

Architect's Supplemental Instructions

Architect's Project No:
04561.01

Architect's ASI No: 034

Project:
Webster University
Interdisciplinary Science
Building

Date Issued: 11/4/2016

Contract Date:

Reason Code: 05 A/E Scope

Discipline Code: 09 Mechanical /
03 Electrical

Owner:
Webster University

Architect:
Cannon Design
1100 Clark Avenue
St. Louis, MO 63102

Contractor:
Paric Construction

Contract For: General Construction

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Indicate your acceptance of these instructions for minor change to the Work as consistent with the Contract Documents and return a copy to the Architect within fourteen (14) business days of the date of issuance of these instructions. If you feel a change in Contract Sum or Contract Time is warranted, please submit an itemized quotation for the changes for approval within fourteen (14) business days of the date of issuance of these instructions prior to proceeding on the Work. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change.

Attachments:

Drawings:

Sheet ME0003, M0101.A, M0102.A, M0103.A, M0104.A, M0601, E0101.A, E0504

Architect's Supplemental Instructions

Page 2

Description:

Please submit an itemized proposal for changes in contract Sum and Contract Time for proposed modifications to the Contract Documents described herein:

SHEET ME0003 EQUIPMENT DATA SCHEDULE

- Add ventilation fan VF-4.

SHEET M0101.A LEVEL 01 AREA A FLOOR PLAN – MECHANICAL

- Add ventilation fan VF-4, ductwork, transfer ductwork, and air devices to ventilate Mechanical Room 178.
- Add ¾" drain line to Keyed Note M20 for drains at FCU's.

SHEET M0102.A, SHEET M0103.A, and SHEET M0104.A LEVELS 02, 03, & 04 AREA A FLOOR PLAN – MECHANICAL

- Add ¾" drain line to Keyed Note M20 for drains at FCU's.

SHEET M0601 SCHEDULES – MECHANICAL

- Add ventilation fan VF-4 to FAN SCHEDULE.

SHEET E0101.A LEVEL 01 AREA A FLOOR PLAN – ELECTRICAL & AUXILIARY

- Add disconnect switch and branch circuit for ventilation fan VF-4.

SHEET E0504 PANEL SCHEDULES

- Replace two 20A/1P circuit breakers with one 30A/3P breaker to serve Ventilation Fan VF-4.

SPECIFICATION CHANGES

1. Section 23 95 00, PART 3, Article 3.9 Sequence of Operation, N. add VF-4 (L1 Mech Rm).

Issued by Architect: Mark Schaefer and Mark de la Fuente, William Tao & Associates, Inc.

Accepted by Contractor:

© Cannon Design 2015
All rights reserved. All parts of this document may be reproduced or transmitted in any form or by any means electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without written authorization by The Cannon Corporation.
11/4/2016 10:27:51 AM

