

September 20, 2019

ADDENDUM ACKNOWLEDGEMENT FORM

To Whom It May Concern:

Concerning the **PSJA ISD CLOVER, GARCIA AND DOEDYNS ELEMENTARY SCHOOLS HVAC ADDITIONS TO HALLWAYS BID # 18-19-058**, to be opened at 4:00 p.m., Thursday, September 26, 2019. Please consider the following:

Addendum Number:	Description of REVISED Addendum:
2	QUESTIONS AND ANSWERS CLARIFICATIONS PRE-BID SIGN IN SHEET

For any questions pertaining to these changes, please contact Emily Garza, Director of Purchasing at (956) 354-2000.

Sincerely,



Emily Garza
Director of Purchasing

With the acceptance of this form, I acknowledge that I have received the above ***“ADDENDUM ACKNOWLEDGEMENT FORM”*** for the **PSJA ISD CLOVER, GARCIA AND DOEDYNS ELEMENTARY SCHOOLS HVAC ADDITIONS TO HALLWAYS BID # 18-19-058**, to be opened at 4:00 p.m., Thursday, September 26, 2019. Please include a signed copy of this ***“ADDENDUM ACKNOWLEDGMENT FORM”*** with your bid/proposal.

Company Name: _____	Authorized Signature: _____
Address: _____	Authorized Signature (Print): _____
City / State / Zip: _____	Email: _____
Telephone Number: _____	Fax Number: _____

START COLLEGE NOW! COMPLETE EARLY! GO FAR!

ADDENDUM #2
PSJA ISD HVAC REPLACEMENT & ADDITIONS TO
CLOVER, GARCIA, & DOEDYNS ELEMENTARY
09.20.2019

The following items shall become a part of the contract documents. Refer to full or partial sheets referenced and make changes noted. Bidders are responsible for reading all sections of the addendum. The Addendum consists of the following:

QUESTIONS FROM THE BIDDERS

- Item 1 Supplier: TCR- The Best Alarm INC
Question: Will any Fire Alarm duct detectors need to be added/replaced or relocated?
Answer: All fire alarm smoke detectors shall be added/replaced per Mechanical Equipment Connection Schedule Sheet E1.1(Clover), Sheet E2.1(Garcia), and Sheet E3.1(Doedyns).
- Item 2 Supplier: Renoworks, LLC
Question: Will all units be removed and replaced? I noticed some fairly newer units on the roof.
Answer: All the units will be replaced with new as shown on the construction documents. If during construction the owner decides not to replace existing equipment which is new, then a request for credit will be made.

MECHANICAL

- Item 1 Specification 15733 – 100% Outside Air Units, Greenheck and Trane shall be included as acceptable alternates assuming they meet the requirements of the specifications.
- Item 2 Specification 15736 – Duct-Free Split Systems, Panasonic shall be included as acceptable alternates assuming they meet the requirements of the specifications.
- Item 3 Condenser coil hail guards have been added to all condensers. Refer to attached mechanical drawings.

ELECTRICAL

- Item 1 Sheet E1.00, Overall – Electrical Floor Plan, remove existing fixture in space and furnish and install one Lithonia #ZL1N L48 3000LM FST MVOLT 40K WH LBOZU or equal in the following rooms: IDF Closet 431 and IDF Closet 531 (Clover).
- Item 2 Sheet E1.00, Overall – Electrical Floor Plan, remove existing fixture in space and furnish and install one Lithonia #ZL1N L48 3000LM FST MVOLT 40K WH LBOZU or equal in the following rooms: IDF Closet 431 and IDF Closet 531 (Garcia).


