

HIGHLANDS COUNTY COURTHOUSE CHILLER REPLACEMENT

430 S. COMMERCE AVE, SEBRING, FL 33870



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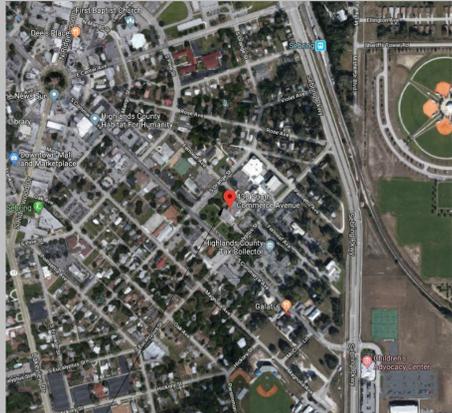
ELECTRICAL

E.1 ELECTRICAL CHILLER YARD PLAN & POWER RISER DIAGRAM



SITE LOCATION MAP

430 S. COMMERCE AVE, SEBRING, FL 33870



SITE

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION

OWNER

HIGHLANDS COUNTY
 636 S. FERNLEAF AVENUE
 SEBRING, FL 33870

RICHARD FLEEGER
 SUPERINTENDENT
 PARKS & FACILITIES DEPT.

ARCHITECT

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STRUCTURAL ENGINEER

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HIGHLANDS COUNTY COURTHOUSE - CHILLER REPLACEMENT
 19540 - OWNER REVIEW SET - 08/16/19

MECHANICAL GENERAL NOTES:

- IN GENERAL, PLANS AND DIAGRAM ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
- THE INTENT OF THE MECHANICAL NOTES ON THESE DRAWINGS IS TO CLARIFY THE SCOPE OF WORK AND ALERT THE CONTRACTOR OF EXISTING CONDITIONS. CONTRACTOR TO VISIT SITE AND VERIFY ALL CLEARANCES BEFORE FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSET AND/OR CHANGES IN DUCT SIZES TO MEET FIELD CONDITIONS AND COORDINATE WITH ELECTRICAL, PLUMBING AND FIRE PROTECTION SUBCONTRACTOR BEFORE ANY CONSTRUCTION WORK.
- BIDDERS SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL CONDITIONS INVOLVING THE WORK.
- DEVIATIONS FROM THE CONTRACT DOCUMENTS MAY REQUIRED AS-BUILT DRAWINGS. IF REQUIRED, DURING FIELD INSPECTIONS AS-BUILT DRAWINGS PRODUCED BY OUR OFFICE WILL BE BILLED HOURLY.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL TRADES INSTALLATION SCHEDULES. FIXED WORK SUCH AS DUCTWORK AND PLUMBING SHALL BE INSTALLED PRIOR TO ANY TRADE WORK THAT CAN BE EASILY RELOCATED OR OFFSET SUCH AS ELECTRICAL CONDUITS, SMALL WATER AND GAS LINES ETC.
- ALL AIR CONDITIONING WORK SHALL NOT INTERFERE WITH CLEARANCES REQUIRED FOR GENERAL AND MECHANICAL CONSTRUCTION. SHOULD AIR CONDITIONING WORK BE INSTALLED WHICH INTERFERES WITH THE WORK OF OTHER CONTRACTORS. SUCH WORK SHALL BE CHANGED AT NO ADDITIONAL COST.
- ALL WORK COVERED IN THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST PUBLISHED STANDARDS OF ASHRAE, AND NFPA.
- ALL MECHANICAL WORK SHALL MEET ALL THE REQUIREMENTS OF THE "FLORIDA BUILDING CODE 2017, 6TH EDITION.
- IN THE EVENT THAT THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE CODE, THE CODE SHALL TAKE PRECEDENCE. THE MECHANICAL CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS AND SUBMIT A BID BASED ON WORK WHICH COMPLIES WITH ALL CODE REQUIREMENTS. ANY CONFLICTS BETWEEN THE CONTRACTOR DOCUMENTS AND THE CODE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BID. THE COST OF ANY WORK WHICH ARISES OUT OF ANY CHANGES DUE TO CODE REQUIREMENTS SHALL BE PAID BY THE MECHANICAL CONTRACTOR.
- THE MECHANICAL CONTRACTOR SHALL CHECK ALL EQUIPMENT FOR CORRECT VOLTAGE RATING BEFORE INSTALLATION.
- IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR FOR THE ADVANCE ORDERING OF LONG LEAD ITEMS SO AS NOT TO DELAY OTHER TRADES RESULTING IN ANY DOWN OR LAG TIME.
- THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL MINOR ITEMS WHICH ARE OBVIOUSLY AND REASONABLY NECESSARY TO COMPLETE THE INSTALLATION WHETHER OR NOT SPECIFIED AS SHOWN ON THE PLANS.
- ALL STRUCTURAL CUTTING AND PATCHING SHALL BE DONE BY THE GENERAL CONTRACTOR.
- THE MECHANICAL CONTRACTOR SHALL THOROUGHLY CLEAN ALL AIR CONDITIONING EQUIPMENT.
- MECHANICAL CONTRACTOR SHALL ARRANGE TO PAY FOR ALL NECESSARY PERMITS, LICENSES AND INSPECTIONS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- ALL NEW MECHANICAL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE.
- TO THE BEST OF THE ARCHITECT'S OR ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE MINIMUM BUILDING CODES.
- ALL INSULATION SHALL HAVE A MINIMUM FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50.
- ALL WALL MOUNTED THERMOSTATS AND/OR TEMPERATURE SENSORS SHALL BE INSTALLED AT AN ELEVATION OF 48" ABOVE FINISHED FLOOR TO THE TOP UNLESS OTHERWISE NOTED ON DRAWINGS. LOCATION OF THE WALL MOUNTED THERMOSTAT SHALL BE COORDINATED WITH OTHER TRADES FOR A NEAT APPEARANCE. FINAL LOCATION OF THERMOSTAT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER OR HIS REPRESENTATIVE IN THE FIELD.
- CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTARY STEEL REQUIRED TO SUSPEND MECHANICAL EQUIPMENT AND MATERIALS.
- PROVIDE A 4" HIGH CONCRETE HOUSEKEEPING PAD UNDER ALL MECHANICAL EQUIPMENT, UNLESS OTHERWISE NOTED. PADS SHALL BE 4" LARGER THAN THE EQUIPMENT ON ALL SIDES.
- MAINTAIN AS-BUILT DRAWINGS, DAILY. SUBMIT TO ARCHITECT/OWNER AFTER COMPLETION OF ALL WORK.
- ALL EQUIPMENT SUBMITTED FOR APPROVAL SHALL BE SUBMITTED IN A NUMERICAL SEQUENCE CONSISTENT WITH THE CONTRACT DRAWINGS (IE... AHU-1 IS FOLLOWED BY AHU-2, ETC...). SHOP DRAWINGS (SUBMITTALS) NOT SUBMITTED IN THIS MANNER WILL BE REJECTED WITHOUT REVIEW.
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR, ARCHITECT, OWNER & ENGINEER FOR COORDINATION/REVIEW. THESE SHOP DRAWINGS SHALL BE REVIEWED PRIOR TO ORDERING EQUIPMENT AND INSTALLATION.
- MECHANICAL CONTRACTOR SHALL VERIFY POWER REQUIREMENTS OF EQUIPMENT WITH ELECTRICAL CONTRACTOR PRIOR TO PLACING ORDER. ANY CHANGES TO SWITCHGEAR OR WIRE SHALL BE AT THE MECHANICAL CONTRACTOR'S EXPENSE.
- PROPOSED REVISIONS GENERATED BY THE OWNER OR CONTRACTOR SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER OR REVIEW. THE REVIEW PROCESS WILL INCLUDE AN EVALUATION OF THE REVISED INSTALLATION COST VERSUS REDESIGN FEES.
- IT IS THE RESPONSIBILITY OF ALL CONTRACTORS TO COORDINATE THEIR WORK. THIS TASK NOT ONLY INCLUDES THE INSTALLATION OF EQUIPMENT BUT THE PROCESSING OF THE SHOP DRAWINGS FOR REVIEW, COORDINATION OF DEVICES IN THE CEILING, VERIFICATION OF EXISTING CONDITIONS & THE COORDINATION OF ALL PLAN REVISIONS.
- THE MECHANICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT LOCATED OUTSIDE TO COMPLY WITH 2017 FLORIDA BUILDING CODE'S HIGH VELOCITY HURRICANE ZONE REQUIREMENTS FOR THE SPECIFIC WIND ZONE IN WHICH THE EQUIPMENT IS LOCATED. THE CONNECTION OF THE ROOF MOUNTED EQUIPMENT TO THE ROOF SUPPORT CURBS SHALL BE DESIGNED BY A FLORIDA REGISTERED SPECIALTY ENGINEER RETAINED BY THE MECHANICAL EQUIPMENT SUPPLIER SIGNED AND SEALED DRAWINGS AND CALCULATIONS ARE TO BE SUBMITTED TO THE FLORIDA REGISTERED STRUCTURAL ENGINEER OF RECORD HIRED BY THE MECHANICAL PRIME CONTRACTOR SHALL PROVIDE THE ATTACHMENT OF THE EQUIPMENT SUPPORT CURBS TO THE STRUCTURE, AS WELL AS MAKE PROVISIONS IN THE DESIGN FOR THE EXISTING BUILDING'S ROOF STRUCTURE (AS NEEDED) TO ACCOMMODATE THE LOADS AND ATTACHMENTS SUBMITTED BY THE EQUIPMENT SUPPLIER.
- ALL NEW CHILLED WATER PIPING SHALL BE WELDED, SCHEDULE 40 BLACK STEEL.
- INSULATE ALL CHILLED WATER PIPING WITH 2" THICK CELLULAR GLASS (FOAMGLAS). COVER INSULATION WITH ALL SERVICE JACKET AND COVER ALL EXTERIOR INSULATION WITH ALUMINUM JACKET.

