Division of Finance and Business Operations

Procurement & Strategic Sourcing
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September 29, 2014

Addendum #3 To
Request for Proposal
For St. Andrews HVAC Retrofit-Phase I: Project 156-247867-3

Dated September 17, 2014

As a result of Addendum Two, another question was submitted for clarification and a Drawing has been revised. The question and the University's response is as follows:

Question 3: The mechanical schedule M-101 (Chiller Note – 2) indicates the new chiller is designed for operation with a 40% glycol mix. Is glycol required?
Response: Yes glycol is required.

Additional question with regards to Question 3 (above) from Addendum Two:
Question: What is the volume of the CHW system? Are we to assume there is a glycol fill system or adequate backflow protection in place if connected to city water? (Not shown on drawings)
Response: No glycol fills the system, no backflow protection. The contractor is responsible to figure out what is the CHW volume.

Attached, please find the write-up and Revised Drawings.

The Addendum must be acknowledged on your lump sum bid.

NOTE: You must have attended a pre-bid conference in order to be eligible to bid on a particular project. Receipt of minutes or addenda without being at a pre-bid conference does not qualify your company to bid.

A copy of this Addendum will be posted to the Purchasing web site at
http://www.forms.purchasing.wayne.edu/Adv_bid/Adv_bid.html.

As a result of this Addendum, the bid due date has been extended. The new due date is October 7, 2014, at 2:00 pm. If you have any further questions, please do not hesitate to email them to me at **ac9934@wayne.edu** and copy **rfpteam1@wayne.edu**.

Thank you,

Kimberly Tomaszewski,
Senior Buyer

Attachment

MODIFICATIONS DURING BIDDING

This Addendum describes revisions to the Bidding Documents issued on August 27, 2014.

ACCOMPANYING DOCUMENTS: The following documents accompany this write-up and are a part of this Addendum:

- Whole Drawings: E-100, E-101, M-100, & M-101

REVISIONS TO DRAWINGS:

MECHANICAL:

ITEM NO. 1 Refer to Sheet M-100
- a) Indicated location of chiller pumps P-1 and P-2.
- b) Revised limit of contract outline to include chiller pumps.

ITEM NO. 2 Refer to Sheet M-101
- a) Revised pump schedule.

ELECTRICAL:

ITEM NO. 3 Refer to Sheet E-100
- a) Indicated location of pump-1 & pump-2 with their circuiting route and details.
- b) Revised 400A breaker in MDP-1 to 100A to satisfy new chiller.
- c) Revised MDP-1 panel schedule.
- d) Added notes 5, 6 & 7.

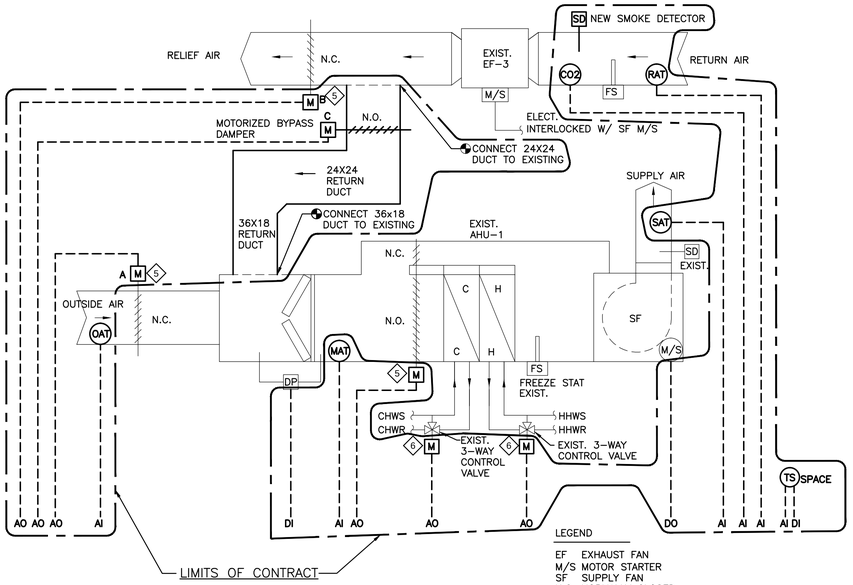
ITEM NO. 4 Refer to Sheet E-101
- a) Revised note 4 regarding replacing the existing 400A chiller disconnect with a new one.
- b) Added note 6 describing the circuiting of the new 100A chiller disconnect.

END OF WRITE-UP

Prepared by:

NSA Architects, Engineers, Planners

Christopher C. Arnold, AIA, NCARB
Vice President



SCHEMATIC CONTROL DIAGRAM

NO SCALE

LEGEND

EF	EXHAUST FAN
M/S	MOTOR STARTER
SF	SUPPLY FAN
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
R.C	RECEIVER CONTROLLER
TS	SPACE THERMOSTAT
FS	FIRE STAT
FZ	FREEZE STAT
SD	SMOKE DETECTOR
CO2	CARBON DIOXIDE CONTROLLER
OAT	OUTSIDE AIR TEMPERATURE SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
MAT	MIXED AIR TEMPERATURE SENSOR

LIMITS OF CONTRACT

SEQUENCE OF OPERATIONS:

OCCUPIED OPERATION
THERE ARE TWO WAYS TO INITIATE THE OCCUPIED MODE OF OPERATION:
- INTERNAL WEEK SCHEDULE SET AT USER INTERFACE PANEL.
- PUSHBUTTON OVERRIDE BUTTON ON A SPACE SENSOR (OVERRIDE LENGTH IS USER ADJUSTABLE).

SCHEDULING
- HAS AN INTERNAL CLOCK THAT PROVIDES 7 DAYS SCHEDULING WITH 2 START/STOPS PER DAY.
- ALLOWS SCHEDULING OF UP TO 14 HOLIDAY PERIODS PER YEAR.

UNOCCUPIED OPERATION
- THE SPACE SENSOR USES NIGHT SETBACK SETPOINTS FOR HEATING AND COOLING CALLS.
- OUTDOOR AIR AND RELIEF AIR DAMPERS WILL BE CLOSED EXCEPT IF THE UNIT IS IN UNOCCUPIED ECONOMIZER FREE COOLING MODE.
- THE RETURN AIR DAMPER WILL BE OPEN.
- IF THERE IS NO CALL FOR HEATING OR COOLING THE UNIT WILL BE IN THE OFF MODE.