Luis Javier Pena
09.20.2019


Abram L. Dominguez
09.20.2019

SPLIT SYSTEM SCHEDULE

AIR HANDLING UNIT DESIGNATION	FC-1	FC-2	FC-3	FC-4	FC-5	FC-6	FC-7	FC-8	FC-9	FC-10	FC-11	FC-12	FC-13	FC-14	FC-15	FC-16	FC-17	FC-18	FC-19	FC-20	FC-21	FC-22	FC-23	FC-24	FC-25	FC-26	FC-27	FC-28	FC-29	
SUPPLY CFM	3250	1800	3750	3300	3750	3750	3350	3750	3250	2000	1800	1400	4510	4510	3750	700	3750	3750	3750	3750	2800	2450	2600	2800	2800	2000	3250	700	4500	
OUTSIDE AIR CFM	550	250	550	550	550	550	550	550	550	250	250	200	1500	1500	550	100	550	550	550	550	425	375	400	400	400	250	475	100	1000	
EXTERNAL S.P. ("W.G.)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	
MOTOR HP	1	1	1	1	1	1	1	1	1	1	1	1	5	5	1	1/4	1	1	1	1	3/4	3/4	3/4	3/4	3/4	1	1	1/4	5	
TOTAL CAPACITY (MBH)	115	53.1	115	115	115	115	115	115	115	53.1	53.1	43.0	175	175	115	23.4	115	115	115	115	86.7	86.7	86.7	86.7	86.7	53.1	115	23.4	173.9	
SENSIBLE CAPACITY (MBH)	87.4	39.2	87.4	87.4	87.4	87.4	87.4	87.4	87.4	39.2	39.2	31.5	132	132	87.4	19.2	87.4	87.4	87.4	87.4	67.0	67.0	67.0	67.0	67.0	39.2	87.4	19.2	116.1	
ENTERING AIR (DB/WB)F	78/65	75/63	78/65	78/65	78/65	78/65	78/65	78/65	78/65	75/63	75/63	78/65	82/67	82/67	78/65	78/64	78/65	78/65	78/65	78/65	78/65	78/65	78/65	78/65	78/65	75/63	78/65	78/64	78.3/66.8	
LEAVING AIR (DB/WB)F	54.4/54.2	53/52.4	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	53/52.4	53/52.4	53.7/53.8	54.2/53.8	54.2/53.8	54.4/54.2	52.1/52.1	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53/52.4	54.4/54.2	52.1/52.1	53.8/53.7	
HEATER CAPACITY (KW)	25	15	25	25	25	25	25	25	25	15	15	10	40	40	25	5	25	25	25	25	25	25	25	25	25	15	25	5	40	
COOLING STAGES	2	1	2	2	2	2	2	2	2	1	1	1	4	4	2	1	2	2	2	2	2	2	2	2	2	1	2	1	2	
VOLTAGE/PHASE	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø	460/3ø																						
MCA/MOCP	44/45	26/30	44/45	44/45	44/45	44/45	44/45	44/45	44/45	26/30	26/30	19/20	69/70	69/70	44/45	26/30	44/45	44/45	44/45	44/45	42/45	42/45	42/45	42/45	42/45	26/30	44/45	26/30	69/70	
MANUFACTURER	LENNOX	LENNOX																												
MODEL	ELA120S4D	CBX27UH-060	ELA120S4D	CBX27UH-060	CBX27UH-060	CBX27UH-048	ELA-180	ELA-180	ELA120S4D	CBX27UH-24	ELA120S4D	ELA120S4D	ELA120S4D	ELA090	ELA090	ELA090	ELA090	ELA090	ELA090	CBX27UH-060	ELA120S4D	CBX27UH-24	ELA-180							
UNIT WEIGHT (LBS)	500	200	500	500	500	500	500	500	500	200	200	190	750	750	500	140	500	500	500	500	440	440	440	440	440	500	140	800	800	
CONDENSING UNIT DESIGNATION	CU-1	CU-2	CU-3	CU-4	CU-5	CU-6	CU-7	CU-8	CU-9	CU-10	CU-11	CU-12	CU-13	CU-14	CU-15	CU-16	CU-17	CU-18	CU-19	CU-20	CU-21	CU-22	CU-23	CU-24	CU-25	CU-26	CU-27	CU-28	CU-29	
CONDENSER AIR (DB)F	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
VOLTAGE/PHASE	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø	460/3ø																								
MCA/MOCP	16/20	12.3/20	16/20	16/20	16/20	16/20	16/20	16/20	16/20	12.3/20	12.3/20	9.1/15	31/40	31/40	16/20	15.6/20	16/20	16/20	16/20	17.0/25	17.0/25	17.0/25	17.0/25	17.0/25	17.0/25	12.3/20	16/20	15.6/20	31.0/40	
MANUFACTURER	LENNOX	LENNOX																												
MODEL	ELS120S4D	SSB060	ELS120S4D	SSB060	SSB060	SSB048	ELS-180	ELS-180	ELS120S4D	16ACX-024	ELS120S4D	ELS120S4D	ELS120S4D	ELS090	ELS090	ELS090	ELS090	ELS090	ELS090	SSB060	ELS120S4D	16ACX-024	ELS-180							
UNIT WEIGHT (LBS)	500	340	500	500	500	500	500	500	500	340	340	270	800	800	500	190	500	500	500	350	350	350	350	350	350	340	500	190	800	
EFFICIENCY EER (SEER)	11.2	15.1	11.2	11.2	11.2	11.2	11.2	11.2	11.2	15.1	15.1	(16.0)	11.0	11.0	11.2	(16.0)	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	15.1	11.2	(16.0)	11.0	
REMARKS	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	

- REMARKS**
1. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT AND HUMIDITY CONTROL. FURNISH AVERAGING SENSORS WHERE SHOWN ON PLAN.
 2. PROVIDE SINGLE POINT POWER.
 3. PROVIDE CONCRETE PAD FOR CONDENSING UNIT MOUNTING.
 4. PROVIDE AND INSTALL REFRIGERANT LINES PER MANUFACTURER RECOMMENDATIONS. (FURNISH WITH FILTER DRYER AND SIGHT GLASS)
 5. PROVIDE WITH HIGH EFFICIENCY 2-STAGE SCROLL COMPRESSOR.
 6. PROVIDE EXTERNAL FILTER BASE WITH HINGED ACCESS DOOR AND 1-INCH TRUCK.
 7. PROVIDE WITH SAFETY FLOAT SWITCH.
 8. PROVIDE WITH MULTI SPEED FAN WITH STAGES TO MATCH OUTDOOR UNIT STAGING.
 9. PROVIDE WITH CONDENSER COIL HAIL GUARD.