AIR COOLED SCREW CHILLER SCHEDULE

MARK	-	CH-1	CH-2
CAPACITY (NOMINAL)	TONS	57	57
AMBIENT TEMPERATURE	°F	95	95
WATER FLOW	G.P.M.	114	114
MAX. WATER PRESS. DROP	FT. H ₂ O	15.0	15.0
WATER TEMP. ENT/LVG	°F/°F	56/44	56/44
# FANS/FLA EACH	-	4/4	4/4
UNIT TOTAL EER	-	10.6	10.6
REFRIGERANT	-	R410A	R410A
COMPRESSORS (MINIMUM)	#	4	4
INDEPENDANT REF. CIRCUITS (MIN)	#	2	2
IPLV	-	15.6	15.6
ELECTRICAL	V/ø/HZ	208/3/60	208/3/60
EFFICIENCY PART LOAD (AMBIENT)	100%	EER 10.7	10.7
	81%	EER 13.4	13.4
	58%	EER 17.4	17.4
	21%	EER 21	21
WEIGHT (OPERATING)	LBS.	3545	3545
LOCATION	-	CHILLER YARD	CHILLER YARD
MANUFACTURER	-	JCI/YORK	JCI/YORK
MODEL	-	YLA0058H	YLA0058H
NOTES	#	① → ⑦	① → ⑦

