

ENERGY RECOVERY WHEEL SCHEDULE

| MARK | SERVES | OUTSIDE AIR | | | | | | | | | | EXHAUST AIR | | MODEL | WEIGHT | REMARKS | | |
|-------|---------------|-------------|---------|--------------|--------|--------|-----|--------------|------|--------|--------|-------------|---------|-------|--------|-----------|-----|-------|
| | | FAN | | COOLING DATA | | | | HEATING DATA | | | | FAN | | | | | | |
| | | HP | VOLT/PH | CFM | E.A.T. | L.A.T. | TOT | SENS | SENS | E.A.T. | L.A.T. | HP | VOLT/PH | | | | CFM | |
| ERV-1 | RTU-10A & 11A | 3.0 | 480/3 | 4200 | 100/74 | 83/67 | 104 | 12 | 173 | 18/11 | 51/40 | 3.0 | 480/3 | 4200 | LENNOX | 50R46E2XH | 150 | ① ② ④ |

① PROVIDE 14" FLASHED EQUIPMENT SUPPORT EQUAL TO PATE-ES-5. SEE 1/M4.0
 ② FIELD FURNISHED & INSTALLED DISCONNECT
 ③ EXHAUST AIR TEMP AT 68°F HEAT & 75°F/63°F COOLING
 ④ ERV BYPASS DAMPER SHALL REMAIN CLOSED. ALL AIR THROUGH WHEEL

FAN SCHEDULE

| MARK | CFM | STATIC PRESSURE IN W.C. | APPROX. FAN RPM | FAN TYPE | DAMPER | VOLT/PH | HP | MANUFACTURER / MODEL | REMARKS |
|-------|-------|-------------------------|-----------------|------------|-----------|---------|-----|----------------------|---------|
| EF-14 | 2,500 | 25 | 1000 | ROOF CENT. | BACKDRAFT | 120 | 1/2 | GREENHECK CUE 161-B | ① ② |

① ADAPTER ROOF CURB, GASKET BETWEEN BASE AND CURB.
 ② PROVIDE WITH DISCONNECT

DUCTLESS SPLIT SCHEDULE

| TAG | SERVES | FAN COIL UNIT | | | | HEAT PUMP | | | | NOM. TONS | NOTES | | | | |
|------|------------|-----------------|-------------|----------------|---------|-----------|---------|----------|-----------------|-----------|-------------|------|-------------|-----|---------------|
| | | BASIS OF DESIGN | WEIGHT LBS. | CFM (HIGH/LOW) | TAG | COOLING | | HEAT MBH | BASIS OF DESIGN | | | SEER | WEIGHT LBS. | | |
| | | | | | | E.A.T. | TOT MBH | | | | | | | | |
| AG-1 | PANT FREEP | LENNOX | 3UMB0364-IP | 40 | 130/500 | HP-1 | 80/61 | 36 | 36 | LENNOX | FB036448-IP | 16.0 | 16.0 | 3.0 | ① ② ③ ④ ⑤ ⑥ ⑦ |
| AG-2 | PANT FREEP | LENNOX | 3UMB0364-IP | 40 | 130/500 | HP-2 | 80/61 | 36 | 36 | LENNOX | FB036448-IP | 16.0 | 16.0 | 3.0 | ① ② ③ ④ ⑤ ⑥ ⑦ |

① MOST/STAT-1 WALL THERMOSTAT AT 48" AFF ADJACENT TO INDOOR UNIT
 ② INSTALL ON CONCRETE PAD ON GRADE
 ③ COOLING AT 80/61 INDOOR, 95F AMBIENT. HEATING AT 70 INDOOR, 47/43 AMBIENT
 ④ INSTALL INDOOR UNIT APPROX 12" AFF. COORD LOCATION WITH PAINT SHOP MANAGER
 ⑤ ALTERNATE LOCATION: INSTALL ON & SECURE TO FLASHED EQUIPMENT CURB ON ROOF EQUAL TO PATE 08-20, HEIGHT + 14"
 ⑥ IF INSTALLED ON ROOF MAINTAIN MIN 10FT CLEAR TO ROOF EDGE FOR HEAT PUMPS
 ⑦ BLUE DIAMOND MAXIBLUE CONDENSATE PUMP, 3.7 GPH, 16.5 FT LIFT, 10V