EQUIPMENT DATA SCHEDULE																
	MARK		KW HP MCA	VOLTAGE PHASE SPEED	EQUIPMENT LOCATION	CONTROLLER DATA			PANEL DESIGNATION	BRANCH CIRCUIT DATA			GROUND	CONDUIT SIZE		NOTES
	ID	TAG #				ACCESORIES (1)	CONTROLLER TYPE (2)	CONTROLLER SIZE		TYPE (3)	SIZE	PHASE				
CENTRAL AIR COMPRESSOR	AC	1	(3) 7.5 HP	480/3/1	LEVEL 01 AREA A		PWCP	-	1NH2	CB	70A/3P	6	10	3/4"		
AIR COOLED CONDENSING UNIT	ACCU	1	16 MCA	208/1/1	LEVEL 0 MECH RM	-	PWCP	-	BNL1	CB	25A/2P	10	10	3/4"	4	
AIR COOLED CONDENSING UNIT	ACCU	2	16 MCA	208/1/1	LEVEL 0 MECH RM	-	PWCP	-	BNL1	CB	25A/2P	10	10	3/4"	4	
AIR COOLED CONDENSING UNIT	ACCU	3	16 MCA	208/1/1	ROOF	-	PWCP	-	4NL1	CB	25A/2P	10	10	3/4"	4	
AIR COOLED CONDENSING UNIT	ACCU	4	16 MCA	208/1/1	ROOF	-	PWCP	-	4NL1	CB	25A/2P	10	10	3/4"	4	
AIR COOLED CONDENSING UNIT	ACCU	5	26 MCA	208/1/1	LEVEL 0 MECH RM	-	PWCP	-	BNL1	CB	40A/2P	8	10	3/4"	4	
AIR HANDLING UNIT	AHU	1	100 MCA	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	180A/3P	3/0	6	2"	3, 6, 7	
AIR HANDLING UNIT	AHU	2	100 MCA	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	180A/3P	3/0	6	2"	3, 6, 7	
AIR HANDLING UNIT	AHU	3	6 MCA	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	1SH1	CB	15A/3P	12	12	3/4"	2, 6	
AIR HANDLING UNIT	AHU	4	6 MCA	480/3/VAR	LOWER LEVEL	-	VFD	-	1SH1	CB	15A/3P	12	12	3/4"	2, 6	
AIR HANDLING UNIT	AHU	5	10.47 MCA	480/3/VAR	LEVEL 01 - ELECTRICAL RM	-	VFD		1NH2	CB	15A/3P	12	12	3/4"	6	
BOILER	B	1	10.2 MCA	120/1/1	LEVEL 01 AREA A	-	PWCP	-	1SL1	CB	20A/1P	12	12	3/4"	2, 4	
BOILER	B	2	10.2 MCA	120/1/1	LEVEL 01 AREA A	-	PWCP	-	1SL1	CB	20A/1P	12	12	3/4"	2, 4	
CHILLED WATER PUMP	CP	1	25 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	70A/3P	6	10	3/4"	6	
CHILLED WATER PUMP	CP	2	25 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	70A/3P	6	10	3/4"	6	
CHILLED WATER PUMP	CP	3	2 HP	480/3/1	LEVEL 01 AREA A	HOA-P	COMB	1	1NH2	CB	15A/3P	12	12	3/4"		
CHILLED WATER PUMP	CP	4A	1/6 HP	120/1/1	LEVEL 04 - LAB 489	P	MS	0	4LL2	CB	20A/1P	12	12	3/4"		
CHILLED WATER PUMP	CP	4B	1/6 HP	120/1/1	LEVEL 04 - LAB 489	SAME AS CP-4A	SAME AS CP-4A	SAME AS CP-4A	4LL2	CB	20A/1P	12	12	3/4"		
CONDENSING UNIT	CU	1	46 MCA	480/3/1	ON GRADE	-	PWCP	-	1SH1	CB	60A/3P	6	10	3/4"	2, 4	
CONDENSING UNIT	CU	2	46 MCA	480/3/1	ON GRADE	-	PWCP	-	1SH1	CB	60A/3P	6	10	3/4"	2, 4	