- AIR CERTIFIED EFFICIENCY PER STANDARD 550.
- PROVIDE WITH SINGLE POINT POWER CONNECTION, CIRCUIT BREAKER DISCONNECT, CONTROL VOLTAGE TRANSFORMER, PHASE FAILURE PROTECTION, VARIABLE SPEED DRIVE FOR CONDENSER FANS, MANUFACTURER'S STANDARD "SEACOAST" PROTECTION, DIPPED AND BAKED FOR THE CONDENSER COILS AND ACROSS-THE-LINE STARTER.
- PROVIDE UNIT WITH NEOPRENE VIBRATION ISOLATORS.
- PROVIDE WITH BACNET CARD OR IMBEDDED CONTROLS INTERFACE TO TIE INTO THE SITE'S ENERGY MANAGEMENT SYSTEM. AS A MINIMUM THE CONTROL INTERFACE SHALL PROVIDE THE FOLLOWING FEATURES:
 - THE ABILITY TO READ AND CHANGE THE CHILLER'S TEMPERATURE SETPOINTS.
 - THE REAL TIME ENTERING AND LEAVING WATER TEMPERATURES.
 - REAL TIME PERCENTAGE OF CHILLER CAPACITY.
 - CHILLER ALARM STATUS AND INDICATION OF THE ACTUAL ALARM.
- PROVIDE FULL FIVE (5) YEAR STANDARD MANUFACTURER'S WARRANTY ON THE CHILLER. WARRANTY SHALL INCLUDE ALL PARTS AND LABOR, INCLUDING REFRIGERANT.
- THE EVAPORATOR HEATER ELECTRICAL FOR SCHEDULED CHILLER IS INTEGRAL TO THIS UNIT. IF AN ALTERNATE MANUFACTURER IS UTILIZED INCLUDE ALL COSTS TO PROVIDE THIS CIRCUIT AS REQUIRED.
- PROVIDE WITH SOUND ATTENUATION PACKAGE. PACKAGE TO INCLUDE ACOUSTIC SOUND BLANKET AND ULTRA QUIET FANS WITH VFD CONTROL. CHILLER SHALL SHOW NO DEGRADATION OF CHILLER PERFORMANCE WITH PACKAGE INSTALLED. MAXIMUM SOUND POWER LEVELS (IN ACCORDANCE WITH AHRI 370) ARE AS FOLLOWS:

SOUND PRESSURE LEVELS	
FREQUENCY (Hz)	SOUND POWER (dB)
63	64
125	63
250	59
500	59
1000	55
2000	52
4000	48
8000	45
LWA	60

NOTE: SOUND PRESSURE LEVELS AT 30 FEET.

* APPROVED EQUALS SHALL BE CARRIER, TRANE, AND DAIKIN.

AIR SEPARATOR SCHEDULE

MARK	-	AS-1
MANUFACTURER	-	BELL & GOSSETT
MODEL NUMBER	-	R-4F
CAPACITY	GPM	240
PIPE CONNECTION	INCHES	4
MAX WORKING PRESSURE	PSI	125
SYSTEM TYPE	-	FLANGED W/ STRAINER
MOUNTING	-	BASE
LOCATION	-	CHILLER YARD
NOTES	#	① ②

- PROVIDE WITH FLANGED CONNECTIONS AND STEEL MESH STRAINER.
- PROVIDE WITH CONSTRUCTION STRAINER.
 - * APPROVED EQUALS: AMTROL AND TACO.

EXPANSION TANK SCHEDULE

MARK	-	ET-1
MANUFACTURER	-	BELL & GOSSETT
MODEL NUMBER	-	B-400
TANK VOLUME	GALS.	106
ACCEPT. VOLUME	GALS.	106
OPERATING WEIGHT	LBS.	1184
CHARGE PRESSURE	PSIG	12
MAX. DESIGN TEMPERATURE	°F	240
MAX WORKING PRESSURE	PSI	125
SYSTEM TYPE	-	VERTICAL
MOUNTING	-	BASE
LOCATION	-	CHILLER YARD
NOTES	#	①

- BASE MOUNT UNIT, PROVIDE WITH TANK PURGE VALVE (BELL & GOSSETT MODEL TPV-1FM).
 - * APPROVED EQUALS SHALL BE AMTROL AND TACO.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	NEW DUCTWORK, PIPING, OR EQUIPMENT
	EXISTING DUCTWORK, PIPING, OR EQUIPMENT TO REMAIN
	EXISTING DUCTWORK, PIPING, OR EQUIPMENT TO BE REMOVED
#	MECHANICAL NOTE - NUMBER
Ⓜ	DEMOLITION NOTE-NUMBER
T	TEMPERATURE SENSOR
— CHWS —	CHILLED WATER SUPPLY
— CHWR —	CHILLED WATER RETURN
	SUPPLY AIR DEVICE. CLEAR TRIANGLE SIDES INDICATE AIR FLOW PATTERN
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	WALL MOUNTED THERMOSTAT ON TEMPERATURE SENSOR
	MOTORIZED DAMPER
	MOTORIZED VALVE
	MANUEL ISOLATION VALVE

PROJECT SCOPE:

- EXPAND THE EXISTING CHILLER YARD AS INDICATED IN THE ARCHITECTURAL DRAWINGS.
- REMOVE AND REPLACE EXISTING CHILLERS CH-1 AND CH-2 WITH NEW AIR-COOLED CHILLERS AS INDICATED. EXISTING CHILLER CH-3 AND ASSOCIATED PUMPS P-3 AND P-4 SHALL REMAIN OPERATIONAL DURING THIS PHASE.
- REMOVE AND REPLACE EXISTING CHILLED WATER PUMPS, P-1 AND P-2, AND ASSOCIATED HYDRONIC SPECIALTIES. RECONFIGURE CHILLED WATER PIPING AS INDICATED.
- REMOVE AND REPLACE EXISTING CHILLED WATER PUMPS, P-3 AND P-4, AND RECONFIGURE THE PIPING AS INDICATED. CHILLERS CH-1 AND CH-2 SHALL BE OPERATIONAL DURING THIS PHASE OF THE WORK.
- PROVIDE AND INSTALL NEW DIRECT DIGITAL CONTROL (DDC) SYSTEM THROUGHOUT THE FACILITY. INSTALLATION SHALL INCLUDE ALL COMPONENTS FOR A FULLY FUNCTIONAL SYSTEM AND SHALL CONTROL (AT A MINIMUM) ALL CHILLERS, AIR HANDLERS, PUMPS, FANS AND VAV TERMINALS. IN ADDITION, THE NEW SYSTEM SHALL INCORPORATE A DEMAND CONTROLLED VENTILATION FEATURE. INSTALLATION SHALL BE "TURN-KEY" AND SHALL INCLUDE TRAINING OF THE HIGHLANDS COUNTY STAFF AS NOTED IN THE PROJECT SPECIFICATION.