COOLING MODE:
- DURING THE COOLING MODE THE CHILLED WATER VALVE AND/OR THE FACE AND BYPASS DAMPERS WILL BE MODULATED TO MAINTAIN THE ACTIVE COOLING SPACE TEMPERATURE SETPOINT. ANTICIPATED SETPOINT RANGE IS 70F TO 74F.

HEATING MODE:
- IN THE HEATING MODE THE HOT WATER VALVE AND/OR THE FACE AND BYPASS DAMPERS WILL BE MODULATED TO MAINTAIN THE ACTIVE HEATING SPACE TEMPERATURE SETPOINT. ANTICIPATED SETPOINT RANGE IS 68F TO 70F.

VENTILATION MODE:
- THIS IS ONLY AVAILABLE IN THE OCCUPIED MODE OF OPERATION ON UNITS CONFIGURED FOR CONTINUOUS FAN OPERATION AND IS GENERATED ANYTIME THERE IS NO DEMAND FOR HEATING OR COOLING.
- THE BUILDING SHALL ALWAYS BE UNDER POSITIVE PRESSURE. IN THE EVENT THAT THE BUILDING PRESSURE REACHES A HIGH LEVEL. THE SPACE PRESSURE SENSOR SHALL MODULATE THE RELIEF DAMPER (B) OPEN TO STABILIZE PRESSURE AT A SET POINT OF 0.10"WC.

OFF MODE:
- OCCURS IN THE UNOCCUPIED MODE WHEN THERE IS NO HEATING OR COOLING DEMAND.
- SUPPLY FAN IS OFF, THE OUTSIDE AIR DAMPER AND RELIEF DAMPER ARE CLOSED AND THE RETURN AIR DAMPER IS OPEN.

VENTILATION OPERATION:
- IN COOLING MODE, WHEN OUTDOOR AIR (OA) TEMPERATURE FALLS BELOW 68 DEGREE AND THE OA TEMPERATURE IS AT LEAST 5 DEGREES BELOW THE RETURN AIR TEMPERATURE. THE OUTSIDE AIR DAMPER (A) AND EXHAUST AIR DAMPER (B) MODULATE OPEN. THIS WILL ACT AS FIRST STAGE OF COOLING AND CONTROLS TO THE ACTIVE SUPPLY AIR COOLING SETPOINT. IF THESE DAMPERS REACH 100% OPEN AND THE SUPPLY AIR TEMPERATURE IS STILL ABOVE SETPOINT THE CHILLED WATER VALVE AND/OR THE FACE AND BYPASS DAMPERS WILL MODULATE TO MAINTAIN THE ACTIVE COOLING SUPPLY AIR TEMPERATURE SETPOINT.
- THE CARBON DIOXIDE CO2 SENSOR SHALL CONTROL THE BUILDING OCCUPANCY AND SHALL MODULATE THE OUTDOOR, RELIEF, AND RETURN AIR DAMPERS AS REQUIRED TO INSURE THE PROPER INDOOR AIR QUALITY CONCENTRATION LEVEL. 2 SENSORS ARE PROVIDED FOR REDUNDANCY.
- ON A RISE IN CO2 LEVEL ABOVE SETPOINT, THE OUTDOOR DAMPER (A) AND RELIEF AIR DAMPER (B) MODULATE OPEN, THE RETURN AIR DAMPER (C) MODULATES CLOSE. AS THE CO2 LEVEL FALLS BELOW SETPOINT, THE REVERSE OCCURS.
- DURING OCCUPANCY THE OUTDOOR AIR DAMPER (A) SHALL NOT CLOSE BELOW ITS MINIMUM SETTING OF 10% AND SHALL BE SCHEDULED AS FOLLOWS:

CO2 LEVEL	O.A. DAMPER (A)	RELIEF AIR DAMPER (B)	RETURN AIR DAMPER(C)
a. 600 PPM	30%	30%	70%
b. 800 PPM	50%	50%	50%
c. 1000 PPM	100%	100%	0%
d. 2500 PPM	SIGNAL TO LOCAL ALARM.		

- AN ECONOMIZER MINIMUM POSITION OF 40% OUTSIDE AIR SHALL BE PROGRAMMED INTO THE CONTROLLER.

SPACE SENSOR OPERATION:
- DURING UNOCCUPIED HOURS THE OVERRIDE BUTTON CAN BE USED TO FORCE THE UNIT BACK INTO THE OCCUPIED MODE (BY PRESSING THE BUTTON FOR LESS THAN 3 SECONDS) FOR A USER-DEFINED OVERRIDE DURATION OF UP TO 8 HOURS. PRESSING THE BUTTON BETWEEN 3 AND 10 SECONDS CANCELS THE OVERRIDE.