ROOF TOP UNIT SCHEDULE

ROOF TOP UNIT DESIGNATION	ERU-1	ERU-2	ERU-3	ERU-4
SUPPLY AIR / OUTSIDE AIR CFM	3865/3865	3510/3510	6135/6135	3465/3465
SUPPLY AIR E.S.P. ("W.G.)	1.1	1.1	1.1	1.1
SUPPLY MOTOR HP	4	4	7.5	4
EXHAUST AIR / RETURN AIR CFM	3865/3865	3510/3510	6190/6190	3465/3465
EXHAUST AIR E.S.P. ("W.G.)	1.1	1.1	1.1	1.1
EXHAUST MOTOR HP	4	4	8	4
TOTAL CAPACITY (MBH)	170.2	165.8	288.93	165.18
SENSIBLE CAPACITY (MBH)	121.2	114	198.71	113.09
ENTERING AIR (DB/WB)F	84.2/69.3	83.5/68.9	83.6/68.9	83.4/68.8
LEAVING AIR (DB/WB)F	55.6/55.6	53.8/53.8	54/54	53.6/53.6
CONDENSER AIR (DB)F	101	101	101	101
COOLING STAGES	INFINITE/INVERTER	INFINITE/INVERTER	INFINITE/INVERTER	INFINITE/INVERTER
% MINIMUM LOAD	15%	15%	15%	15%
REFRIGERANT	R410A	R410A	R410A	R410A
HOT GAS REHEAT (TEMP RISE °F)	20	20	20	20
	COOLING	HEATING	COOLING	HEATING
ERV CFM	3865	3865	3510	3510
ERV TOTAL CAPACITY (MBH)	130.6	139.6	123.8	132.8
OUTSIDE AIR (DB/WB)F	100/78	25/21.2	100/78	25/21.2
RETURN AIR (DB/WB)F	75.0/62.6	70/51.5	75.0/62.6	70/51.5
LEAVING AIR (DB/WB)F	84.2/69.3	52.1	83.5/68.9	53.5
HEATER CAPACITY (MBH)/(KW)	61.43/18	61.43/18	102.4/30	61.4/18
LEAVING AIR TEMPERATURE (°F)	66.8	69.6	68.7	70
STAGES	SCR	SCR	SCR	SCR
VOLTAGE/PHASE	460/3ø	460/3ø	460/3ø	460/3ø
MCA/MOCP	37.1/45	37.1/45	66.9/80	37.1/45
MANUFACTURER	DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL	DPS015A	DPS015A	DPS025A	DPS015A
UNIT WEIGHT (LBS)	2712	2712	4328	2712
EFFICIENCY EER/IEER/CEF	11/18/14.9	11/18/15.8	10.2/18.3/14.8	11/18/14.8
FILTER EFFICIENCY	30%	30%	30%	30%
REMARKS	1 THRU 19	1 THRU 19	1 THRU 19	1 THRU 19

- REMARKS**
1. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
 2. PROVIDE FACTORY MOUNTED VARIABLE FREQUENCY DRIVE OR ECM MOTOR.
 3. PROVIDE WITH 14" ROOF CURB.
 4. PROVIDE WITH AT LEAST ONE INVERTER DRIVEN VARIABLE SPEED SCROLL COMPRESSOR.
 5. PROVIDE FACTORY MOUNTED ENERGY RECOVERY WHEEL.
 6. PROVIDE WITH 2" PLEATED, MERV 8, 30% EFFICIENT SUPPLY AND EXHAUST FILTERS.
 7. PROVIDE WITH INTAKE AND EXHAUST HOODS.
 8. PROVIDE WITH DIRTY FILTER AND WHEEL ROTATION INDICATION.
 9. PROVIDE WITH 0-100% OUTSIDE AIR AND RETURN AIR DAMPERS.
 10. PROVIDE DOUBLE WALL CONSTRUCTION, INTERNALLY ISOLATED AIRFOIL PLENUM FAN, HINGED ACCESS DOORS, STAINLESS STEEL DRAIN PAN, AND COMPRESSOR ISOLATION VALVES.
 11. PROVIDE WITH CONTROLS INTERFACE CARD.
 12. PROVIDE WITH CONDENSER COIL HAIL GUARDS.
 13. PROVIDE WITH FACTORY E-COATED CONDENSER COILS WITH 6000+ HR SALT SPRAY RATING AND UV PROTECTION.
 14. PROVIDE WITH DIRECT DRIVE WELDED BLADE SWIRL PLENUM FANS WITH ECM MOTORS OR VFD FOR SUPPLY AND EXHAUST.
 15. PROVIDE WITH MODULATING HOT GAS REHEAT WITH 2 POINT CONTROL (LEAVING COOLING COIL TEMP AND LEAVING UNIT TEMP).
 16. PROVIDE WITH PHASE AND OVER/UNDER VOLTAGE PROTECTION.
 17. PROVIDE WITH AHRI CERTIFIED UNIT AND ENTHALPY WHEEL.
 18. PROVIDE WITH HEAD PRESSURE CONTROL.
 19. PROVIDE WITH FACTORY MOUNTED DDC CONTROLLER WITH DIGITAL DISPLAY AND TRENDRING CAPABILITIES FOR UNIT DIAGNOSTICS AND CONTROL.