TEST & BALANCE SCOPE

| MARK | TOTAL AIR ACROSS COIL | OUTSIDE AIR | BYPASS AIR | SUPPLY AIR TO REGISTERS | OTHER |
|--|-----------------------|--------------|------------|-------------------------|--|
| RTU-1 THRU 3 RTU-16, 17, 18 RTU-13, 14 | AS SCHEDULED | AS SCHEDULED | -- | -- | -- |
| RTU-10A & 11A | 4200 | 4200 | -- | -- | AIR QTY AT REGISTERS. SEE 1/M2.01 OUTSIDE AIR & EXHAUST AT ERV-1 SEE DETAIL 5/M4.0 |
| EF-14 | -- | -- | -- | -- | EXHAUST AT FAN AS SCHEDULED |
| RTU-10B, 12B | 3600 | 4200 | 5400 | 4200 | AIR QTY AT REGISTERS. SEE 1/M2.1 |
| RTU-11B & 12A | 8000 | 4200 | 3800 | 4200 | AIR QTY AT REGISTERS. SEE 1/M2.1 |
| RTU-15 | 4400 | 2100 | 1100 | 2100 | AIR QTY AT REGISTERS. SEE 1/M2.1 |
| RTU-19 & 20 | 1920 | 0 | -- | -- | AIR QTY AT REGISTERS. SEE 1/M2.2 |

SUGGESTED TEST & BALANCE PROCEDURE FOR BYPASS UNITS:

- RTU-10B, 12B**
 1. CLOSE BYPASS DAMPER & MAKE AIR QTY 9,600 CFM.
 2. GRADUALLY OPEN BYPASS DAMPER UNTIL OUTSIDE AIR IS 4,200 CFM. THIS MEANS 5,400 CFM IS BEING BYPASSED IN THE CURB
 3. OUTSIDE AIR SHOULD EQUAL SUM OF SUPPLY AIR AT THE REGISTERS

- RTU-11B & 12A**
 1. CLOSE BYPASS DAMPER & MAKE AIR QTY 8,200 CFM.
 2. GRADUALLY OPEN BYPASS DAMPER UNTIL OUTSIDE AIR IS 4,200 CFM. THIS MEANS 3,800 CFM IS BEING BYPASSED IN THE CURB
 3. OUTSIDE AIR SHOULD EQUAL SUM OF SUPPLY AIR AT THE REGISTERS

- RTU-15**
 1. CLOSE BYPASS DAMPER & MAKE AIR QTY 4,400 CFM.
 2. GRADUALLY OPEN BYPASS DAMPER UNTIL OUTSIDE AIR IS 2,100 CFM. THIS MEANS 1,300 CFM IS BEING BYPASSED IN THE CURB
 3. OUTSIDE AIR SHOULD EQUAL SUM OF SUPPLY AIR AT THE REGISTERS

HVAC LEGEND

| | |
|--------|---|
| A.F.F. | ABOVE FINISHED FLOOR |
| VD | VOLUME DAMPER |
| B.O.S. | BOTTOM OF STEEL |
| B.O.D. | BOTTOM OF DUCT |
| UNO. | UNLESS NOTED OTHERWISE |
| | VOLUME DAMPER |
| | SUPPLY GRILLE WITH FLEX DUCT DROP |
| | RETURN/EXHAUST GRILLE |
| | R = RISE, D = DROP |
| | THERMOSTAT |
| | LENNOX ROOM TEMPERATURE/HUMIDITY SENSOR 12" AFF |
| | SPIN-IN FITTING |
| | EXISTING DUCT |
| | EXISTING DUCT TO BE REMOVED |
| | EXISTING DUCT TO REMAIN |

CONTROLS SCOPE OF WORK:

EXISTING RTU'S ARE ON LOGIC ONE BUS8. SAVVY COMMUNICATIONS TO ICM ALL RTU'S WITH ETM 20519 1/0 IS BY THE INTEGRATED ICM IN THE SAVVY.