CABINET UNIT HEATER	CUH	101	40 WATT	120/1/1	LEVEL 01 - VEST C153	-	PWCP	-	1NL1	CB	15A/1P	12	12	3/4"	1, 4	
CABINET UNIT HEATER	CUH	102	40 WATT	120/1/1	LEVEL 01 STAIR 2-1	-	PWCP	-	1NL2	CB	15A/1P	12	12	3/4"	1, 4	
CABINET UNIT HEATER	CUH	201	40 WATT	120/1/1	LEVEL 02 - VEST C250A	-	PWCP	-	2NL1	CB	15A/1P	12	12	3/4"	1, 4	
CABINET UNIT HEATER	CUH	202	40 WATT	120/1/1	LEVEL 02 - VEST C230A	-	PWCP	-	2NL1	CB	15A/1P	12	12	3/4"	1, 4	
CABINET UNIT HEATER	CUH	203	40 WATT	120/1/1	LEVEL 02 - C270A EAB CONNECTOR	-	PWCP	-	2NL1	CB	15A/1P	12	12	3/4"	1, 4	
CABINET UNIT HEATER	CUH	204	40 WATT	120/1/1	LEVEL 02 - C270A EAB CONNECTOR	-	PWCP	-	2NL1	CB	15A/1P	12	12	3/4"	1, 4	
D.I. WATER SYSTEM	DI	1	5 HP	480/3/VAR	LEVEL 00 AREA A	-	PWCP	-	BNH1	CB	15A/3P	12	12	3/4"		
EXHAUST FAN	EF	1	3 HP	480/3/1	ROOF	HOA-P	COMB	1	4SH1	CB	15A/3P	12	12	3/4"	1, 2	
EXHAUST/RELIEF FAN	EF	2	7.5 HP	480/3/VAR	ROOF	-	VFD	-	4NH1	CB	20A/3P	12	12	3/4"	1, 6	
EXHAUST FAN	EF	3	3 HP	480/3/VAR	ROOF	-	VFD	-	4NH1	CB	15A/3P	12	12	3/4"	1, 6	
EXHAUST FAN	EF	4	1/2 HP	120/1/1	ROOF	-	MS	0	4NL1	CB	20A/1P	12	12	3/4"		
ELEVATOR SUMP PUMP	ESP	1	.72 KW	120/1/1	ELEVATOR PIT 1	-	-	-	1NL1	CB	20A/1P	12	12	3/4"		
ELEVATOR SUMP PUMP	ESP	2	.72 KW	120/1/1	ELEVATOR PIT 2	-	-	-	BNL1	CB	20A/1P	12	12	3/4"		
ELECTRIC WATER COOLER	EW	1	.37 KW	120/1/1	LEVEL 01 AREA A	-	-	-	1NL1	CB	20A/1P	12	12	3/4"		
ELECTRIC WATER COOLER	EW	2	.37 KW	120/1/1	LEVEL 02 AREA A	-	-	-	2NL1	CB	20A/1P	12	12	3/4"		
ELECTRIC WATER COOLER	EW	3	.37 KW	120/1/1	LEVEL 03 AREA A	-	-	-	3NL1	CB	20A/1P	12	12	3/4"		
ELECTRIC WATER COOLER	EW	4	.37 KW	120/1/1	LEVEL 04 AREA A	-	-	-	4NL1	CB	20A/1P	12	12	3/4"		
FAN COIL UNIT	FCU	1	0.1 kW	208/1/1	LEVEL 01 - DATA CLOSET	-	PWCP	-	1NL1	CB	15A/2P	12	12	3/4"	4, 8	
FAN COIL UNIT	FCU	2	0.1 kW	208/1/1	LEVEL 02 - DATA CLOSET	-	PWCP	-	2NL1	CB	15A/2P	12	12	3/4"	4, 8	
FAN COIL UNIT	FCU	3	0.1 kW	208/1/1	LEVEL 03 - DATA CLOSET	-	PWCP	-	3NL1	CB	15A/2P	12	12	3/4"	4, 8	
FAN COIL UNIT	FCU	4	0.1 kW	208/1/1	LEVEL 04 - DATA CLOSET	-	PWCP	-	4NL1	CB	15A/2P	12	12	3/4"	12	
FAN COIL UNIT	FCU	5A	0.1 kW	208/1/1	LEVEL 01 - MDF ROOM	-	PWCP	-	1NL2	CB	15A/2P	12	12	3/4"	4, 8, 10	
FAN COIL UNIT	FCU	5B	0.1 kW	208/1/1	LEVEL 01 - MDF ROOM	-	PWCP	-	1NL2	CB	15A/2P	12	12	3/4"	4, 8, 10	
FAN COIL UNIT	FCU	5C	0.1 kW	208/1/1	LEVEL 01 - MDF ROOM	-	PWCP	-	1NL2	CB	15A/2P	12	12	3/4"	4, 8, 10	