SPLIT SYSTEM SCHEDULE

AIR HANDLING UNIT DESIGNATION	AHU-1	AHU-2	AHU-3	AHU-4
SUPPLY CFM	1750	1750	1750	1750
OUTSIDE AIR CFM	250	250	250	250
EXTERNAL S.P. ("W.G.)	0.4	0.4	0.4	0.4
MOTOR HP	1	1	1	1
TOTAL CAPACITY (MBH)	54.3	54.3	54.3	54.3
SENSIBLE CAPACITY (MBH)	44.5	44.5	44.5	44.5
ENTERING AIR (DB/WB)F	78/64	78/64	78/64	78/64
LEAVING AIR (DB/WB)F	54.0/53.1	54.0/53.1	54.0/53.1	54.0/53.1
HEATER CAPACITY (KW)	15.0	15.0	15.0	15.0
STAGES	1	1	1	1
VOLTAGE/PHASE	480/1ø	480/1ø	480/1ø	480/1ø
MCA/MOCP	26/30	26/30	26/30	26/30
MANUFACTURER	LENNOX	LENNOX	LENNOX	LENNOX
MODEL	CBX27UH-060	CBX27UH-060	CBX27UH-060	CBX27UH-060
UNIT WEIGHT (LBS)	200	200	200	200
CONDENSING UNIT DESIGNATION	ACCU-1	ACCU-2	ACCU-3	ACCU-4
CONDENSER AIR (DB)F	98	98	98	98
VOLTAGE/PHASE	460/3ø	460/3ø	460/3ø	460/3ø
MCA/MOCP	10.1/20	10.1/20	10.1/20	10.1/20
MANUFACTURER	LENNOX	LENNOX	LENNOX	LENNOX
MODEL	SSB060	SSB060	SSB060	SSB060
UNIT WEIGHT (LBS)	340	340	340	340
EFFICIENCY EER (SEER)	15.1	15.1	15.1	15.1
REMARKS	1 THRU 10	1 THRU 10	1 THRU 10	1 THRU 10

- REMARKS**
1. PROVIDE WITH AUXILIARY DRAIN PAN.
 2. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT W/ HUMIDITY CONTROL.
 3. PROVIDE SINGLE POINT POWER.
 4. PROVIDE 4-INCH CONCRETE PAD FOR CONDENSING UNIT. PAD SHALL EXTEND 6-INCHES BEYOND UNIT PERIMETER.
 5. PROVIDE AND INSTALL REFRIGERANT LINES PER MANUFACTURER RECOMMENDATIONS.
 6. CONDENSER COILS SHALL BE CORROSION RESISTANT.
 7. PROVIDE WITH 2-STAGE COMPRESSOR AND 2-SPEED FAN.
 8. PROVIDE WITH FILTER BASE WITH STANDARD SIZE FILTER.
 9. PROVIDE WITH SAFETY FLOAT SWITCH.
 10. PROVIDE WITH CONDENSER COIL HAIL GUARDS.

FANCOIL SCHEDULE

SPLIT SYSTEM SCHEDULE

AIR HANDLING UNIT DESIGNATION	FC-1	FC-2	FC-3	FC-4	FC-5	FC-6	FC-7	FC-8	FC-9	FC-10	FC-11	FC-12	FC-13	FC-14	FC-15	FC-16	FC-17	FC-18	FC-19	FC-20	FC-21	FC-22	FC-23	FC-24	FC-25	FC-26	FC-27	FC-28	FC-29		
SUPPLY CFM	3250	1800	3750	3300	3750	3750	3350	3750	3250	2000	1800	1400	4510	4510	3750	700	3750	3750	3750	3750	2800	2450	2600	2800	2800	2000	3250	700	4500		
OUTSIDE AIR CFM	550	250	550	550	550	550	550	550	550	250	250	200	1500	1500	550	100	550	550	550	425	375	400	400	400	400	250	475	100	1000		
EXTERNAL S.P. ("W.G.)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5		
MOTOR HP	1	1	1	1	1	1	1	1	1	1	1	1	5	5	1	1/4	1	1	1	1	3/4	3/4	3/4	3/4	3/4	3/4	1	1	1/4	5	
TOTAL CAPACITY (MBH)	115	53.1	115	115	115	115	115	115	115	53.1	53.1	43.0	175	175	115	23.4	115	115	115	86.7	86.7	86.7	86.7	86.7	86.7	53.1	115	23.4	173.9		
SENSIBLE CAPACITY (MBH)	87.4	39.2	87.4	87.4	87.4	87.4	87.4	87.4	87.4	39.2	39.2	31.5	132	132	87.4	19.2	87.4	87.4	87.4	67.0	67.0	67.0	67.0	67.0	67.0	40	87.4	19.2	116.1		
ENTERING AIR (DB/WB)F	78/65	75/63	78/65	78/65	78/65	78/65	78/65	78/65	78/65	75/63	75/63	78/65	82/67	82/67	78/65	78/64	78/65	78/65	78/65	78/65	78/65	78/65	78/65	78/65	78/65	78/65	75/63	78/65	78/64	78.3/66.8	
LEAVING AIR (DB/WB)F	54.4/54.2	53/52.4	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	54.4/54.2	53/52.4	53/52.4	53.7/53.8	54.2/53.8	54.2/53.8	54.4/54.2	52.1/52.1	54.4/54.2	54.4/54.2	54.4/54.2	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53.8/53.6	53/52.4	54.4/54.2	52.1/52.1	53.8/53.7	
HEATER CAPACITY (KW)	25	15	25	25	25	25	25	25	25	15	15	10	40	40	25	5	25	25	25	25	25	25	25	25	25	15	25	5	40		
COOLING STAGES	2	1	2	2	2	2	2	2	2	1	1	1	4	4	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	2	
VOLTAGE/PHASE	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø																								
MCA/MOCP	44/45	26/30	44/45	44/45	44/45	44/45	44/45	44/45	44/45	26/30	26/30	19/20	69/70	69/70	44/45	26/30	44/45	44/45	44/45	44/45	42/45	42/45	42/45	42/45	42/45	42/45	26/30	44/45	26/30	69/70	
MANUFACTURER	LENNOX																														
MODEL	ELA120S4D	CBX27UH-060	ELA120S4D	CBX27UH-060	CBX27UH-060	CBX27UH-048	ELA-180	ELA-180	ELA120S4D	CBX27UH-24	ELA120S4D	ELA120S4D	ELA120S4D	ELA090	CBX27UH-060	ELA120S4D	CBX27UH-24	ELA-180													
UNIT WEIGHT (LBS)	500	200	500	500	500	500	500	500	500	200	200	190	750	750	500	140	500	500	500	500	440	440	440	440	440	440	440	500	140	800	
CONDENSING UNIT DESIGNATION	CU-1	CU-2	CU-3	CU-4	CU-5	CU-6	CU-7	CU-8	CU-9	CU-10	CU-11	CU-12	CU-13	CU-14	CU-15	CU-16	CU-17	CU-18	CU-19	CU-20	CU-21	CU-22	CU-23	CU-24	CU-25	CU-26	CU-27	CU-28	CU-29		
CONDENSER AIR (DB)F	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	
VOLTAGE/PHASE	460/3ø	208/1ø	460/3ø	208/1ø	460/3ø																										
MCA/MOCP	16/20	12.3/20	16/20	16/20	16/20	16/20	16/20	16/20	16/20	12.3/20	12.3/20	9.1/15	31/40	31/40	16/20	15.6/20	16/20	16/20	16/20	17.0/25	17.0/25	17.0/25	17.0/25	17.0/25	17.0/25	17.0/25	12.3/20	16/20	15.6/20	31.0/40	
MANUFACTURER	LENNOX																														
MODEL	ELS120S4D	SSB060	ELS120S4D	SSB060	SSB060	SSB048	ELS-180	ELS-180	ELS120S4D	16ACX-024	ELS120S4D	ELS120S4D	ELS120S4D	ELS090	SSB060	ELS120S4D	16ACX-024	ELS-180													
UNIT WEIGHT (LBS)	500	340	500	500	500	500	500	500	500	340	340	270	800	800	500	190	500	500	500	350	350	350	350	350	350	350	340	500	190	800	
EFFICIENCY EER (SEER)	11.2	15.1	11.2	11.2	11.2	11.2	11.2	11.2	11.2	15.1	15.1	(16.0)	11.0	11.0	11.2	(16.0)	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	15.1	11.2	(16.0)	11.0	
REMARKS	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	