NOTE:

THIS FACILITY IS TO REMAIN OPERATIONAL DURING THE HVAC RENOVATION. SPACE TEMPERATURE SHALL BE MAINTAINED AT 75° F AT ALL PERIODS OF OCCUPANCY. IT IS THE PRIME CONTRACTOR'S RESPONSIBILITY TO COORDINATE ANY TEMPORARY SHUT-DOWNS WITH THE REPRESENTATIVES OF HIGHLANDS COUNTY. PROVIDE TEMPORARY CONDITIONING, INCLUDING TEMPORARY CHILLER/PUMPS AND SCHEDULE ANY WORK REQUIRING A SIGNIFICANT (GREATER THAN ONE HOUR) SHUT-DOWN OVER WEEKENDS AND HOLIDAYS.

PUMP SCHEDULE

MARK	-	P-1	P-2	P-3	P-4
SERVICE	-	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER
PUMP TYPE	-	CLOSE-COUPLED BASE MOUNT	CLOSE-COUPLED BASE MOUNT	CLOSE-COUPLED BASE MOUNT	CLOSE-COUPLED BASE MOUNT
WATER FLOW	G.P.M.	228	228	240	240
TOTAL DYNAMIC HEAD	FT. H ₂ O	80	80	80	80
MOTOR	H.P.	10	10	10	10
SPEED (IMPELLER)	R.P.M.	1672	1672	1750	1750
IMPELLER SIZE	INCHES	9.5	9.5	9.25	9.25
ELECTRICAL	V/ø/HZ	208/3/60	208/3/60	480/3/60	480/3/60
MOUNTING LOCATION	-	CHILLER YARD	CHILLER YARD	CHILLER YARD	CHILLER YARD
MANUFACTURER	-	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT
MODEL NUMBER	-	E-1531 MODEL 2-58B	E-1531 MODEL 2-58B	E-1510 MODEL 2-58B	E-1510 MODEL 2-58B
NOTES	#	① ② ③	① ② ③	① ② ③ ④	① ② ③ ④

- PROVIDE WITH HIGH EFFICIENCY TEFC MOTOR.
- PROVIDE SUCTION DIFFUSER WITH CONSTRUCTION STRAINER, CHECK VALVE, BALANCING VALVE AND ISOLATION VALVES.
- ONE PUMP SHALL SERVE AS A BACK-UP PUMP
- DUE TO THE ELECTRICAL CONFIGURATION OF THIS FACILITY, PUMPS P-1 AND P-2 ARE 208V/3ø; PUMPS P-3 AND P-4 ARE 480V/3ø
 - * APPROVED EQUALS SHALL BE ARMSTRONG, AURORA AND TACO.

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SPARKMAN SWEET ARCHITECTS

MICHAEL CURKIAN
PE 45646

HIGHLANDS COUNTY BOARD OF COUNTY COMMISSIONERS
COURTHOUSE - CHILLER REPLACEMENT - PROJECT #19540
430 S. COMMERCE AVE
SEBRING, FLORIDA 33870

100% OWNER REVIEW
07/26/19

REV DESCRIPTION DATE

GRAPHIC SCALE:



SCALE: N.T.S.

PROJECT MANAGER: MC

DRAWN BY: RC

A/E OF RECORD:

PROJECT NO: 4161

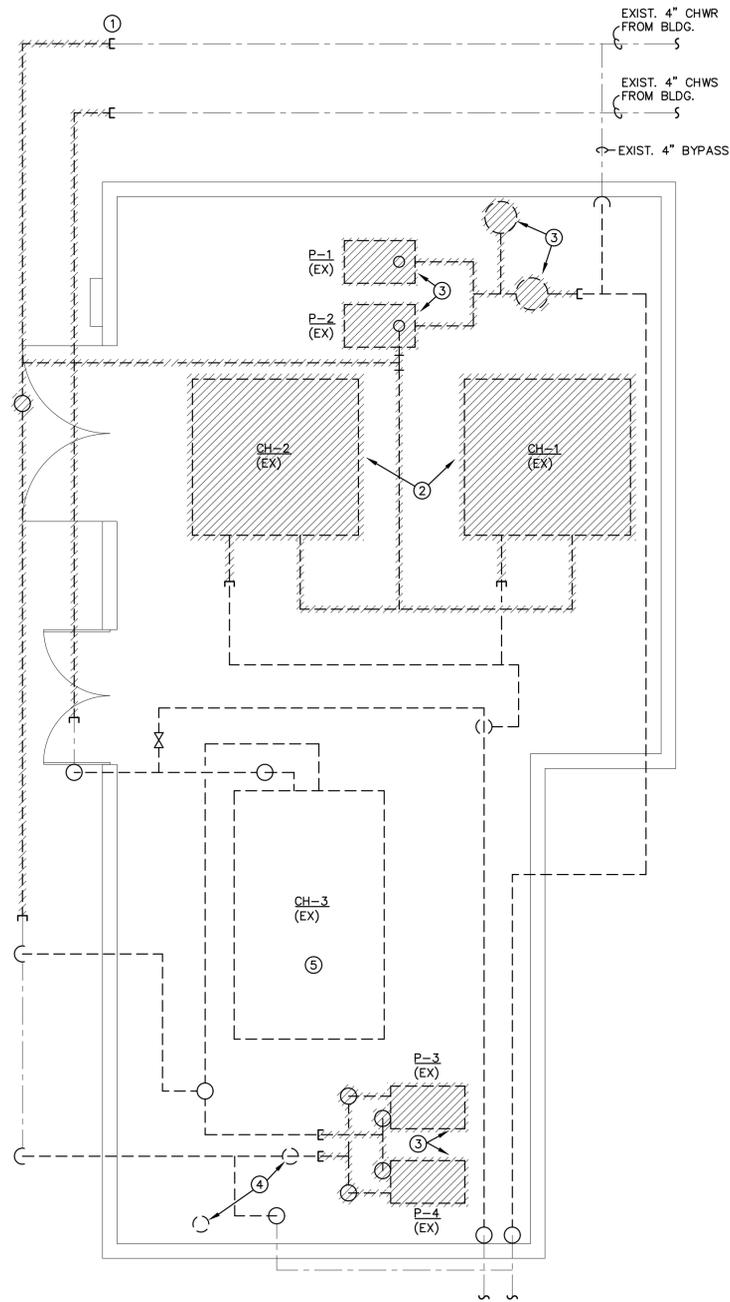
SHEET TITLE:

Mechanical Notes,
Schedules and Legend

SHEET No.: **M.1**

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CHILLER YARD PLAN - DEMOLITION

SCALE: 1/4"=1'-0" /4161-M2

DEMOLITION NOTES:

- ① REMOVE EXISTING ISOLATION VALVE AND REPLACE WITH STRAIGHT PIPE. VALVE WILL BE RELOCATED TO ABOVE GRADE IN NEW CONSTRUCTION. FILL HOLE AND PROVIDE GRASS TO MATCH EXISTING.
- ② REMOVE EXISTING CHILLERS. RECOVER REFRIGERANT IN AN APPROVED MANNER AND OFFER REFRIGERANT TO OWNER. DISPOSE OF UNITS OFF-SITE.
- ③ REMOVE AND DISPOSE OF EXISTING PUMPS AND HYDRONICS AS INDICATED. DISPOSE OF UNITS OFF-SITE.
- ④ EXISTING EXPANSION TANK AND AIR SEPARATION TO BE REUSED.
- ⑤ EXISTING CHILLER TO REMAIN.

MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
	EXISTING PIPING AND EQUIPMENT TO BE REMOVED (BOTH ABOVE AND BELOW GRADE)
	EXISTING PIPING AND EQUIPMENT ABOVE GRADE TO REMAIN
	EXISTING PIPING BELOW GRADE TO REMAIN

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HIGHLANDS COUNTY BOARD OF COUNTY COMMISSIONERS
COURTHOUSE - CHILLER REPLACEMENT - PROJECT #19540
430 S. COMMERCE AVE
SEBRING, FLORIDA 33870

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07/26/19

REV DESCRIPTION DATE

GRAPHIC SCALE:



SCALE: 1/4" = 1'-0"

PROJECT MANAGER: MC

DRAWN BY: RC

A/E OF RECORD:

PROJECT NO: 4161

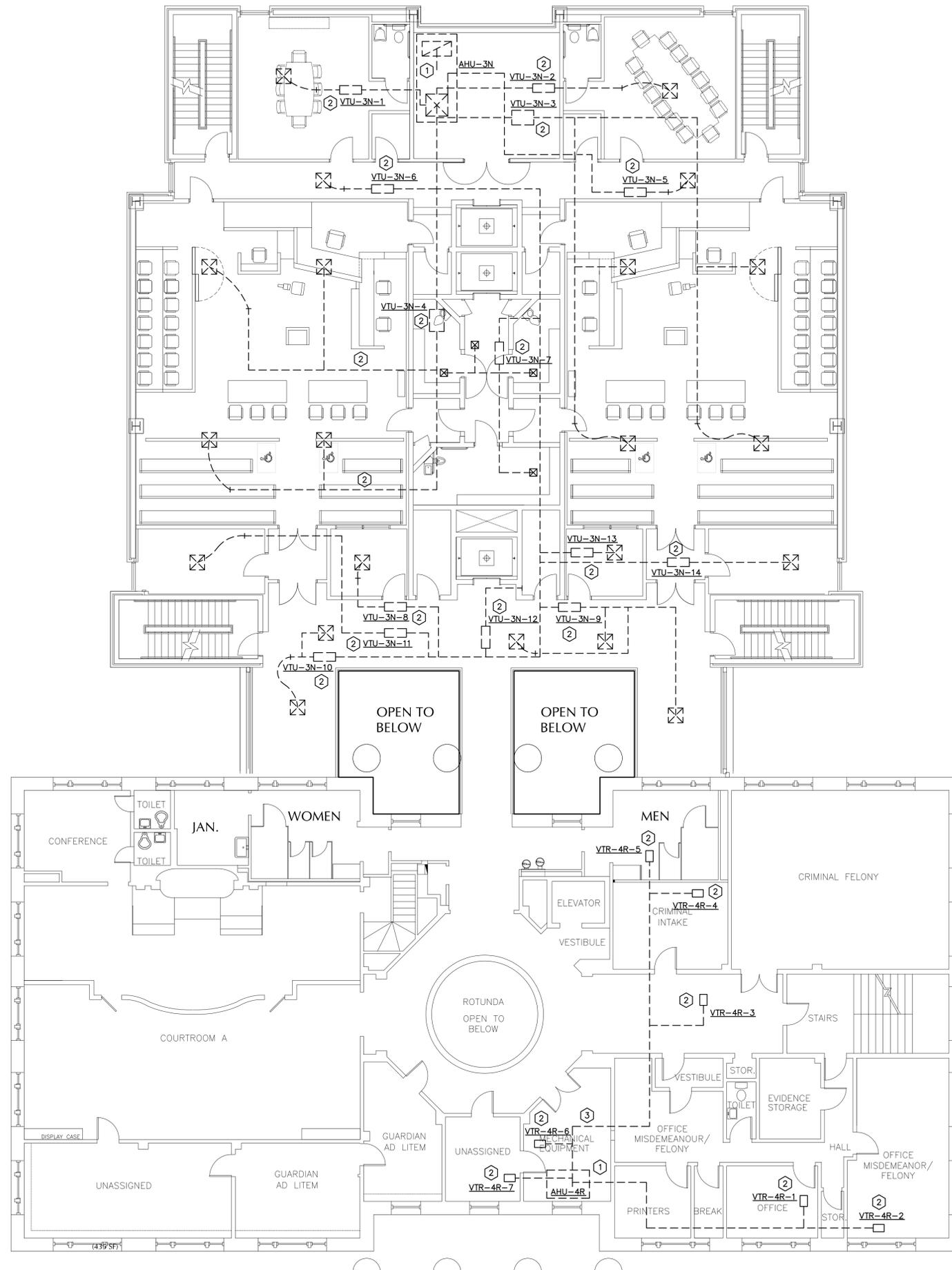
SHEET TITLE:

Demolition
Chiller Yard Plan

SHEET No.: **M.2**

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VAV AIR TERMINAL AIRFLOW SCHEDULE	
AIR TERMINAL	AIRFLOW (MAX./MIN)
VTU-3N-1	315/165
VTU-3N-2	315/165
VTU-3N-3	2400/1200
VTU-3N-4	2400/1200
VTU-3N-5	100/100
VTU-3N-6	100/100
VTU-3N-7	320/320
VTU-3N-8	125/65
VTU-3N-9	850/425
VTU-3N-10	500/250
VTU-3N-11	225/115
VTU-3N-12	100/100
VTU-3N-13	125/65
VTU-3N-14	225/115
VTR-4R-1	1360/680
VTR-4R-2	1470/735
VTR-4R-3	1050/525
VTR-4R-4	1520/760
VTR-4R-5	600/300
VTR-4R-6	1260/630
VTR-4R-7	1240/620

SECOND FLOOR PLAN - MECHANICAL 

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

/4161-M6

MECHANICAL NOTES:

- ① PROVIDE AND INSTALL NEW AIR HANDLER CONTROL PACKAGE AS OUTLINED IN THESE DRAWINGS.
- ② PROVIDE AND INSTALL NEW VAV TERMINAL CONTROL PACKAGE AS OUTLINED IN THESE DRAWINGS. INSTALL NEW ROOM SENSORS IN EXISTING LOCATIONS. REBALANCE TO AIRFLOWS INDICATED IN SCHEDULE ABOVE.
- ③ REPLACE ALL PIPE INSULATION THIS ROOM.

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SWEET SPARKMAN ARCHITECTS

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HIGHLANDS COUNTY BOARD OF COUNTY COMMISSIONERS
COURTHOUSE - CHILLER REPLACEMENT - PROJECT #19640
430 S. COMMERCE AVE
SEBRING, FLORIDA 33870

100% OWNER REVIEW
07/26/19

PROJECT TITLE:
ISSUED FOR:

REV DESCRIPTION DATE

GRAPHIC SCALE:
0" 1"

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

PROJECT MANAGER: MC

DRAWN BY: RC

A/E OF RECORD:

PROJECT NO: 4161

SHEET TITLE:

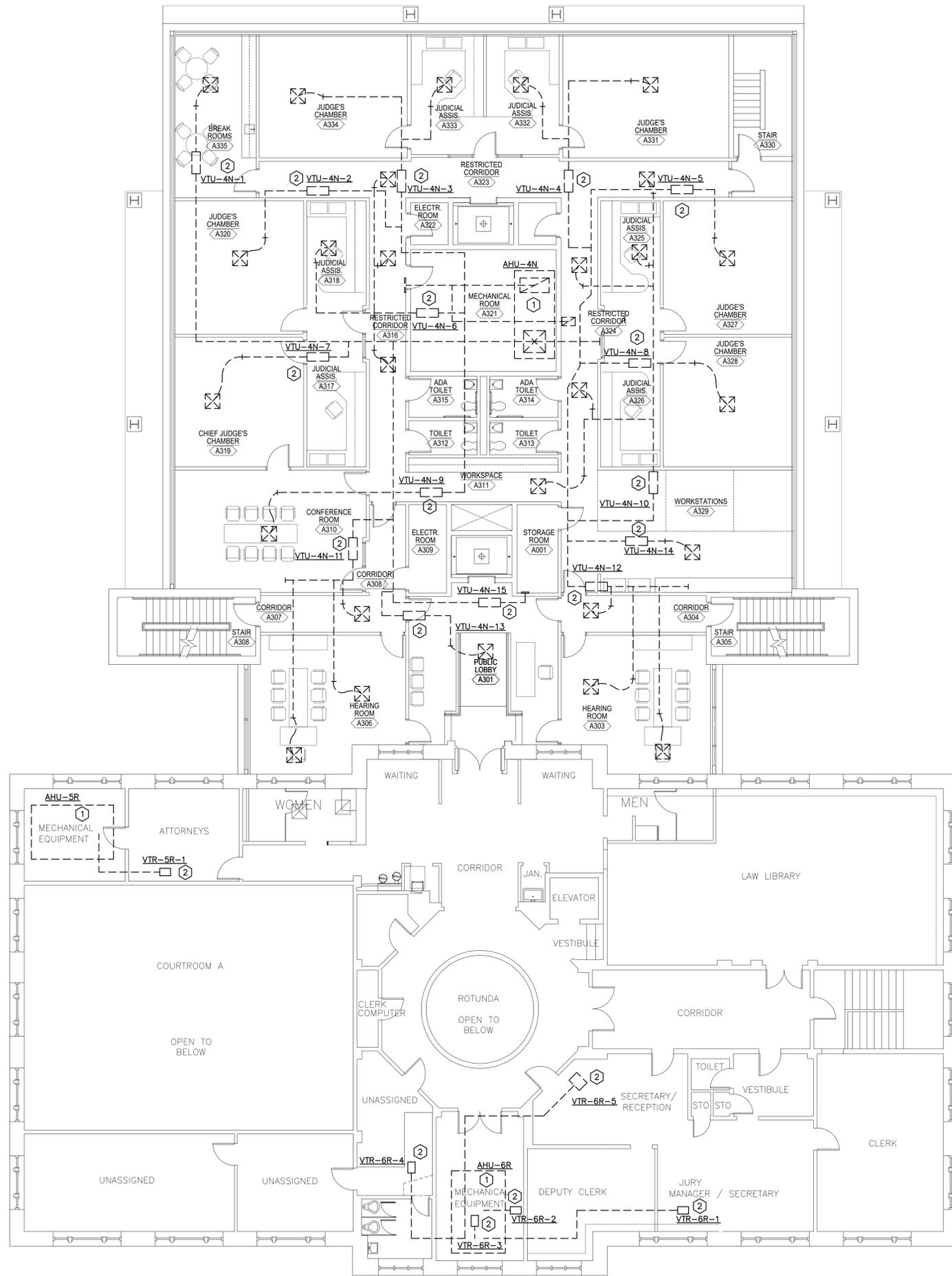
Mechanical Second Floor Plan

SHEET No.:

M.6

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AIR TERMINAL	AIRFLOW (MAX/MIN)
VTU-4N-1	380/190
VTU-4N-2	450/225
VTU-4N-3	480/240
VTU-4N-4	480/240
VTU-4N-5	480/225
VTU-4N-6	490/245
VTU-4N-7	450/225
VTU-4N-8	450/225
VTU-4N-9	700/350
VTU-4N-10	560/300
VTU-4N-11	630/310
VTU-4N-12	620/310
VTU-4N-13	310/155
VTU-4N-14	700/350
VTU-4N-15	100/100
VTR-5R-1	2000/1000
VTR-6R-1	1320/660
VTR-6R-2	1990/995
VTR-6R-3	1490/745
VTR-6R-4	600/600
VTR-6R-5	4395/2200

THIRD FLOOR PLAN - MECHANICAL
 SCALE: 1/8"=1'-0" /4161-M7

- MECHANICAL NOTES:**
- ① PROVIDE AND INSTALL NEW AIR HANDLER CONTROL PACKAGE AS OUTLINED IN THESE DRAWINGS.
 - ② PROVIDE AND INSTALL NEW VAV TERMINAL CONTROL PACKAGE AS OUTLINED IN THESE DRAWINGS. INSTALL NEW ROOM SENSORS IN EXISTING LOCATIONS. REBALANCE TO AIRFLOWS INDICATED IN SCHEDULE ABOVE.

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 FL AA26000857

SPARKMAN ARCHITECTS

MICHAEL CURKIAN
 PE #5646

HIGHLANDS COUNTY BOARD OF COUNTY COMMISSIONERS
 COURTHOUSE - CHILLER REPLACEMENT - PROJECT #19540
 430 S. COMMERCE AVE
 SEBRING, FLORIDA 33870

100% OWNER REVIEW
 07/26/19

REV DESCRIPTION DATE

GRAPHIC SCALE:



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

PROJECT MANAGER: MC

DRAWN BY: RC

A/E OF RECORD:

PROJECT NO: 4161

SHEET TITLE:

Mechanical Third Floor Plan

SHEET No.:

M.7

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SCOPE OF DEMAND CONTROLLED VENTILATION WORK

1. INSTALLATION

PROVIDE AND INSTALL OR REUSE ALL SENSORS, WIRING, AIR FLOW MONITORS, MOTORIZED DAMPERS, ETC., REQUIRED TO PROVIDE A "TURN KEY" DEMAND CONTROLLED VENTILATION SYSTEM AS DESCRIBED IN THE "SEQUENCE OF OPERATION" OUTLINED BELOW. THE EXISTING AIRFLOW MONITORING STATIONS SHALL BE REPLACED IN-KIND HOWEVER THE MOTORIZED DAMPERS AND AIR HANDLER CAN BE REUSED IF SUITABLE FOR REUSE. THIS WORK SHALL INCLUDE ANY INTERFACES AND PROGRAMMING REQUIRED TO COMPLETELY INTEGRATE THIS NEW FEATURE INTO THE SITE'S NEW EMS. INSTALLATION SHALL INCLUDE COORDINATION ASSISTANCE WITH THE TEST AND BALANCE CONTRACTOR AND A TWO (2) HOUR TRAINING SESSION WITH THE OWNER.

2. SEQUENCE OF OPERATION

DEMAND CONTROLLED VENTILATION:

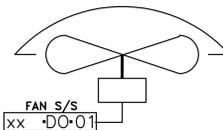
A DEMAND CONTROLLED VENTILATION FEATURE SHALL BE ADDED TO THE SYSTEM. ON A DROP IN CO2 LEVELS BELOW THE SET POINT (500 PPM, ADJUSTABLE) THE CONTROLLER SHALL REDUCE AIRFLOW BY 10% OF CURRENT CAPACITY BY MODULATING THE MOTORIZED CONTROL DAMPER CLOSED. THE SYSTEM SHALL MONITOR CO2 LEVELS EVERY 10 MINUTES AND CONTINUE TO REDUCE OUTSIDE AIRFLOW IN 10% INCREMENTS UNTIL THE SYSTEM REACHES ITS MINIMUM AIRFLOW SET POINT. ON A RISE IN CO2 LEVELS, THE OPPOSITE SHALL OCCUR.

FOR UNITS PROVIDED WITH A RETURN AIR FAN, AS THE OUTSIDE AIR DAMPERS CLOSE THE RETURN FAN SHALL INCREASE IN SPEED TO INSURE CONSTANT AIRFLOW.