EQUIPMENT DATA SCHEDULE																
	MARK		KW HP MCA	VOLTAGE PHASE SPEED	EQUIPMENT LOCATION	CONTROLLER DATA			PANEL DESIGNATION	BRANCH CIRCUIT DATA			GROUND	CONDUIT SIZE		NOTES
	ID	TAG #				ACCESORIES (1)	CONTROLLER TYPE (2)	CONTROLLER SIZE		TYPE (3)	SIZE	PHASE				
FIRE PUMP W/CONTROLLER	FP	1	40 HP	480/3/1	LEVEL 01 AREA A	-	PWCP	-	SEE ONE-LINE	-	-	-	-	-		
FIRE PRE-ACTION SYSTEM	FPA	1	1/6 HP	120/1/1	LEVEL 01 AREA B	-	-	-	1NL1	CB	15A/1P	12	12	3/4"		
FREEZE PUMP	FZP	1	3/4 HP	480/3/1	LEVEL 0 MECH RM	P	MS	1	BNH1	CB	15A/3P	12	12	3/4"		
FREEZE PUMP	FZP	2	3/4 HP	480/3/1	LEVEL 0 MECH RM	P	MS	1	BNH1	CB	15A/3P	12	12	3/4"		
FREEZE PUMP	FZP	3	1/6 HP	120/1/1	LEVEL 0 MECH RM	P	MS	0	1SL1	CB	20A/1P	12	12	3/4"	2	
FREEZE PUMP	FZP	4	1/6 HP	120/1/1	LEVEL 0 MECH RM	P	MS	0	1SL1	CB	20A/1P	12	12	3/4"	2	
GARBAGE DISPOSER	GD	1	.75 HP	120/1/1	LEVEL 01 AREA A	-	-	-	1NL1	CB	30A/1P	10	10	3/4"		
GARBAGE DISPOSER	GD	2	.75 HP	120/1/1	LEVEL 02 AREA A	-	-	-	2NL1	CB	30A/1P	10	10	3/4"		
GARBAGE DISPOSER	GD	3	.75 HP	120/1/1	LEVEL 03 AREA A	-	-	-	3NL1	CB	30A/1P	10	10	3/4"		
GARBAGE DISPOSER	GD	4	.75 HP	120/1/1	LEVEL 04 AREA A	-	-	-	4NL1	CB	30A/1P	10	10	3/4"		
GLYCOL FILL SYSTEM	GFS	1	3/4 HP	120/1/1	LEVEL 0 MECH RM	-	PWCP	-	BNL1	CB	30A/1P	10	10	3/4"	4	
LAB HOOD EXHAUST FANS	HEF	1	(3) 25 HP	480/3/VAR	ROOF	-	VFD		4SH1	CB	70A/3P	6	10	3/4"	2, 6, 11	
HEATING WATER PUMP	HP	1	10 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	1SH1	CB	35A/3P	8	10	3/4"	2, 6	
HEATING WATER PUMP	HP	2	10 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	1SH1	CB	35A/3P	8	10	3/4"	2, 6	
HEAT RECOVERY PUMP	HRP	1	15 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	45A/3P	8	10	3/4"	6	
HEAT RECOVERY PUMP	HRP	2	15 HP	480/3/VAR	LEVEL 0 MECH RM	-	VFD	-	BNH1	CB	45A/3P	8	10	3/4"	6	
HOT WATER HEATER	HWH	1	.72 KW	120/1/1	LEVEL 01 AREA A	-	-	-	1NL2	CB	20A/1P	12	12	3/4"		
HOT WATER HEATER	HWH	2	.72 KW	120/1/1	LEVEL 01 AREA A	-	-	-	1NL2	CB	20A/1P	12	12	3/4"		
HOT WATER HEATER	HWH	3	.72 KW	120/1/1	LEVEL 01 AREA A	-	-	-	1NL2	CB	20A/1P	12	12	3/4"		
HOT WATER CIRC. PUMP	HWP	1	1.5 HP	480/3/1	LEVEL 01 AREA A	-	-	-	1NH2	CB	15A/3P	12	12	3/4"		
FIRE JOCKEY PUMP W/CONTROLLER	JP	1	3 HP	480/3/1	LEVEL 01 AREA A	-	PWCP	-	SEE ONE-LINE	-	-	-	-	-		
KITCHEN EXHAUST FAN	KEF	1	3/4 HP	480/3/1	ROOF	HOA-P	COMB	1	4SH1	CB	15A/3P	12	12	3/4"	1	
PROCESS CHILLED WATER PUMP	PCP	1A	2/5 HP	120/1/1	LEVEL 04 - LAB 489	P	MS	0	4LL2	CB	20A/1P	12	12	3/4"		
PROCESS CHILLED WATER PUMP	PCP	1B	2/5 HP	120/1/1	LEVEL 04 - LAB 489	SAME AS PCP-1A	SAME AS PCP-1A	SAME AS PCP-1A	4LL2	CB	20A/1P	12	12	3/4"		
UNIT HEATER	UH	001	16 WATT	120/1/1	LEVEL 0 MECH RM	P	PF	-	BNL1	CB	15A/1P	12	12	3/4"	1	
UNIT HEATER	UH	002	16 WATT	120/1/1	LEVEL 0 MECH RM	P	PF	-	BNL1	CB	15A/1P	12	12	3/4"	1	
UNIT HEATER	UH	101	16 WATT	120/1/1	LEVEL L01 - LOADING DOCK 172	P	PF	-	1NL2	CB	15A/1P	12	12	3/4"	1	
UNIT HEATER	UH	102	16 WATT	120/1/1	LEVEL L01 - MECH RM	P	PF	-	1NL2	CB	15A/1P	12	12	3/4"	1	
UNIT HEATER	UH	103	16 WATT	120/1/1	LEVEL L01 - MECH RM	P	PF	-	1NL2	CB	15A/1P	12	12	3/4"	1	
VENTILATION FAN	VF	1	1 HP	480/3/1	LEVEL 0 MECH RM	P	MS	1	BNH1	CB	15A/3P	12	12	3/4"	1	
VENTILATION FAN	VF	2	350 WATTS	120/1/1	ELEV. CONTROL RM VENTILATION	P	MS	0	1NL2	CB	15A/1P	12	12	3/4"	1	
VENTILATION FAN	VF	3	350 WATTS	120/1/1	AV EQUIP 106D VENTILATION	P	MS	0	1NL3	CB	15A/1P	12	12	3/4"	1	
VENTILATION FAN	VF	4	2 HP	120/1/1	LEVEL 01 - MECH ROOM 178	P	MS	1	1NL2	CB	30A/2P	10	10	3/4"		
CENTRAL VACUUM UNIT	VU	1	(2) 5 HP	480/3/1	LEVEL 01 AREA A	-	PWCP	-	1NH2	CB	40A/3P	8	10	3/4"		