- REMARKS
1. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT AND HUMIDITY CONTROL. FURNISH AVERAGING SENSORS WHERE SHOWN ON PLAN.
 2. PROVIDE SINGLE POINT POWER.
 3. PROVIDE CONCRETE PAD FOR CONDENSING UNIT MOUNTING.
 4. PROVIDE AND INSTALL REFRIGERANT LINES PER MANUFACTURER RECOMMENDATIONS. (FURNISH WITH FILTER DRYER AND SIGHT GLASS)
 5. PROVIDE WITH HIGH EFFICIENCY 2-STAGE SCROLL COMPRESSOR.
 6. PROVIDE EXTERNAL FILTER BASE WITH HINGED ACCESS DOOR AND 1-INCH TRUCK.
 7. PROVIDE WITH SAFETY FLOAT SWITCH.
 8. PROVIDE WITH MULTI SPEED FAN WITH STAGES TO MATCH OUTDOOR UNIT STAGING.
 9. PROVIDE WITH CONDENSER COIL HAIL GUARD.

ROOF TOP UNIT SCHEDULE

ROOF TOP UNIT DESIGNATION	ERU-1	ERU-2	ERU-3	ERU-4
SUPPLY AIR / OUTSIDE AIR CFM	3865/3865	3510/3510	6135/6135	3465/3465
SUPPLY AIR E.S.P. ("W.G.)	1.1	1.1	1.1	1.1
SUPPLY MOTOR HP	4	4	7.5	4
EXHAUST AIR / RETURN AIR CFM	3865/3865	3510/3510	6190/6190	3465/3465
EXHAUST AIR E.S.P. ("W.G.)	1.1	1.1	1.1	1.1
EXHAUST MOTOR HP	4	4	8	4
TOTAL CAPACITY (MBH)	170.2	165.8	288.93	165.18
SENSIBLE CAPACITY (MBH)	121.2	114	198.71	113.09
ENTERING AIR (DB/WB)F	84.2/69.3	83.5/68.9	83.6/68.9	83.4/68.8
LEAVING AIR (DB/WB)F	55.6/55.6	53.8/53.8	54/54	53.6/53.6
CONDENSER AIR (DB)F	101	101	101	101
COOLING STAGES	INFINITE/INVERTER	INFINITE/INVERTER	INFINITE/INVERTER	INFINITE/INVERTER
% MINIMUM LOAD	15%	15%	15%	15%
REFRIGERANT	R410A	R410A	R410A	R410A
HOT GAS REHEAT (TEMP RISE °F)	20	20	20	20
	COOLING	HEATING	COOLING	HEATING
ERV CFM	3865	3865	3510	3510
ERV TOTAL CAPACITY (MBH)	130.6	139.6	123.8	132.8
OUTSIDE AIR (DB/WB)F	100/78	25/21.2	100/78	25/21.2
RETURN AIR (DB/WB)F	75.0/62.6	70/51.5	75.0/62.6	70/51.5
LEAVING AIR (DB/WB)F	84.2/69.3	52.1	83.5/68.9	53.5
HEATER CAPACITY (MBH)/(KW)	61.43/18	61.43/18	102.4/30	61.4/18
LEAVING AIR TEMPERATURE (°F)	66.8	69.6	68.7	70
STAGES	SCR	SCR	SCR	SCR
VOLTAGE/PHASE	460/3ø	460/3ø	460/3ø	460/3ø
MCA/MOCP	37.1/45	37.1/45	66.9/80	37.1/45
MANUFACTURER	DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL	DPS015A	DPS015A	DPS025A	DPS015A
UNIT WEIGHT (LBS)	2712	2712	4328	2712
EFFICIENCY EER/IEER/CEF	11/18/14.9	11/18/15.8	10.2/18.3/14.8	11/18/14.8
FILTER EFFICIENCY	30%	30%	30%	30%
REMARKS	1 THRU 19	1 THRU 19	1 THRU 19	1 THRU 19