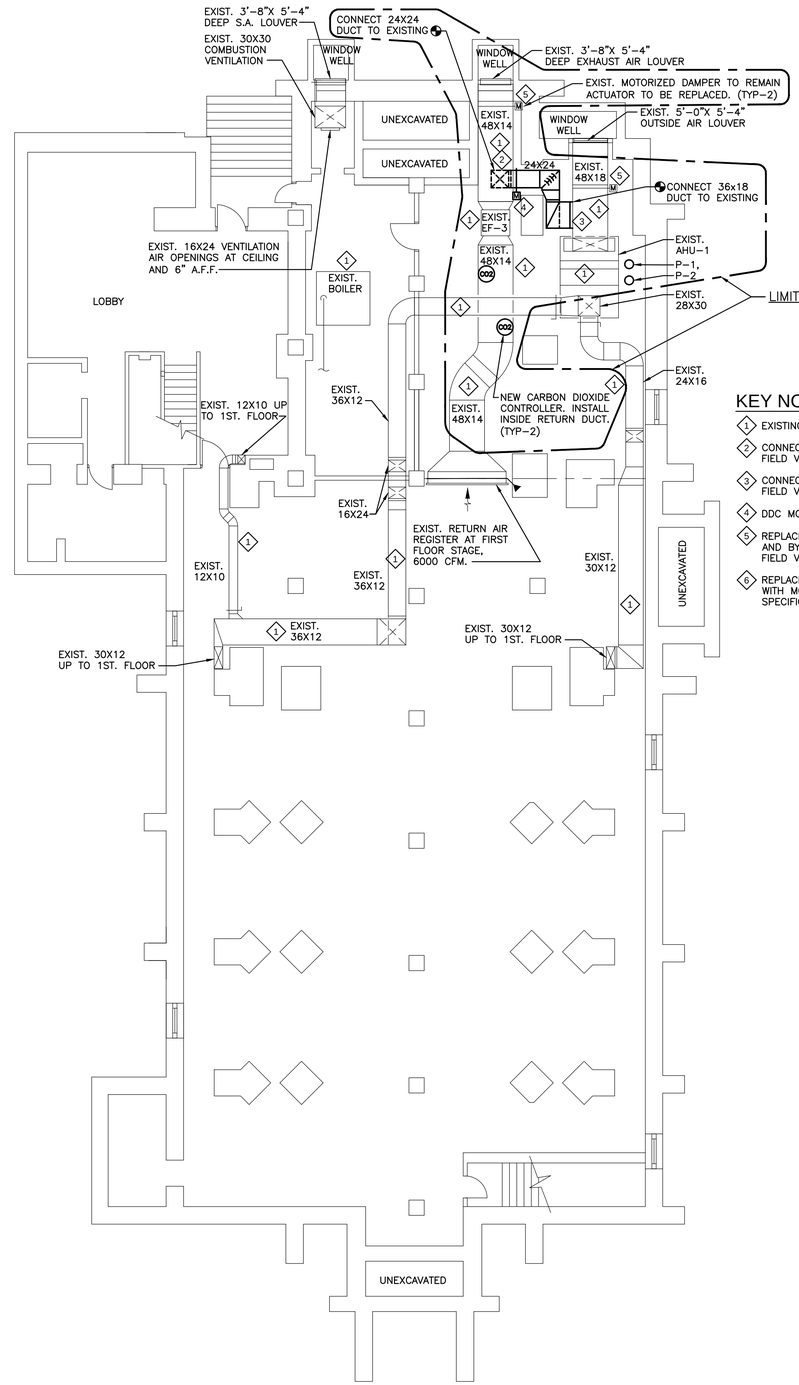
SUPPLY FAN OPERATION:
- OCCUPIED MODE – SUPPLY FAN SHALL RUN CONTINUOUSLY.
- UNOCCUPIED MODE – SUPPLY FAN WILL CYCLE ON A CALL FOR HEATING OR COOLING.

DIRTY FILTER STATUS:
- A DIFFERENTIAL PRESSURE SWITCH IS USED TO PROVIDE A 24 VAC WET CONTACT CLOSURE TO INDICATE A DIRTY FILTER STATUS. A DIRTY FILTER ALARM IS THEN GENERATED.

EMERGENCY SHUTDOWN:
- A 24 VAC WET CONTACT INPUT IS AVAILABLE TO BE USED WITH A N.C. SMOKE DETECTOR, FIRESTAT, OR OTHER SHUTDOWN CONDITION.
- IF THIS CONTACT OPENS IT WILL INITIATE AN INSTANTANEOUS SHUTDOWN OF THE AHU AND WILL GENERATE AN ALARM CONDITION.

TEMPERATURE PROTECTION:
- ACTIVATED WHEN THE SUPPLY AIR TEMPERATURE (SAT) RISES ABOVE THE HIGH CUTOFF TEMPERATURE OF 80F (IMMEDIATE) OR DROPS BELOW THE LOW CUTOFF TEMPERATURE OF 50F (FOR 10 MINUTES) BOTH OF WHICH ARE USER ADJUSTABLE. THIS MODE SHUTS OFF THE UNIT (WITH A 3 MINUTE FAN OFF DELAY) UNTIL THE MODE IS CANCELED.
- THIS MODE IS CANCELED WHEN THE SAT DROPS 10 DEGREES BELOW THE HIGH CUTOFF TEMPERATURE SETPOINT OR RISE 10 DEGREES ABOVE THE LOW TEMP CUTOFF TEMPERATURE SETPOINT, OR WHEN THE UNIT CHANGES BACK INTO OCCUPIED OPERATION.

OUTDOOR AIR LOCKOUTS:
- MECHANICAL COOLING IS DISABLED WHEN THE OAT IS BELOW THE COOLING LOCKOUT SETPOINT OF 50F.
- MECHANICAL HEATING IS DISABLED WHEN THE OAT IS ABOVE THE HEATING LOCKOUT SETPOINT OF 68F.



BASEMENT MECHANICAL PLAN

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

NORTH

KEY NOTES:

1. EXISTING MECHANICAL EQUIPMENT, DUCTWORK, OR PIPING TO REMAIN.
2. CONNECT NEW 36x18 RETURN DUCT TO EXISTING EXHAUST AIR DUCTS. FIELD VERIFY SIZE AND LOCATION.
3. CONNECT NEW 24X24 RETURN DUCT TO EXISTING OUTSIDE AIR DUCTS. FIELD VERIFY SIZE AND LOCATION.
4. DDC MOTORIZED BYPASS DAMPER (C).
5. REPLACE THE OUTSIDE AIR DAMPER, RELIEF AIR DAMPER, AHU FACE AND BYPASS AIR DAMPER ACTUATORS WITH MODULATING DDC TYPES. FIELD VERIFY TYPE AND LOAD SPECIFICATION.
6. REPLACE BOTH HOT WATER AND CHILLED WATER VALVES ACTUATORS WITH MODULATING DDC TYPES. FIELD VERIFY TYPE AND LOAD SPECIFICATION.

DOCUMENT IS SCALED
AS NOTED WHEN ISSUED AS A 24"x36" SHEET.

