 & 1# 12G - 3/4" C.	30	3	NF		
HP 1	CONDENSING UNIT - 1	208	1			10.5	PANEL LB 20A/2P	2# 10 & 1# 10G - 3/4" C.	30	2	NF	NEMA 3R	

NOTE: COORDINATE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL MECHANICAL/PLUMBING EQUIPMENT WITH MECHANICAL/PLUMBING CONTRACTOR PRIOR TO ANY WORK.



1 E1.0 MECHANICAL/PLUMBING EQUIPMENT CONNECTION PLAN
SCALE: 1/8" = 1'-0"

KEYED ELECTRICAL NOTES PANELBOARD:

- (A) EXISTING 45A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.
- (B) EXISTING 20A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.
- (C) EXISTING 15A/3P CIRCUIT BREAKER,TO REMAIN AND BE REUSED.
- (D) REMOVE EXISTING 80A/3P CIRCUIT BREAKER, INSTALL NEW 70A/3P CIRCUIT BREAKER.
- (E) PROVIDE AND INSTALL NEW 15A/3P CIRCUIT BREAKER.
- (F) PBX-1 IS BEING REMOVED. DISCONNECT AND REMOVE CONDUCTORS. MARK CIRCUIT BREAKER AS SPARE IN PANELBOARD DIRECTORY.
- (G) CU-1 IS BEING REMOVED. DISCONNECT AND REMOVE CONDUCTORS. MARK CIRCUIT BREAKER AS SPARE IN PANELBOARD DIRECTORY.
- (H) EXISTING TO REMAIN

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.

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 BEAKER 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. RECONNECT 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 #6 & 1 #10G TO NEW R.T.U.. REUSE EXISTING 45A/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.
6. RECONNECT EXISTING 3 #12 & 1 #12G 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.
7. RECONNECT EXISTING 3 #12 & 1 #12G 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 & REMOVE EXISTING 1 #10G AND INSTALL NEW #8G IN EXISTING 1 1/4" C TO NEW R.T.U.. RE-PLACE EXISTING 80A/3P CIRCUIT BREAKER IN PANEL "PP" WITH NEW 70A/3P CIRCUIT BREAKER AND MAKE FINAL CONNECTION AT NEW CIRCUIT BREAKER. EXTEND/SPLICE CONDUCTOR LENGTH TO REACH NEW R.T.U. IF REQUIRED.
9. NEW RTU UNIT.
10. INSTALL NEW 3 #12 & 1 #12G-3/4" C AND CONNECT TO NEW RTU. PROVIDE AND INSTALL NEW 15A/3P CIRCUIT BREAKER IN PANEL "PP" AND MAKE FINAL CONNECTION AT NEW CIRCUIT BREAKER.. UPDATE PANELBOARD DIRECTORY.
11. PBX-1 IS BEING REMOVED/DELETED. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO CIRCUIT BREAKER INDICATED IN PARENTHESES, UPDATE PANELBOARD DIRECTORY AND MARK AS SPARE.
12. CU-1 IS BEING REMOVED/DELETED. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO CIRCUIT BREAKER INDICATED IN PARENTHESES, UPDATE PANELBOARD DIRECTORY AND MARK AS SPARE.
13. EXHAUST FAN IS BEING REMOVED/DELETED. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO CIRCUIT BREAKER IN PANEL LB, CIRCUIT SHOWN IN PARENTHESES, UPDATE PANELBOARD DIRECTORY AND MARK AS SPARE.
14. PROVIDE AND INSTALL NEW WP/GFIC RECEPTACLE WITH EXTRA DUTY IN USE COVER WITHIN 25' OF NEW EQUIPMENT ON ROOF TOP AND CONNECT TO CLOSEST EXISTING MAINTENANCE RECEPTACLE CIRCUIT. NEW RECEPTACLE IS NOT REQUIRED IF AN EXISTING ROOF TOP RECEPTACLE EXIST WITHIN 25' OF NEW ROOF TOP EQUIPMENT.
15. PROVIDE AND INSTALL GFCI RECEPTACLE FOR CONDENSATE PUMP. COORDINATE EXACT LOCATION WITH EQUIPMENT INSTALLER. ROUTE HOMERUN TO SPARE 20A/1P CIRCUIT BREAKER IN PANEL LB AND MAKE FINAL CONNECTION. UPDATE PANELBOARD DIRECTORY.

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NORTH CAROLINA PROFESSIONAL SEAL No. 16039 ENGINEER CRAIG L. MOLNAR

RELEASED FOR CONSTRUCTION

APPROVAL

REVISIONS

REV. NO	DATE	DESCRIPTION
1	6/17/22	RTU-8 EXISTING

CARMAX THE AUTO SUPERSTORE
CARMAX THE AUTO SUPERSTORE, INC.
12800 TUCKAHOE CREEK PKWY RICHMOND, VA 23238
(804) 747-0422
STORE NO. 7279
521 NORTH McPHERSON CHURCH ROAD
FAYETTEVILLE, NC 28303

PROJECT NO	22215.01
DATE	07 MAR 2022
SHEET TITLE	MECHANICAL/PLUMBING EQUIPMENT CONNECTION PLAN
SHEET NO	E1.0