- REMARKS
1. PROVIDE SINGLE POINT ELECTRICAL CONNECTION.
 2. PROVIDE FACTORY MOUNTED VARIABLE FREQUENCY DRIVE OR ECM MOTOR.
 3. PROVIDE WITH 14" ROOF CURB.
 4. PROVIDE WITH AT LEAST ONE INVERTER DRIVEN VARIABLE SPEED SCROLL COMPRESSOR.
 5. PROVIDE FACTORY MOUNTED ENERGY RECOVERY WHEEL.
 6. PROVIDE WITH 2" PLEATED, MERV 8, 30% EFFICIENT SUPPLY AND EXHAUST FILTERS.
 7. PROVIDE WITH INTAKE AND EXHAUST HOODS.
 8. PROVIDE WITH DIRTY FILTER AND WHEEL ROTATION INDICATION.
 9. PROVIDE WITH 0-100% OUTSIDE AIR AND RETURN AIR DAMPERS.
 10. PROVIDE DOUBLE WALL CONSTRUCTION, INTERNALLY ISOLATED AIRFOIL PLENUM FAN, HINGED ACCESS DOORS, STAINLESS STEEL DRAIN PAN, AND COMPRESSOR ISOLATION VALVES.
 11. PROVIDE WITH CONTROLS INTERFACE CARD.
 12. PROVIDE WITH CONDENSER COIL HAIL GUARDS.
 13. PROVIDE WITH FACTORY E-COATED CONDENSER COILS WITH 6000+ HR SALT SPRAY RATING AND UV PROTECTION.
 14. PROVIDE WITH DIRECT DRIVE WELDED BLADE SWIRL PLENUM FANS WITH ECM MOTORS OR VFD FOR SUPPLY AND EXHAUST.
 15. PROVIDE WITH MODULATING HOT GAS REHEAT WITH 2 POINT CONTROL (LEAVING COOLING COIL TEMP AND LEAVING UNIT TEMP).
 16. PROVIDE WITH PHASE AND OVER/UNDER VOLTAGE PROTECTION.
 17. PROVIDE WITH AHRI CERTIFIED UNIT AND ENTHALPY WHEEL.
 18. PROVIDE WITH HEAD PRESSURE CONTROL.
 19. PROVIDE WITH FACTORY MOUNTED DDC CONTROLLER WITH DIGITAL DISPLAY AND TRENDRING CAPABILITIES FOR UNIT DIAGNOSTICS AND CONTROL.

SPLIT SYSTEM SCHEDULE

AIR HANDLING UNIT DESIGNATION	AHU-1	AHU-2	AHU-3	AHU-4
SUPPLY CFM	1750	1750	1750	1750
OUTSIDE AIR CFM	250	250	250	250
EXTERNAL S.P. ("W.G.)	0.4	0.4	0.4	0.4
MOTOR HP	1	1	1	1
TOTAL CAPACITY (MBH)	54.3	54.3	54.3	54.3
SENSIBLE CAPACITY (MBH)	44.5	44.5	44.5	44.5
ENTERING AIR (DB/WB)F	78/64	78/64	78/64	78/64
LEAVING AIR (DB/WB)F	54.0/53.1	54.0/53.1	54.0/53.1	54.0/53.1
HEATER CAPACITY (KW)	15.0	15.0	15.0	15.0
STAGES	1	1	1	1
VOLTAGE/PHASE	480/1ø	480/1ø	480/1ø	480/1ø
MCA/MOCP	26/30	26/30	26/30	26/30
MANUFACTURER	LENNOX	LENNOX	LENNOX	LENNOX
MODEL	CBX27UH-060	CBX27UH-060	CBX27UH-060	CBX27UH-060