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MARK	ISSUE	DATE
	ADDENDUM NO. 3	09-26-14
	BIDS	08-27-14
	FINAL OWNER REVIEW	08-06-14
	100% OWNER REVIEW	06-25-14

DESIGNER	NH
DRAWN	NH
CHECKED	
DEPT MGR	
PROJECT MGR	

TITLE:
ST. ANDREW'S HVAC RETROFIT BASEMENT MECHANICAL PLAN

SCALE: AS NOTED

WSU PROJECT #: 156-247867
WSU BLDG NAME: ST. ANDREW'S
WSU BLDG #: 156

A/E PROJECT NO.
214057.00

SHEET NO.
M-100

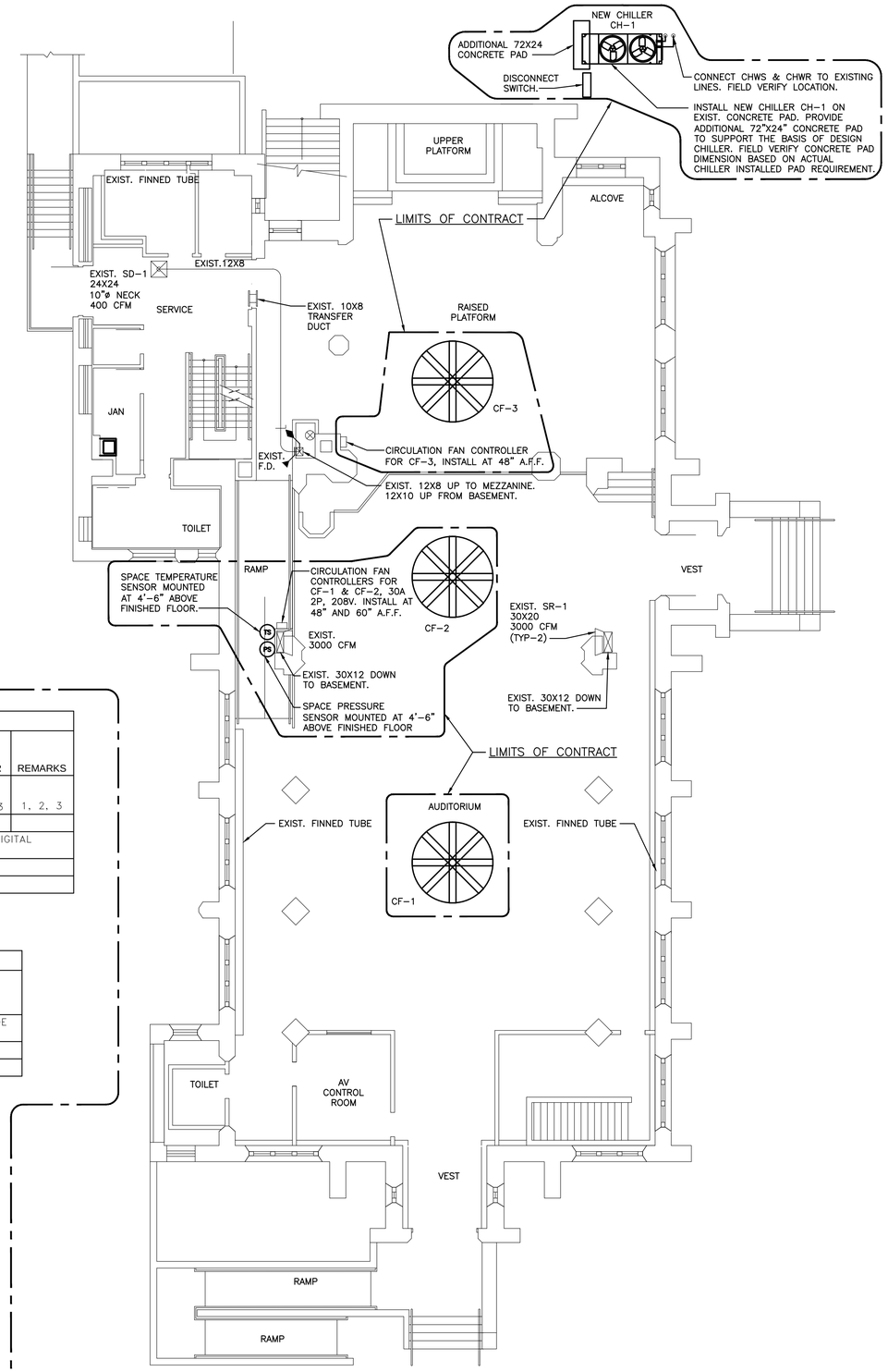
N:\214057\wsu st. andrew\Sheets\M100 BASEMENT MECHANICAL PLAN.dwg, 9/26/2014 2:11:28 PM

GENERAL ELECTRICAL NOTES

1. ALL WIRING IN CONDUITS SHALL RUN CONCEALED UNLESS OTHERWISE NOTED.
2. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE.
3. CONSTRUCTION DOCUMENTS CONSIST OF PLANS, DETAILS, DIAGRAMS, AND SPECIFICATIONS.
4. LOCATION OF MECHANICAL EQUIPMENT/ASSEMBLIES ARE SHOWN ON THE MECHANICAL DRAWINGS, COORDINATE/VERIFY LOCATIONS WITH MECHANICAL CONTRACTOR.
5. ELECTRICAL SERVICES (HOME RUNS) SHOWN ON THE DRAWINGS ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY ROUTING AND MEET CONDUCTOR FILL/AMAPACITY REQUIREMENTS PER THE NATIONAL ELECTRICAL CODE.
6. ALL FLUSH MOUNTED PANELS SHALL HAVE EMPTY (2)1" CONDUITS WITH PULLSTRING STUBBED UP INTO ACCESSIBLE CEILING SPACE FOR FUTURE SPARE CIRCUITS.
7. CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS OF ALL TRADES TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT, COORDINATE EXACT LOCATION WITH THE ARCHITECTURAL DRAWINGS.
8. PROVIDE ALL REQUIRED SUPPORTS AND MATERIALS TO INSTALL ELECTRICAL DEVICES AND EQUIPMENT. COORDINATE WITH MANUFACTURES SUBMITTALS.
9. ALL ELECTRICAL WIRING FROM THE SERVICE ENTRANCE TO DOWNSTREAM DEVICES SHALL BE COPPER (CU) UNLESS OTHERWISE NOTED ON PLANS.
10. ALL WORK SHALL BE CONDUCTED WITH THE UTMOST CARE TO PROTECT EXISTING CONDITIONS AND HISTORIC FINISHES.