- ALL NEW RTU'S WILL BE BAONET.
- THE GENERAL CONTRACTOR SHALL RETAIN COMFORT SYSTEMS USA (CSUSA) TO FURNISH AND INSTALL CONTROLS AS INDICATED BELOW THE CONTACT AT CSUSA IS: COURTNEY SWAN 317-246-9174
- PROVIDE PRE-CONSTRUCTION SCREEN SHOTS FROM NOVAR EMS MONITORING TO INCLUDE UNIT STATUS, MODULE COMMUNICATIONS STATUS AND ACTIVE ALARMS.
- ALL CONTROL COMMUNICATIONS BUS AND SENSOR WIRING NEW AND EXISTING, IS PART OF THE CONTROLS CONTRACTOR SCOPE OF WORK REPLACE ANY DAMAGED WIRE.
- CONNECT NEW RTU'S W/COMBO BOARDS & BAONET COMMUNICATION.
- FOR NEW RTU'S REPLACE RTU NOVAR TEMPERATURE SENSORS WITH LENNOX SENSORS.
- REPLACE/UPGRADE SAVVY 31 WITH OPUS XCH105 PANEL, SAME BASE PLATE, MINIMAL RE-WIRING REQUIRED.
- CONNECT BAONET NETWORK AS REQUIRED.
- TURN OVER SAVVY 31 PANEL AND ETMS TO CARMAX FOR FUTURE SERVICE CALL INVENTORY SHIP TO COMFORT SYSTEMS USA, ATTN: VALERIE BEDEL, CARMAX EMS ACCOUNT CO-ORDINATOR.
- UPDATE SOFTWARE PER NEW CARMAX TEMPLATE
- COMMISSION EMS SYSTEM
- PROVIDE POST CONSTRUCTION SCREEN SHOTS FROM NOVAR EMS MONITORING TO INCLUDE UNIT STATUS, MODULE COMMUNICATIONS STATUS AND ACTIVE ALARMS.
- 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.
- FURNISH AND INSTALL ADDITIONAL CONTROL WIRE FOR CO2 SENSORS AND UNITS WITH HUMIDITROL.

EXISTING ROOFTOP UNIT SCHEDULE

SHOWN FOR REFERENCE PURPOSES

| MARK | LOCATIONS AND AREAS SERVED | EER | VOLT/PH | FAN DATA | | | | COOLING DATA | | | GAS DATA | | MIN. O/A CFM | BY-PASS CFM | MODEL | WEIGHT | REMARKS |
|--------|----------------------------|-----------|---------|----------|-------------|------|-----------|--------------|--------------|-----------|------------|-------|--------------|--------------|-----------|--------|---------|
| | | | | CFM | ESP IN W.C. | HP | EAT DB/DB | TOTAL MBH | SENSIBLE MBH | INPUT MBH | OUTPUT MBH | | | | | | |
| | | | | | | | | | | | | CFM | | | | | |
| RTU-1 | OFFICES | 10.6 | 480/3 | 10750 | 8.2 | 7.5 | -- | -- | -- | 260.0 | 208.0 | 216.0 | -- | LENNOX | LGH360H4B | 3800 | ⑥ |
| RTU-2 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 5.0 | -- | -- | -- | 260.0 | 208.0 | 830 | -- | LENNOX | LGH180H4B | 2100 | ⑥ |