(1) CONTROLLER DATA ACCESSORIES
HOA - HAND-OFF-AUTO SWITCH MAINTAINED
HLOA - HIGH-LOW-OFF AUTO SELECTOR SWITCH OR PUSHBUTTON
P () - PILOT LIGHT (QUANTITY) - SEE SPECIFICATION FOR COLOR OF LIGHTS

SS - START-STOP PUSHBUTTON MAINTAINED CONTACT SELECTOR SWITCH OR PUSHBUTTON
SSM - START-STOP MOMENTARY CONTACT
TDR - TIME DELAY RELAY
SPEC - SEE SPECIFICATION SECTION 235000

(2) CONTROLLER DATA TYPE
(DIVISION 26 UNLESS OTHERWISE NOTED)
VFD - VARIABLE FREQUENCY DRIVE
COMB - COMBINATION FVNR STARTER WITH FUSIBLE DISCONNECT SWITCH
CONTR - CONTACTOR
PF - PLUG FUSE SWITCH
MS - MANUAL STARTER
TSS - TWO-SPEED STARTER
FVNR - FULL VOLTAGE NON-REVERSING STARTER
FVR - FULL VOLTAGE REVERSING STARTER
RVNR - REDUCED VOLTAGE NON-REVERSING STARTER
SSS - SOLID-STATE STARTER
PWCP - PRE-WIRED CONTROL PANEL (FURNISHED WITH DIVISION 23 EQUIPMENT)