IF CO2 LEVELS RISE ABOVE THE SET POINT THE OPPOSITE SHALL OCCUR.

IN THE UNOCCUPIED MODE, THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED; OUTSIDE AIR FANS SHALL REMAIN OFF.

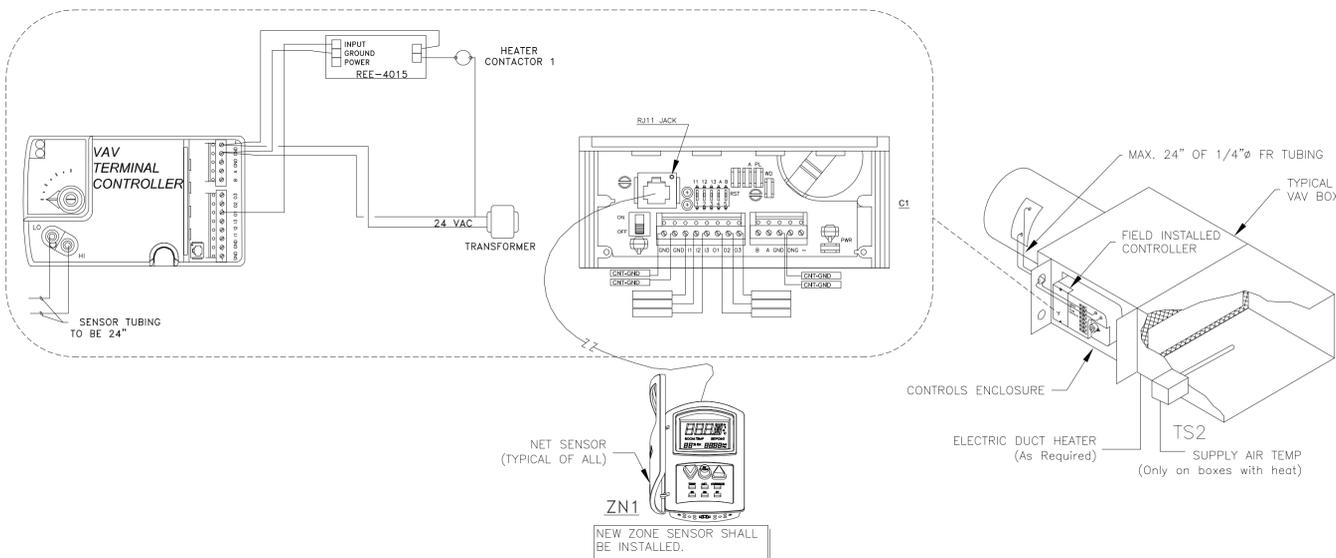
3. REBALANCE OUTSIDE AIR AND EXHAUST SYSTEMS AS NOTED ON DRAWINGS AND SCHEDULES.



NOTE: TWELVE (12) EXISTING FANS

EXHAUST FANS

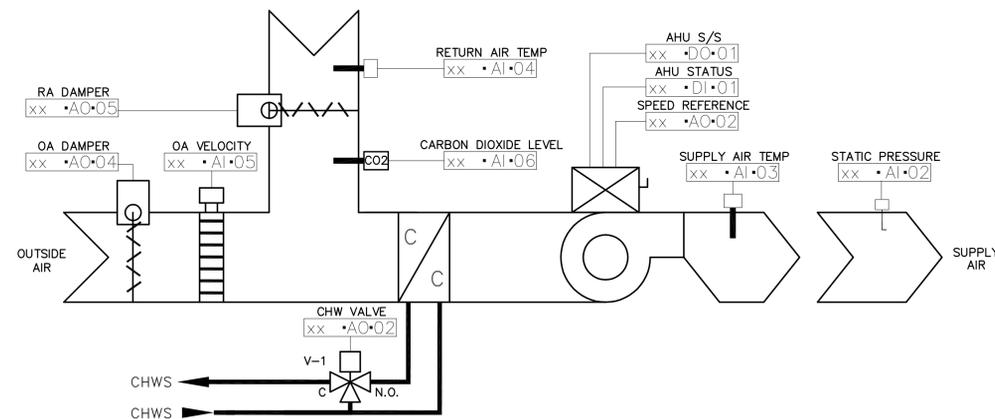
N.T.S. TYPICAL



TYPICAL VAV PLC POINT SUMMARY				
INPUTS			OUTPUTS	
DESCRIPTIONS	SGNL.	NO	SGNL.	DESCRIPTIONS
SA TEMP	AI	1	DO	EDH CONTROL
ZONE TEMP	A1	2		
ZONE SETPOINT	A1	3		
DAMPER POSITION	A1	4		
AIRFLOW	A1	5		

TYPICAL VAV TERMINAL CONTROL AND POINTS

N.T.S.



AHU POINT SUMMARY				
INPUTS			OUTPUTS	
DESCRIPTIONS	SGNL.	NO	SGNL.	DESCRIPTIONS
AHU STATUS	DI	1	DO	AHU START/STOP
STATIC PRESSURE	AI	2	AO	VFD SPEED REFERENCE
SUPPLY AIR TEMP	AI	3	DO	CHW VALVE
RETURN AIR TEMP	AI	4	DO	OUTSIDE AIR DAMPER
OA VELOCITY	AI	5	DO	RETURN AIR DAMPER
CARBON DIOXIDE LEVELS	AI	6		
		7		
		8		

VARIABLE AIR VOLUME AIR HANDLER WITH DEMAND CONTROLLED VENTILATION CONTROLS

N.T.S.

NOTES: EXISTING CHILLED WATER VALVES, DAMPERS, ETC... TO BE REUSED. PROVIDE NEW SENSORS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. REPLACE EXISTING AIRFLOW MONITORING STATIONS WITH NEW.

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