PROJ NO.	06/30/2019
DATE	09/20/2019
REVISIONS	J.P.L.S.
DRAWN BY	ADD #2
ADDENDUM	

GENERAL MECHANICAL NOTES

- THESE DRAWINGS ARE DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION EFFORTS. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS AS REQUIRED BY FIELD CONDITIONS.
- CONTRACTOR SHALL HANG AND INSTALL ALL DUCTWORK TIGHT WITH THE BUILDING STRUCTURE TO ACCOMMODATE CEILINGS. CONTRACTOR SHALL COORDINATE INSTALLATION WORK WITH ALL OTHER TRADES. ALL DUCTWORK SHALL BE MODIFIED AS REQUIRED TO FIT AROUND BUILDING STRUCTURES.
- CONTRACTOR SHALL BALANCE ALL AIR DISTRIBUTION SYSTEMS TO ACHIEVE THE AIR VOLUME REQUIREMENTS AS INDICATED. BALANCING SHALL INCLUDE ADJUSTMENT OF ALL MANUAL VOLUME DAMPERS AND INDIVIDUAL DIFFUSER DAMPERS.
- CONTRACTOR SHALL MOUNT ALL THERMOSTATS 48-INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. COORDINATE THE FINAL LOCATION OF EACH THERMOSTAT WITH ROOM FINISHES. PROVIDE ALL CONTROL VOLTAGE WIRING FOR THERMOSTAT INSTALLATION.
- CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS OF ALL CEILING AIR DEVICES WITH LIGHTING INSTALLATIONS AND ARCHITECTURAL CEILING PLANS. AIR DEVICES SHALL BE RELOCATED IF REQUIRED TO AVOID OBSTRUCTION WITH DUCTWORK AND LIGHT FIXTURES.
- PROVIDE SMOKE DETECTORS AND SHUTDOWN CONTROLS ON AIR HANDLING UNITS. SMOKE DETECTORS SHALL BE PROVIDED, INSTALLED, AND WIRED FOR SHUTDOWN BY DIVISION 16.

GENERAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
AHU	AIR HANDLING UNIT	L	LOUVER
ACCU	AIR COOLED CONDENSING UNIT	MAX	MAXIMUM
DB	DRY BULB	MIN	MINIMUM
EDH	ELECTRIC DUCT HEATER	NTS	NOT TO SCALE
EF	EXHAUST FAN	OBD	OPPOSED BLADE DAMPER
FCU	FAN COIL UNIT	S.P.	STATIC PRESSURE
FCCU	FAN COOLED CONDENSING UNIT	WB	WET BULB

HVAC SPECIFICATION

- CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS PRIOR TO BIDDING OR BEGINNING WORK.
- CONTRACTOR SHALL OBTAIN ALL PERMITS AND NOTIFY AUTHORITIES FOR INSPECTIONS.
- CONTRACTOR SHALL PROVIDE A FULLY FUNCTIONAL HVAC SYSTEM TO INCLUDE DUCTWORK, DIFFUSERS AND GRILLES, INSULATION, THERMOSTATS/SENSORS, SUPPLY/EXHAUST FANS, INTERCONNECTING REFRIGERANT LINES, FILTERS, DAMPERS, INTAKE/RELIEF HOODS, ROOF CURBS, AIR CONDITIONING UNITS, AND ANY REQUIRED HANGERS/SUPPORTS.
- WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT.
- CONTRACTOR SHALL INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- CONTRACTOR SHALL INSTALL FIRE-STOPPING ON ALL PENETRATIONS THRU FIRE-RATED ASSEMBLIES.
- ALL DUCTWORK SHALL BE DESIGNED, MANUFACTURED, AND TESTED IN ACCORDANCE WITH THE LATEST APPLICABLE INDUSTRY STANDARDS INCLUDING THE FOLLOWING:
 SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE"
 ASTM A924/A924M-94, A653-6-65, AND E84
 NFPA 90A, 96, AND 255
 UL 181, 555, 555, AND 723
 DUCT METAL THICKNESS, REINFORCING TYPES AND INTERVALS, AND JOINT TYPES AND INTERVALS SHALL ALSO COMPLY WITH THE REQUIREMENT OF THE ABOVE ORGANIZATIONS.
 DUCT PRESSURE CLASS SHALL BE 3" W.G. FOR SUPPLY DUCTS FROM UNIT TO VAV BOXES. RETURN, EXHAUST, AND SUPPLY DUCTS LOCATED DOWNSTREAM OF VAV BOXES SHALL BE 1" W.G.
 DUCT INSULATION SHALL BE 2-INCH THICK MINERAL-FIBER BLANKET WITH 1.5-LB/CU.FT. NOMINAL DENSITY AND FACTORY APPLIED "FSK" JACKET (ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER BACKING.)
- CONTRACTOR SHALL PROVIDE RECORD "AS-BUILT" PRINTS TO THE OWNER.
- PROVIDE GRILLES, DIFFUSERS, AND DAMPERS IN SIZES, CAPACITIES, MATERIALS, AND PATTERN INDICATED ON THE DRAWINGS.
- FIRE DAMPERS (1-1/2 HOUR) SHALL BE EQUAL TO RUSKIN MODEL "DIBD2".
- SQUARE VOLUME DAMPERS SHALL BE EQUAL TO RUSKIN MODEL "MD25".
- ROUND VOLUME DAMPERS SHALL BE EQUAL TO RUSKIN MODEL "MDRS25"

AIR DEVICE SCHEDULE

DESIGNATION	SIZE	MOUNTING	THROW	NECK TYPE	CONSTRUCTION	OBD	MAX NC	FINISH	MANUFACTURER	MODEL
A	24 X 24	LAY-IN	4-WAY	ROUND	ALUMINUM	YES	30	#26 WHITE	TITUS	TDCA-AA
B	24 X 24	LAY-IN	-	-	ALUMINUM	NO	30	#26 WHITE	TITUS	50F
C	20 X 10	SURFACE	-	-	ALUMINUM	YES	30	#26 WHITE	TITUS	300RS

LEGEND: CFM 1
A-200
DESIGNATION

NOTES:
 1. SIZE SHALL INCLUDE MODULE WITH FULL FACE.
 2. COORDINATE AIR DEVICE TYPE WITH ARCHITECTURAL CEILINGS.
 3. NECK SIZE PER NECK/BRANCH DUCT SIZE CHART.