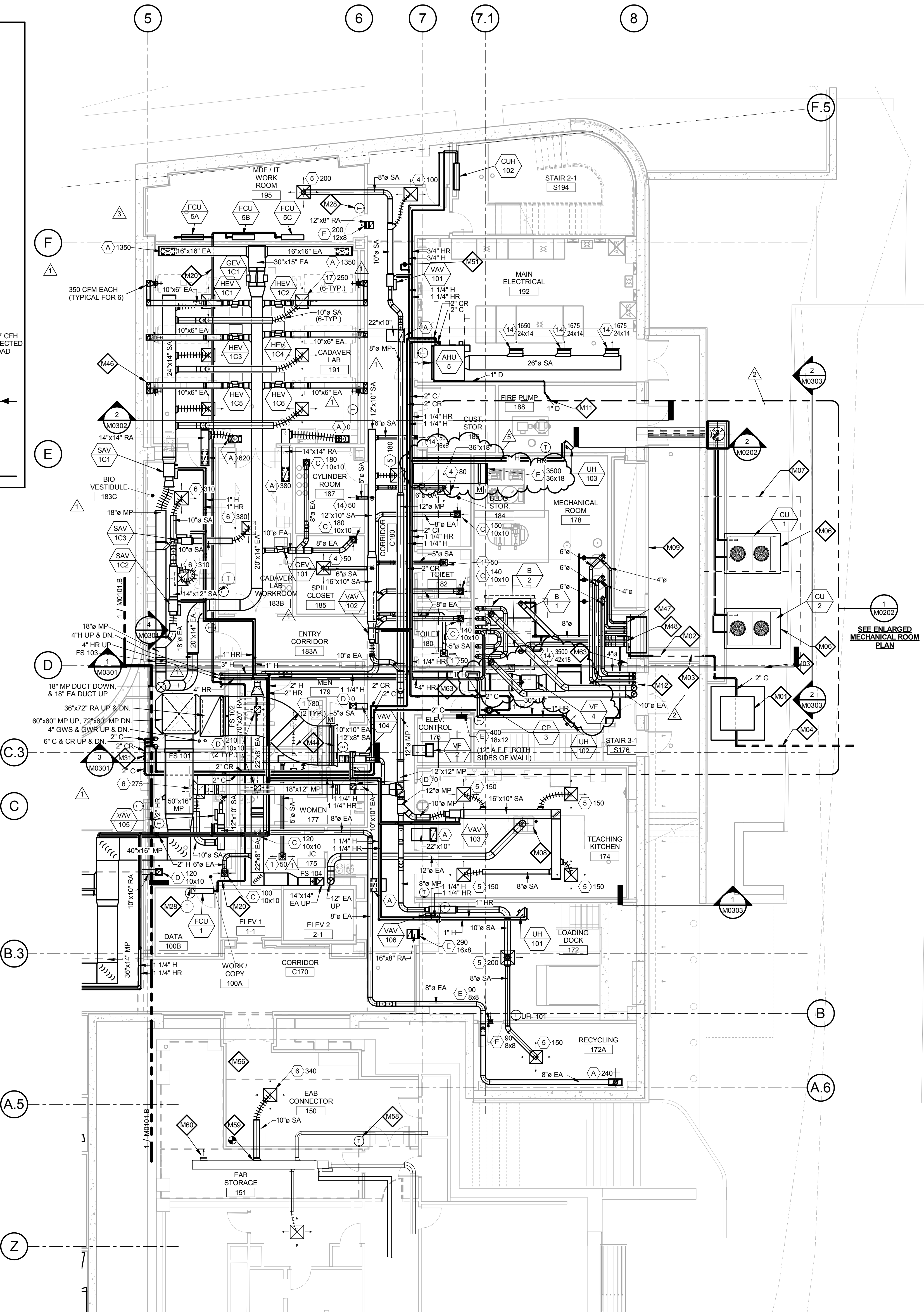
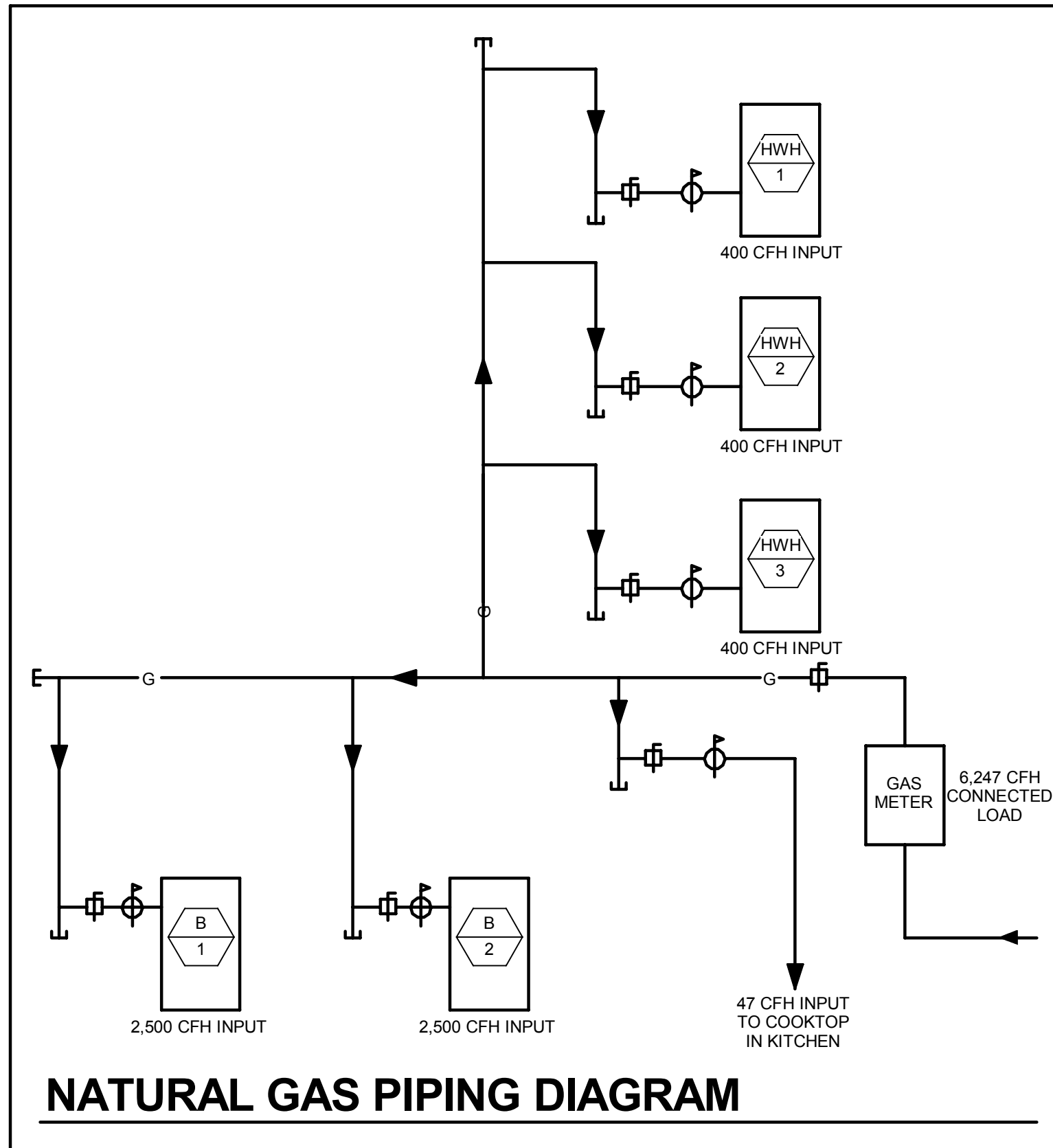
(3) BRANCH CIRCUIT DEVICE TYPE
CB - CIRCUIT BREAKER
FS - FUSIBLE SWITCH

GENERAL NOTE:

OVER CURRENT PROTECTION BASED ON ENERGY EFFICIENT MOTOR DATA FOR HORSEPOWER THROUGH 40 HORSEPOWER UNLESS OTHERWISE NOTED.