| RTU-3 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 5.0 | -- | -- | -- | 260.0 | 208.0 | 830 | -- | LENNOX | LGH180H4B | 2100 | ⑥ |
| RTU-4 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 5.0 | -- | -- | -- | 260.0 | 208.0 | 830 | -- | LENNOX | LGH180H4B | 2100 | ⑥ |
| RTU-5 | TITLE OFFICE | 12.0 | 480/3 | 6000 | 6.3 | 5.0 | -- | -- | -- | 260.0 | 208.0 | 740 | -- | LENNOX | LGH180H4B | 2100 | ⑥ |
| RTU-6 | OFFICES | 10.6 | 480/3 | 10550 | 9 | 7.5 | -- | -- | -- | 260.0 | 208.0 | 1800 | -- | LENNOX | LGH360H4B | 3800 | ⑥ |
| RTU-7 | PARTS | 12.1 | 480/3 | 2500 | 8.5 | 7.0 | -- | -- | -- | 78.0 | 62.4 | 100 | -- | LENNOX | LGH072H4B | 1000 | ⑤ |
| RTU-8 | BREAKPARTS ACC | 10.6 | 480/3 | 8010 | 7.5 | 5.0 | -- | -- | -- | 260.0 | 208.0 | 2440 | -- | LENNOX | LGH300H4B | 3000 | ⑥ |
| RTU-9 | SERVICE WRITER | 12.1 | 480/3 | 2400 | 6.0 | 7.0 | -- | -- | -- | 78.0 | 62.4 | 200 | -- | LENNOX | LGH072H4B | 1000 | ⑤ |
| RTU-10 | SERVICE | 9.8 | 480/3 | 12600 | 15 | 10.0 | -- | -- | -- | 800 | 640 | 8000 | 4600 | LENNOX | LGH540S4B | 9600 | ④ |
| RTU-11 | SERVICE | 9.8 | 480/3 | 12600 | 15 | 10.0 | -- | -- | -- | 800 | 640 | 8000 | 4600 | LENNOX | LGH540S4B | 9600 | ④ |
| RTU-12 | SERVICE | 9.8 | 480/3 | 12600 | 15 | 10.0 | -- | -- | -- | 800 | 640 | 8000 | 4600 | LENNOX | LGH540S4B | 9600 | ④ |
| RTU-13 | FQC/FLAT BAY | 12.0 | 480/3 | 6010 | 1.0 | 5.0 | -- | -- | -- | 47.0 | 37.6 | 210 | -- | LENNOX | LGH180H4B | 2100 | ⑥ |
| RTU-14 | FQC OFFICE | SEER 13.0 | 208/1 | 650 | 5 | 1/2 | -- | -- | 22.8 | 16 | 50 | 40 | -- | LENNOX | 13GEF24 | 500 | ⑤ ① |
| RTU-15 | SERVICE | 12.0 | 480/3 | 4400 | 11 | 3.0 | 105/75 | 165 | 132 | 36.0 | 288 | 1100 | LENNOX | LGH180H4B | 4000 | ④ | |
| RTU-16 | PAINT | 11.5 | 480/3 | 8000 | 1.0 | 7.5 | -- | -- | -- | 36.0 | 288 | 300 | LENNOX | LGA240H4B15G | 3400 | | |
| RTU-17 | PAINT | 11.5 | 480/3 | 4000 | 1.0 | 3.0 | -- | -- | -- | 24.0 | 192 | 300 | LENNOX | LGC120S4B12G | | | |
| RTU-18 | PBX | 480/3 | | | | | | | | | | | LENNOX | LGH036H2B | | | |