GENERAL MECHANICAL NOTES

1. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL CODES, STANDARDS AND REGULATIONS.
2. CONTRACTOR SHALL VERIFY THE SPACE CONDITIONS AND DIMENSIONS PRIOR TO THE INSTALLATION OF THE MECHANICAL MODIFICATION.
3. ALL SHEET METAL DUCTWORK AND FITTINGS SHALL BE SECURELY INSTALLED AND STEEL ANGLED REINFORCED AND PROPERLY SUPPORTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS. ALL CONNECTIONS AND JOINTS IN THE DUCTWORK SHALL BE SEALED AND CAULKED AIR TIGHT IN AN APPROVED MANNER FOR THE VARIOUS PRESSURE APPLICATIONS.
4. CONTRACTOR SHALL VERIFY THE OPERATION OF ALL EXISTING (TO REMAIN) HVAC DEVICES SUCH AS SENSORS AND DETECTORS, AND TO CONFIRM ACHIEVING THE DESIGNATED PERFORMANCE AFTER THE NEW DUCT AND HVAC CONTROL INSTALLATION TO OBTAIN A COMPLETE OPERATIONAL SYSTEM.
5. COORDINATE SUPPORT HANGERS FOR DUCTWORK, WITH NEW INSTALLATION AND WITH EXISTING CONDITIONS TO AVOID INTERFERENCES.
6. CONTRACTOR SHALL PROVIDE EXTERIOR INSULATION TO ALL SUPPLY, AND RETURN DUCTS IN UNCONDITIONED SPACES.
7. CONTROL CONTRACTOR SHALL FURNISH A NEW DDC CONTROL INTERFACE PANEL WITH ALL MATERIALS, EQUIPMENT AND NECESSARY TRANSDUCERS IF NEEDED TO INTERFACE WITH THE EXISTING CONTROLS AND TO BE SET FOR SCHEDULING AND SETPOINT ADJUSTMENT. CONTRACTOR SHALL PERFORM ALL WORK TO COMPLETE ALL CONTROL SYSTEMS AND HE SHALL GUARANTEE THE PERFORMANCE OF THE SYSTEM TO MEET THE DESIGN INTENT. THE MECHANICAL CONTRACTOR SHALL HOLD THE CONTROLS CONTRACTORS CONTRACT, AND BE RESPONSIBLE FOR THE CONTROLS WORK.
8. CONTROL CONTRACTOR SHALL PROVIDE ALL NECESSARY WIRING, CONDUITS, TRANSFORMERS, DISCONNECTS, LOW VOLTAGES, AND RELAYS FOR THE CONTROL SYSTEM.
9. NEW CONTROLS SHALL BE MANUFACTURED BY SIEMENS. THE CARBON DIOXIDE CONTROLLER (CO2) SHALL BE MANUFACTURED BY ACME ENG. COORDINATE WITH OWNER REPRESENTATIVE FOR OTHER REQUIREMENTS.
10. ALL WORK SHALL BE CONDUCTED WITH THE UTMOST CARE TO PROJECT EXISTING CONDITIONS AND HISTORIC FINISHES.



FIRST FLOOR MECHANICAL PLAN

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

NORTH

CHILLER SCHEDULE

TAG	MFR & MODEL NO.	AREA SERVED	LOCATION	EVAPORATOR NET CAPACITY	EVAPORATOR EWT	EVAPORATOR LWT	EVAPORATOR WATER GPM	CONDENSER CFM	CONDENSER FAN KW	CONDENSER FAN RPM	COMPRESSOR KW	COMPRESSOR RLA AMPS	POWER MOCP	POWER TOTAL MCA	POWER VOLT/PH/HZ	EER	REMARKS
CH-1	CARRIER 30RAP035	ST. ANDREWS HALL	OUTDOOR	31.5 TON	52.2	44	100.0	29,600	–	–	35.1	–	100.0	91.1	208/3/60	9.73	1, 2, 3

NOTE 1: PROVIDE: DISCONNECT SWITCH, PIPE STRAINER, FLEX CONNECTIONS, UNIONS, FLOW SWITCH, VIBRATION ISOLATORS, DDC MICROPROCESSOR UNIT CONTROLLER WITH ALARMS, AND DIGITAL INPUTS AND OUTPUTS. REUSE EXISTING DISCONNECT SWITCH.

NOTE 2: NET CHILLER CAPACITY IS BASED ON A 40.0% CONCENTRATION OF PROPYLENE GLYCOL.

NOTE 3: PROVIDE DUAL PUMP PACKAGE AS SCHEDULED ON DRAWING.

PUMP SCHEDULE

UNIT NO.	SERVICE	LOCATION	GPM	HEAD FT. W.C.	TYPE	MOTOR H.P.	MOTOR R.P.M.	MOTOR VOLTAGE	MOTOR PHASE	MOTOR CYCLE	REMARKS
P-1, 2	CHILLED WATER SYSTEM	WITH CHILLER	100.0	50.0	IN-LINE RECIRCULATING	3.0	1750	208	3.0	60HZ	DUAL PUMP PACKAGE PROVIDED WITH CHILLER. PROVIDE DISCONNECT SWITCHES

CIRCULATION FAN SCHEDULE

TAG	MFR & MODEL NO.	AREA SERVED	TYPE	CFM	TSP	DIAMETER	MAXIMUM FAN RPM	MOTOR HP	ELECT V/ø/HZ	POWER SUPPLY BREAKER SIZE	DRIVE	REMARKS
CF-1	SEE NOTE-5	ST. ANDREWS HALL	PROP.	–	–	10 FT.	110	1	208/1/60	10 AMPS	GEARLESS DIRECT DRIVE	1,2,3,4
CF-2	SEE NOTE-5	ST. ANDREWS HALL	PROP.	–	–	10 FT.	110	1	208/1/60	10 AMPS	GEARLESS DIRECT DRIVE	1,2,3,4
CF-3	SEE NOTE-5	ST. ANDREWS HALL	PROP.	–	–	10 FT.	110	1	208/1/60	10 AMPS	GEARLESS DIRECT DRIVE	1,2,3,4

NOTE 1: PROVIDE DISCONNECT SWITCH AND STANDARD WALL SPEED CONTROLLER

NOTE 2: INSTALL FAN AT 21'-0" ABOVE FINISHED FLOOR.