KEYED NOTES:

- EQUIPMENT FURNISHED WITH INTEGRAL DISCONNECT SWITCH.
- EMERGENCY POWER REQUIRED.
- MULTIPLE MOTORS ON ONE DRIVE. DRIVE PROVIDED AND WIRED ON THE LOAD SIDE BY THE EQUIPMENT MANUFACTURER.
- SEE SPECIFICATIONS FOR CONTROLLER REQUIREMENTS.
- EQUIPMENT FURNISHED WITH CORD AND PLUG. 20 AMP CIRCUIT REQUIRED.
- V



GENERAL NOTES:

- A. Because of the limited space available to install all of the mechanical work, coordination between the various trades is of the utmost importance. This contractor shall coordinate with all other trades prior to the fabrication and installation of any work.
- B. Refer to the reflected ceiling plans for ceiling construction, ceiling grid layout, ceiling mounted devices, and coordinate exact location and mounting type of all air devices.
- C. All ductwork upstream of terminal units shall be Medium Pressure (MP). All ductwork downstream of terminal units shall be Low Pressure (LP). Refer to specifications.
- D. All ductwork dimensions indicated on plans are sheet metal sizes. All medium pressure ductwork shall be unlined, externally insulated. All low pressure ductwork shall be lined. See specifications.
- E. All mitered 90° rectangular elbows shall be furnished with turning vanes having maximum $c = 0.12$. All smooth radius rectangular elbows shall have a throat radius greater than one half the duct width, unless furnished with splitter vanes. Under no circumstances shall the throat radius be less than one third the duct width. Unless otherwise noted or specified.
- F. Contractor shall furnish and install volume dampers for each duct take-off unless otherwise noted. See detail.
- G. Maximum length of Low Pressure (LP) flexible ductwork shall be 8'-0". Round LP duct of lengths greater than 8'-0" shall be rigid round. Flexible duct sizes on plans shall be neck size of diffusers or as indicated. See specifications.
- H. Maximum length of Medium Pressure (MP) flexible ductwork shall be 2'-0". Round MP duct of lengths greater than 2'-0" shall be rigid round. Flexible duct sizes on plans shall be air Terminal Unit inlet size or as indicated. See specifications.
- I. All ductwork runouts to Air Terminal Units and diffusers shall be the connection size unless otherwise noted.
- J. Piping runouts to terminal units shall be 3/4" unless otherwise noted. Refer to reheat box schedule.
- K. Verify exact location of thermostats, humidistats, BAS sensors, and other exposed control sensors with architectural elevations and drawings before installation.
- L. Schedule systems or equipment shut downs required for new construction with owner two weeks in advance. Some premium time work may be required.
- M. Refer to piping details for final connections to equipment.
- N. Provide service shut-off valves in major piping branch lines. All connections to risers and each building wing, A & B.