- ① NOT USED
 ② NOT USED
 ③ PROVIDE WITH FACTORY INSTALLED NOVAR CONTROL MODULE: LGA UNIT SERIES (MODEL 20519)
 ④ BYPASS CURB AND MIXING BOX.
 ⑤ ADAPTOR CURB REQUIRED
 ⑥ CO2 SENSOR, MODULATING OUTSIDE AIR DAMPER, DEMAND VENTILATION. INSTALL SENSOR (DISPLAY TYPE) ADJACENT TO TEMP SENSOR
 ⑦ FIELD INSTALL UCM UNIVERSAL CONTROL MODULE FOR CONNECTION TO NOVAR

NEW ROOFTOP UNIT SCHEDULE

| MARK | LOCATIONS AND AREAS SERVED | EER | VOLT/PH | FAN DATA | | | | COOLING DATA | | | GAS DATA | | MIN. O/A CFM | BY-PASS CFM | MODEL | WEIGHT | REMARKS | |
|---------|----------------------------|-----------|---------|----------|-------------|-----|-----------|--------------|--------------|-----------|------------|------|--------------|-------------|-----------|-----------|---------|---------------|
| | | | | CFM | ESP IN W.C. | HP | EAT DB/DB | TOTAL MBH | SENSIBLE MBH | INPUT MBH | OUTPUT MBH | | | | | | | |
| | | | | | | | | | | | | CFM | | | | | | IN W.C. |
| RTU-1 | OFFICES | 10.5 | 480/3 | 10750 | 8.0 | 7.5 | 80/67 | -- | -- | 260 | 208 | 2160 | -- | LENNOX | LGT360H5M | 3800 | ⑥ ⑬ ⑭ | |
| RTU-2 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 15 | 5.0 | 80/67 | -- | 260 | 208 | 830 | -- | LENNOX | LGT180H4M | 2600 | ⑥ ⑬ ⑭ | |
| RTU-3 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 15 | 5.0 | 80/67 | -- | 260 | 208 | 830 | -- | LENNOX | LGT180H4M | 2600 | ⑥ ⑬ ⑭ | |
| RTU-4 | SHOW ROOM | 12.0 | 480/3 | 6600 | 12 | 15 | 5.0 | 80/67 | -- | 260 | 208 | 830 | -- | LENNOX | LGT180H4M | 2600 | ⑥ ⑬ ⑭ | |
| RTU-5 | TITLE OFFICE | 12.0 | 480/3 | 6000 | 7.5 | 11 | 5.0 | 80/67 | -- | 260 | 208 | 740 | -- | LENNOX | LGT180H4M | 2600 | ⑥ ⑬ | |
| RTU-6 | OFFICES | 10.5 | 480/3 | 10550 | 1.0 | 7.5 | 80/67 | -- | -- | 260 | 208 | 1800 | -- | LENNOX | LGT360H5M | 3800 | ⑥ ⑬ ⑭ | |
| RTU-7 | PARTS | 12.2 | 480/3 | 2500 | 1.0 | 14 | 15 | 80/67 | -- | 108 | 87 | 100 | -- | LENNOX | LGT072H4E | 1000 | ⑥ ⑬ ⑭ ⑰ | |
| RTU-8 | BREAKPARTS ACC | 11.2 | 480/3 | 8000 | 1.0 | 15 | 5.0 | 80/67 | -- | 260 | 208 | 2440 | -- | LENNOX | LGT303H5M | 3000 | ⑥ ⑬ ⑭ ⑰ | |
| RTU-9 | SERVICE WRITER | 12.2 | 480/3 | 2400 | 6.0 | 10 | 15 | 80/67 | -- | 108 | 87 | 200 | -- | LENNOX | LGT072H4E | 1000 | ⑥ ⑬ ⑭ ⑰ | |
| RTU-10A | SERVICE (ERV) | 12.0 | 480/3 | 4200 | 1.0 | 11 | 3.0 | 83/67 | 140 | 111 | 260 | 211 | 4200 | -- | LENNOX | LGT180H4M | 3400 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-10B | SERVICE (BP) | 10.5 | 480/3 | 9600 | 15 | 2.2 | 7.5 | 80/68 | 350 | 235 | 480 | 389 | 4200 | 5,400 | LENNOX | LGT360H5M | 4600 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-11A | SERVICE (ERV) | 12.0 | 480/3 | 4200 | 1.0 | 12 | 3.0 | 83/67 | 140 | 111 | 260 | 211 | 4200 | -- | LENNOX | LGT180H4M | 3400 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-11B | SERVICE (BP) | 11.2 | 480/3 | 8000 | 15 | 2.0 | 7.5 | 79/67 | 291 | 201 | 480 | 389 | 4200 | 3,800 | LENNOX | LGT303H5M | 4600 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-12A | SERVICE (BP) | 11.2 | 480/3 | 8000 | 15 | 2.0 | 7.5 | 79/67 | 291 | 201 | 480 | 389 | 4200 | 3,800 | LENNOX | LGT303H5M | 4600 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-12B | SERVICE (BP) | 10.5 | 480/3 | 9600 | 15 | 2.2 | 7.5 | 80/68 | 350 | 235 | 480 | 389 | 4200 | 5,400 | LENNOX | LGT360H5M | 4600 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ |
| RTU-13 | FQC/FLAT BAY | 12.0 | 480/3 | 6000 | 1.0 | 12 | 5.0 | 80/67 | -- | 260 | 208 | 210 | -- | LENNOX | LGT180H4M | 2600 | ⑬ ⑰ | |
| RTU-14 | FQC OFFICE | SEER 16.0 | 208/1 | 650 | 5 | | 80/67 | 23.4 | 17 | -- | -- | 60 | -- | LENNOX | LRF16HP | 500 | ⑰ ⑱ | |
| RTU-15 | SERVICE (BP) | 12.0 | 480/3 | 4400 | 1.0 | 12 | 3.0 | 81/69 | 168 | 112 | 360 | 292 | 2100 | 1100 | LENNOX | LGT180H4M | 2600 | ③ ⑥ ⑧ ⑩ ⑬ ⑰ ⑱ |
| RTU-16 | PAINT | 12.0 | 480/3 | 8000 | 1.0 | 16 | 7.5 | 80/67 | -- | -- | 360 | 288 | 300 | -- | LENNOX | LGT240H5M | 3000 | ⑥ ⑱ |
| RTU-17 | PAINT | 12.1 | 480/3 | 4000 | 1.0 | 17 | 3.75 | 80/67 | -- | -- | 240 | 194 | 300 | -- | LENNOX | LGT120H4E | 1450 | ⑥ ⑱ ⑲ |
| RTU-18 | PBX | 13.3 | 480/3 | 1000 | 7.5 | 10 | 5.0 | 80/67 | -- | -- | -- | -- | -- | | | | | |