NOTE 3: PROVIDE EXTENSION MOUNTING TUBE WITH STABILIZING GUY WIRES, FOR MOUNTING TO RIDGE BEAM AT 28'-0" ABOVE FINISHED FLOOR.

NOTE 4: PROVIDE POWDER COATING OF FAN BLADES AND HOUSING. COLOR TO BE SELECTED BY OWNER REPRESENTATIVE. CONTRACTOR SHALL MAKE AVAILABLE TO OWNER THE FULL RANGE OF COLOR/FINISH OPTIONS.

NOTE 5: FANS SHALL BE FURNISHED BY ONE OF THE FOLLOWING: 1) BIG ASS FANS, ESSENCE SERIES 2) SKY BLADE FAN COMPANY, OR 3) RITE-HITE FANS

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	100% OWNER REVIEW	06-25-14

DESIGNER	NH
DRAWN	NH
CHECKED	
DEPT MGR	
PROJECT MGR	

TITLE:
ST. ANDREW'S HVAC RETROFIT FIRST FLOOR MECHANICAL PLAN AND SCHEDULE

SCALE: AS NOTED

WSU PROJECT #: 156-247867
WSU BLDG NAME: ST. ANDREW'S
WSU BLDG #: 156

A/E PROJECT NO.
214057.00

SHEET NO.
M-101

PANELBOARD: **MDP-1** **EXISTING PANEL**

VOLTAGE: 208/120V, 3 PHASE, 4 WIRE + G
MAIN: 600/600A SERVICE DISCONNECT
LOCATION: BASEMENT
FED FROM: UTILITY TRANSFORMER

AIC:
IG BUS: NO
NEUTRAL BUS: 100%
MOUNTING: ON BOARD W/UNI-STRUT

Circ	Switch/Fuse			Load Description	Feeder Size	kVA:		Amps:		DF
No	Sw	Pole	Fu			Conn	Dem	Conn	Dem	
1	200A	3		HOUSE DIMMER RACKS		29.30	14.7	81.3	40.7	0.5
2	30A	3		SPARE						
3	30A	3	20A	EXISTING HEATING CONTROLS		3.00	2.3	8.3	6.2	0.75
4	60A	3	60A	PANEL "B"		8.0	6.0	22.2	16.7	0.75
5	60A	3	45A	VENTILLATION PUMPS		11.3	8.5	31.3	23.5	0.75
6	100A	3	100A	PANEL "A"		13.5	10.1	37.4	28.1	0.75
7	100A	3	100A	RP-AB		6.2	4.7	17.3	13.0	0.75
8	100A	3	100A	NEW AIR COOLED CHILLER		26.5	19.9	73.6	55.2	0.75
9										
					Totals:	98	66	271	183	

Notes:

PANELBOARD: **RP-AB**

VOLTAGE: 208Y/120V, 3 PHASE, 4 WIRE + G
MAIN: 100A MLO
LOCATION: BASEMENT

AIC: 14KAIC
IG BUS: NO
NEUTRAL BUS: 100% CU
FED FM: 100A DISCO IN MDP-1

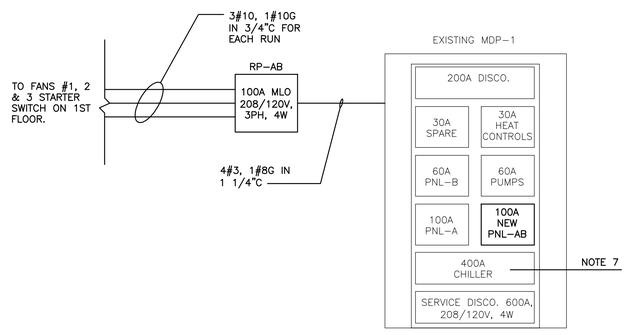
Circ	Breaker		Load Description	Connected VA			L, R		Connected VA			Breaker		Load Description	Circ
No	Pole	Trip		Ph A	Ph B	Ph C	E, S		Ph A	Ph B	Ph C	Trip	Pole		No
1	2		CF#3 (@ CHURCH ENTRANCE)	1,040			E	E	1,040			20		CF # 2 (MIDDLE ONE)	2
3		20			1,040		E	E		1,040			2		4
5	2		CF # 1 (@ CHURCH STAGE)			1,040	E	S			0	20	1	SPARE	6
7		20		1,040			E	S	0			20	1	SPARE	8
9	1	20	SPARE		0		S	S		0		20	1	SPARE	10
11	1	20	SPARE			0	S	S			0	20	1	SPARE	12
13	1	20	SPARE	0			S	S	0			20	1	SPARE	14
15															16
17															18
19															20
	6		TOTAL CONNECTED KVA:	2,080	1,040	1,040			1,040	1,040	0	5		TOTAL DEMAND KVA:	
	17		CONNECTED AMPS:									13		DEMAND AMPS:	