SPLIT SYSTEM SCHEDULE

AIR HANDLING UNIT DESIGNATION	AHU-1	AHU-2	AHU-3	AHU-4
SUPPLY CFM	1800	2500	3500	1800
OUTSIDE AIR CFM	250	400	550	250
EXTERNAL S.P. ("W.G.)	0.4	0.4	0.4	0.4
MOTOR HP.	1	-	-	1
TOTAL CAPACITY (MBH)	54.3	84.5	125.0	54.3
SENSIBLE CAPACITY (MBH)	44.5	67.9	101.5	44.5
ENTERING AIR (DB/WB)F	78/64	78/64	78/64	78/64
LEAVING AIR (DB/WB)F	54.0/53.0	52.3/52.0	50.6/50.6	54.0/53.0
HEATER CAPACITY (KW)	15	25	25.0	15
STAGES	1	1	1	1
VOLTAGE/PHASE	480/3Ø	480/3Ø	480/3Ø	480/3Ø
MCA/MOCP	26/30	42/45	48/50	26/30
MANUFACTURER	LENNOX	LENNOX	LENNOX	LENNOX
MODEL	CBX27UH-060	ELA090	ELA150	CBX27UH-060
UNIT WEIGHT (LBS)	200	450	550	200
CONDENSING UNIT DESIGNATION	ACCU-1	ACCU-2	ACCU-3	ACCU-1
CONDENSER AIR (DB)F	98	98	98	98
VOLTAGE/PHASE	460/3Ø	480/3Ø	480/3Ø	460/3Ø
MCA/MOCP	10.1/20	17/25	21/25	10.1/20
MANUFACTURER	LENNOX	LENNOX	LENNOX	LENNOX
MODEL	SS6060	ELS090	ELS150	SS6060
UNIT WEIGHT (LBS)	340	391	550	340
EFFICIENCY EER (SEER)	15.1	11.2	11.0	15.1
REMARKS	1 THRU 10	1 THRU 10	1 THRU 10	1 THRU 10

REMARKS:
 1. PROVIDE WITH AUXILIARY DRAIN PAN.
 2. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT W/ HUMIDITY CONTROL.
 3. PROVIDE SINGLE POINT POWER.
 4. PROVIDE 4-INCH CONCRETE PAD FOR CONDENSING UNIT. PAD SHALL EXTEND 6-INCHES BEYOND UNIT PERIMETER.
 5. PROVIDE AND INSTALL REFRIGERANT LINES PER MANUFACTURER RECOMMENDATIONS.
 6. CONDENSER COILS SHALL BE CORROSION RESISTANT.
 7. PROVIDE WITH 2-STAGE COMPRESSOR AND 2-SPEED FAN.
 8. PROVIDE WITH FILTER BASE WITH STANDARD SIZE FILTER.
 9. PROVIDE WITH SAFETY FLOAT SWITCH.
 10. PROVIDE WITH CONDENSER COIL HALL GUARDS.

NECK/BRANCH DUCT SIZE CHART

SUPPLY DUCT			RETURN DUCT		
NECK/BRANCH SIZE	CFM RANGE		NECK/BRANCH SIZE	CFM RANGE	
6" DIAMETER	6/6 DUCT	0 - 100	6" DIAMETER	6/6 DUCT	0 - 75
8" DIAMETER	12/6 DUCT	101 - 225	8" DIAMETER	12/6 DUCT	76 - 150
10" DIAMETER	12/8 DUCT	226 - 400	10" DIAMETER	12/8 DUCT	151 - 275
12" DIAMETER	12/10 DUCT	401 - 675	12" DIAMETER	12/10 DUCT	276 - 475
14" DIAMETER	14/12 DUCT	676 - 1000	14" DIAMETER	14/12 DUCT	476 - 700
16" DIAMETER	18/12 DUCT	1001 - 1400	16" DIAMETER	18/12 DUCT	701 - 1000
18" DIAMETER	24/12 DUCT	1401 - 2000	18" DIAMETER	24/12 DUCT	1001 - 1300
20" DIAMETER	24/14 DUCT	2001 - 2500	20" DIAMETER	24/14 DUCT	1301 - 1800
22" DIAMETER	20/22 DUCT	2501 - 3200	22" DIAMETER	22/20 DUCT	1801 - 2300
24" DIAMETER	22/24 DUCT	3201 - 4200	24" DIAMETER	24/22 DUCT	2301 - 2800
			26" DIAMETER	24/24 DUCT	2801 - 3600
			28" DIAMETER	26/26 DUCT	3601 - 4200

MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
Ⓢ	TEMPERATURE SENSOR	☒	EXHAUST AIR DUCT
☒	SUPPLY AIR DEVICE (SEE SCHEDULE)	☒	RETURN AIR DUCT
☒	RETURN/TRANSFER AIR DEVICE (SEE SCHEDULE)	☒	SUPPLY AIR DUCT
☒	EXHAUST FAN (SEE SCHEDULE)	X/X	DUCT INTERNAL DIMENSIONS (WIDTH/DEPTH)
☒	RECTANGULAR DUCT TRANSITION	☒	ROUND BRANCH DUCT WITH MANUAL BALANCING DAMPER
☒	ROUND FLEX DUCT	☒	VERTICAL AIR HANDLING UNIT (SEE SCHEDULE)
Ⓢ _{AVG}	AVERAGING TEMPERATURE SENSOR	Ⓢ	THERMOSTAT

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