LIGHTING (L)								0.00	KVA CONNECTED LOAD
RECEPT. (R)								0.00	KVA CONNECTED RECEPT. LOAD
EQUIP. (E)	2,080	1,040	1,040		1,040	1,040		6.24	KVA CONNECTED EQUIP. LOAD
SPARE LOAD (S)								0.00	KVA SPARE
TOTAL (LESS SPARE)	2,080	1,040	1,040		1,040	1,040	0	6.24	KVA CONNECTED LOAD (LESS SPARE)
REMARKS :								5	KVA TOTAL DEMAND LOAD
DEMAND LOAD = 100% OF LIGHTING LOAD + 75% OF EQUIP. LOAD + 65% KITCHEN LOAD + FIRST 10KVA OF RECEPT. CONNECTED AND 50% OF REMAINDER PER NEC CODE								6	KVA 25% OF LIGHTING LOAD + SPARE LOAD + CONNECTED LOAD =
								6	KVA FOR MIN. FEEDER DESIGN LOAD

printed 9.26.2014 2:12 PM RP-AB

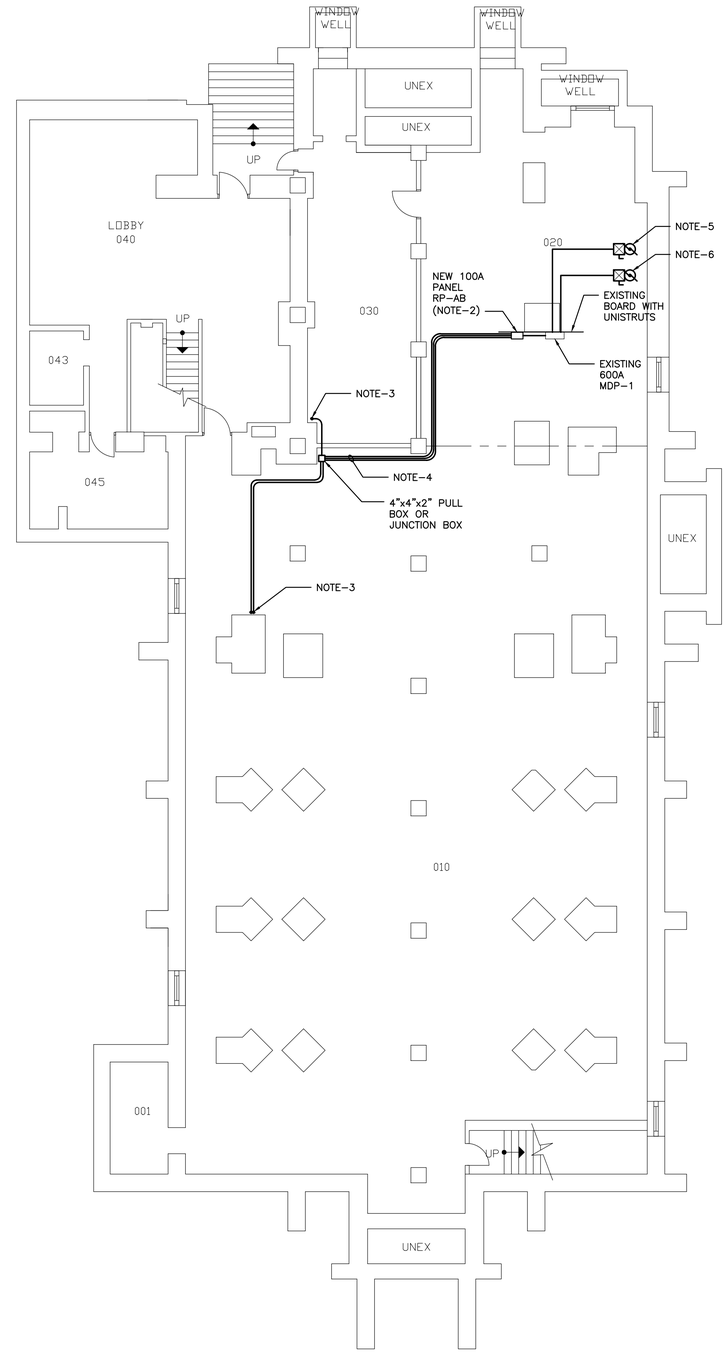
SHEET NOTES:

1. REFER TO SHEET E-001 FOR SYMBOLS, LEGENDS AND GENERAL NOTES.
2. NEW 100A, MLO, 3PH, 208/120V, RP-AB TO BE FED A SPARE 100/100A FUSED DISCONNECT LOCATED IN MDP-1. PANEL WILL BE INSTALLED ON THE EXISTING BOARD USING UNISTRUT STEEL AT 4'-6" A.F.F. TO THE CENTER OF THE PANEL. CONTRACTOR SHALL TYPE THE INFORMATION ON THE PANEL DIRECTORY PER THE PANEL SCHEDULE ON THIS SHEET.
3. 3/4" CONDUITS UP TO FANS 1, 2 & 3 STARTER SWITCH BOXES. CONTRACTOR SHALL FOLLOW THIS ROUTE TO KEEP CONDUITS OFF SIGHT FROM PUBLIC WHEN GOING ALONG THE COLUMNS TO THE CEILING TRUSS SPACE OR JOISTS WHERE THE FANS ARE PHYSICALLY INSTALLED.
4. CONTRACTOR CAN SUBMIT AN ALTERNATIVE IN THE FORM OF ROUTING THE THREE FANS IN A SINGLE CONDUIT AFTER APPLYING CONDUIT FILL SPACE PER NEC.
5. EXISTING PUMP P-1 BEING FED FROM TAP BOX IN MDP-1, TO BE REPLACED WITH 3 HP MOTOR. REPLACE EXISTING COMBINATION MOTOR STARTER WITH NEW COMBINATION MOTOR STARTER SIZE 1. REPLACE EXISTING WIRING WITH 3 #12, 1 # 12G IN ¾"C ALL THE WAY BACK TO SOURCE.
6. NEW PUMP P-2 WITH COMBINATION MOTOR STARTER. PUMP P-2 IS A REDUNDANT PUMP FOR THE CHILLER. IT SHALL NOT OPERATE WITH PUMP P-1 SIMULTANEOUSLY. CONTRACTOR SHALL VERIFY PUMP CONTROLS TO SATISFY THIS CONDITION. CONNECT THE SAME TAP BOX FEEDING P-1 @ MDP-1 WITH 3 #12, 1 #12G IN ¾"C.
7. REPLACE 400A FUSED SWITCH AT MDP-1 WITH 100AF/100AT FUSED SWITCH FOR THE NEW CHILLER.



RISER DIAGRAM

SCALE: NONE



BASEMENT POWER PLAN

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

NORTH

DOCUMENT IS SCALED
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MARK	ISSUE	DATE
	ADDENDUM NO. 3	09-26-14
	BIDS	08-27-14
	FINAL OWNER REVIEW	08-06-14

DESIGNER	FK
DRAWN	
CHECKED	
DEPT MGR	
PROJECT MGR	

TITLE:
ST. ANDREW'S HVAC RETROFIT

BASEMENT POWER PLAN

SCALE: AS NOTED

WSU PROJECT #: 156-247867
WSU BLDG NAME: ST. ANDREW'S
WSU BLDG #: 156

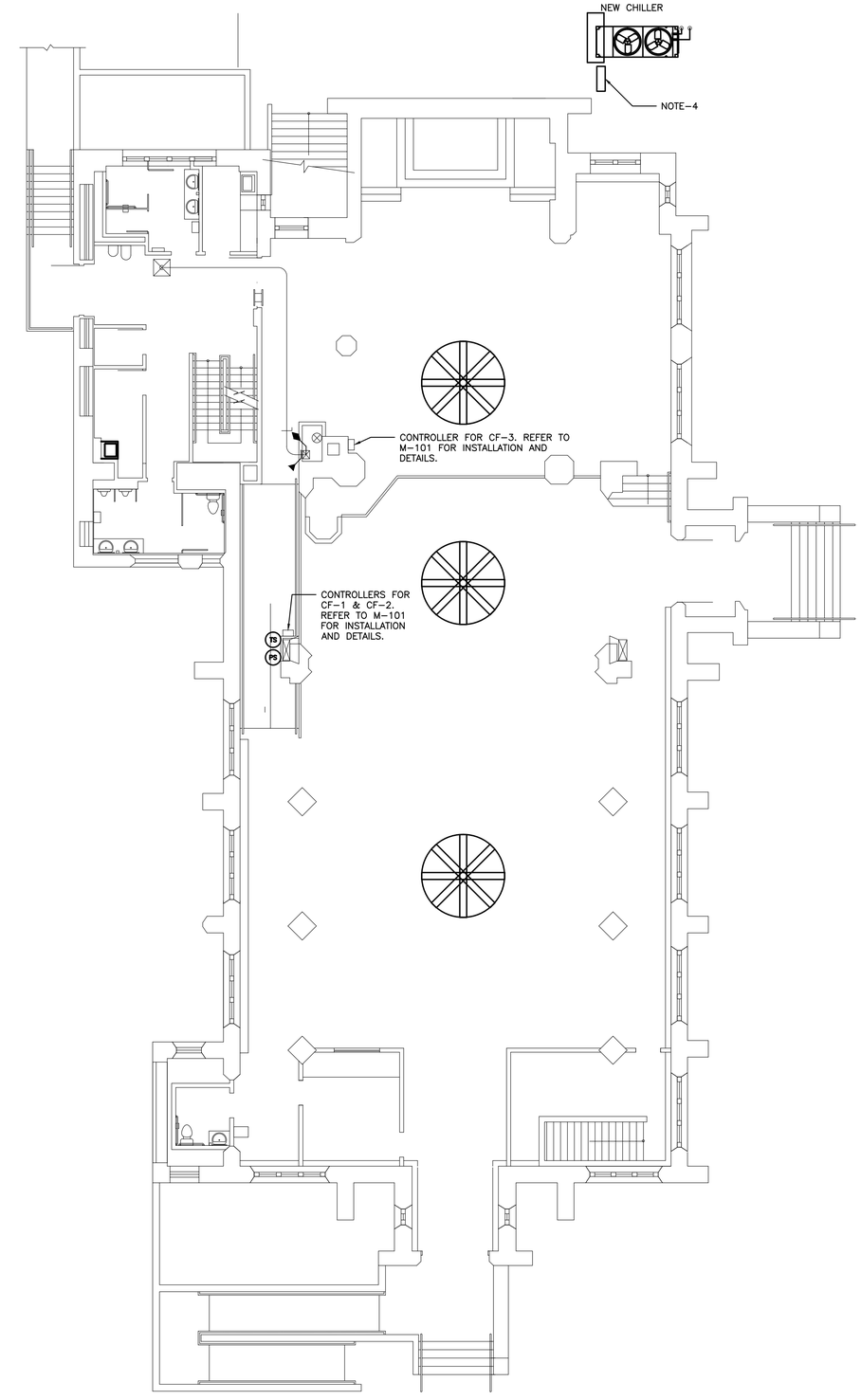
A/E PROJECT NO.
214057.00

SHEET NO.
E-100

N:\214057\wsu st. andrew\Sheets\E-100 BASEMENT POWER PLAN.dwg, 9/26/2014 2:13:07 PM

SHEET NOTES:

1. REFER TO SHEET E-001 FOR SYMBOLS, LEGENDS AND GENERAL NOTES.
2. RUN 3/4" CONDUIT ALONGSIDE COLUMNS FROM CEILING TRUSS DOWN TO FANS STARTER/SWITCH. FROM STARTER/SWITCH CONTINUE CONDUITS ALONG THE COLUMNS DOWN THROUGH THE FLOOR TO THE BASEMENT AND TERMINATE AT RP-AB PER PANEL SCHEDULE ON SHEET E-101.
3. ALL EXPOSED CONDUITS, BOXES, ETC. ARE TO BE PAINTED TO MATCH EXISTING ADJACENT SURFACES.
4. REPLACE CHILLER EXISTING 400A DISCONNECT WITH NEW ONE NEMA 3R PER MECHANICAL SCHEDULE SHEET M-101.
5. REPLACE THE EXISTING FEEDER BETWEEN THE EXISTING CHILLER AND MDP-1 WITH 4#250KCMIL, 1#4G AFTER VERIFYING THE EXISTING CONDUIT IS 2 1/2" SIZE. IF THE EXISTING CONDUIT IS SMALLER THAN 2 1/2", CONTRACTOR SHALL RUN NEW 2 1/2"C BETWEEN NEW CHILLER AND MDP-1.
6. FEED THE NEW 100A DISCONNECT FOR THE CHILLER WITH 3 #3, 1 #8G. AND REUSE EXISTING CONDUITS AFTER PULLING OUT EXISTING WIRING.



FIRST FLOOR POWER PLAN

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

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SHEET NO.

E-101

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