KEYED NOTES

- M01 PROPOSED GAS METER LOCATION: COORDINATE WITH LOCAL NATURAL GAS UTILITY COMPANY FOR METER SET SIZED FOR A TOTAL CONNECTED LOAD OF 6,247-CFH WITH A DELIVERY PRESSURE OF 2-PSIG. PROVIDE CONCRETE METER PAD PER THE LOCAL GAS COMPANY'S REQUIREMENTS AND SIZE.
- M02 2-INCH MAIN BUILDING NATURAL GAS LINE ABOVE GRADE WITH SHUT-OFF VALVE.
- M03 2-INCH NATURAL GAS LINE IN OPEN TRENCH WITH STEEL GRATING. SEE CIVIL DRAWINGS. SUPPORT PIPING WITH STAINLESS STEEL UNISTRUT FRAMING, MINIMUM 2-INCHES ABOVE TRENCH FLOOR.
- M04 NATURAL GAS MAIN EXTENSION BELOW GRADE BY LOCAL GAS COMPANY.
- M06 CONCRETE BASE FOR MECHANICAL EQUIPMENT, SEE CIVIL DRAWINGS. VERIFY SIZE WITH APPROVED SHOP DRAWINGS.
- M07 DASHED LINES INDICATE RECOMMENDED SERVICE, COIL PULLING SPACE, FILTER REMOVAL SPACE, AND/OR AIRFLOW CLEARANCES.
- M08 3/4-INCH NATURAL GAS LINE BELOW SLAB WITHIN VENTED SLEEVE. SEE LOWER LEVEL FLOOR PLAN FOR CONTINUATION. PROVIDE GAS SHUT-OFF VALVE AND FLEXIBLE HOSE ADAPTER. FINAL CONNECTION TO COOK TOP BY KITCHEN EQUIPMENT INSTALLER.
- M09 OUTSIDE AIR INTAKE LOUVER, SEE ARCHITECTURAL DRAWINGS.
- M11 TERMINATE COOLING COIL DRAIN LINE OVER NEAREST FLOOR DRAIN OR INDIRECT WASTE. PROVIDE TRAP AS INDICATED ON PIPING DETAIL.
- M12 ROLLER AND DOMESTIC WATER HEATER FLUES UP THROUGH ROOF.
- M20 REFRIGERANT LIQUID AND SUCTION PIPING BETWEEN DX COOLING COILS AND CONDENSING UNITS. COORDINATE PIPE SIZES WITH MANUFACTURER. PROVIDE 3/4" DRAIN LINE. ROUTE WITH REFRIGERANT PIPING. TERMINATE DRAINS FROM FCU-1, 2, 5A, 5B, AND 5C OVER FLOOR DRAIN IN LOWER LEVEL MECHANICAL ROOM. TERMINATE DRAINS FROM FCU-3 AND 4 OVER SERVICE SINK IN JANITORS CLOSET 375.
- M28 BAS TEMPERATURE SENSOR TO MONITOR IT/ITCOM SPACES. FCU CONTROLLED BY UNIT MOUNTED THERMOSTAT.
- M31 3-WAY CONTROL VALVE, SEE CHILLED WATER PIPING DIAGRAM.
- M44 AIRFLOW MEASURING STATION. KELE MODEL KOAMS FURNISHED WITH INLET BELL FOR PLENUM APPLICATIONS LOCATED IN MINIMUM OA DUCT OR RETURN AIR INLET ON EACH FLOOR.
- M46 EXHAUST DUCT DOWN THROUGH CHASE FOR DOWNDRAFT TABLE. VERIFY DUCT CONNECTION SIZE AND LOCATION. PROVIDE MANUAL DAMPER AND CONNECTION ADAPTER TO TABLE.
- M47 DOMESTIC WATER HEATER COMBUSTION AIR DUCT THROUGH EXTERIOR WALL ABOVE LOUVER. PROVIDE VENT/RAIN CAP OR ELBOW WITH BIRDSCREEN.
- M48 HEATING HOT WATER BOILER COMBUSTION AIR DUCT. PROVIDE VENT/RAIN CAP OR ELBOW WITH BIRDSCREEN.
- M51 1" HEATING HOT WATER BYPASS WITH BACKPRESSURE CONTROL VALVE (5 GPM).
- M56 MODIFY EXISTING LOW PRESSURE SUPPLY DUCTWORK IN THIS AREA FOR NEW WALLS. REMOVE EXISTING DUCT MOUNTED AIR DEVICES AND PATCH DUCTWORK AIR-TIGHT. INSTALL NEW CEILING DIFFUSERS AND RETURN AIR GRILLE AS SHOWN AND AS REQUIRED FOR NEW CEILINGS.
- M57 REMOVE EXISTING DUCT MOUNTED AIR DEVICE AND CAP WITH SHEETMETAL. SEAL AIR-TIGHT.
- M58 NEW LOCATION FOR EXISTING TEMPERATURE SENSOR.
- M59 NEW CONNECTION TO EXISTING DUCTWORK.
- M60 EXISTING AIR DEVICE TO REMAIN. BALANCE TO 80-CFM.
- M61 RELOCATION EXISTING TEMPERATURE SENSOR.
- M63 INSTALL BOILER SAFETY SWITCH AND SIGN. COORDINATE LOCATION WITH OWNER, ARCHITECT, AND ALL OTHER TRADES.

THE SEALS(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

Webster UNIVERSITY

Webster University
Interdisciplinary Science Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
MEP/FP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd., Suite 100
St. Louis, MO 63143
314.591.2228

Kuhlmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

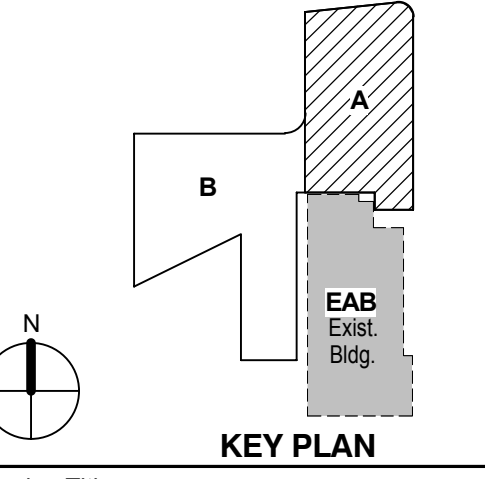
KWA Architects
Architecture
8721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd.
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

5	ASI-034	04 NOV 2016
4	ASI-032	18 OCT 2016
3	ADDENDUM 2-4	24 MAY 2016
2	ADDENDUM 2-2	19 APRIL 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016
No.	Description	Date



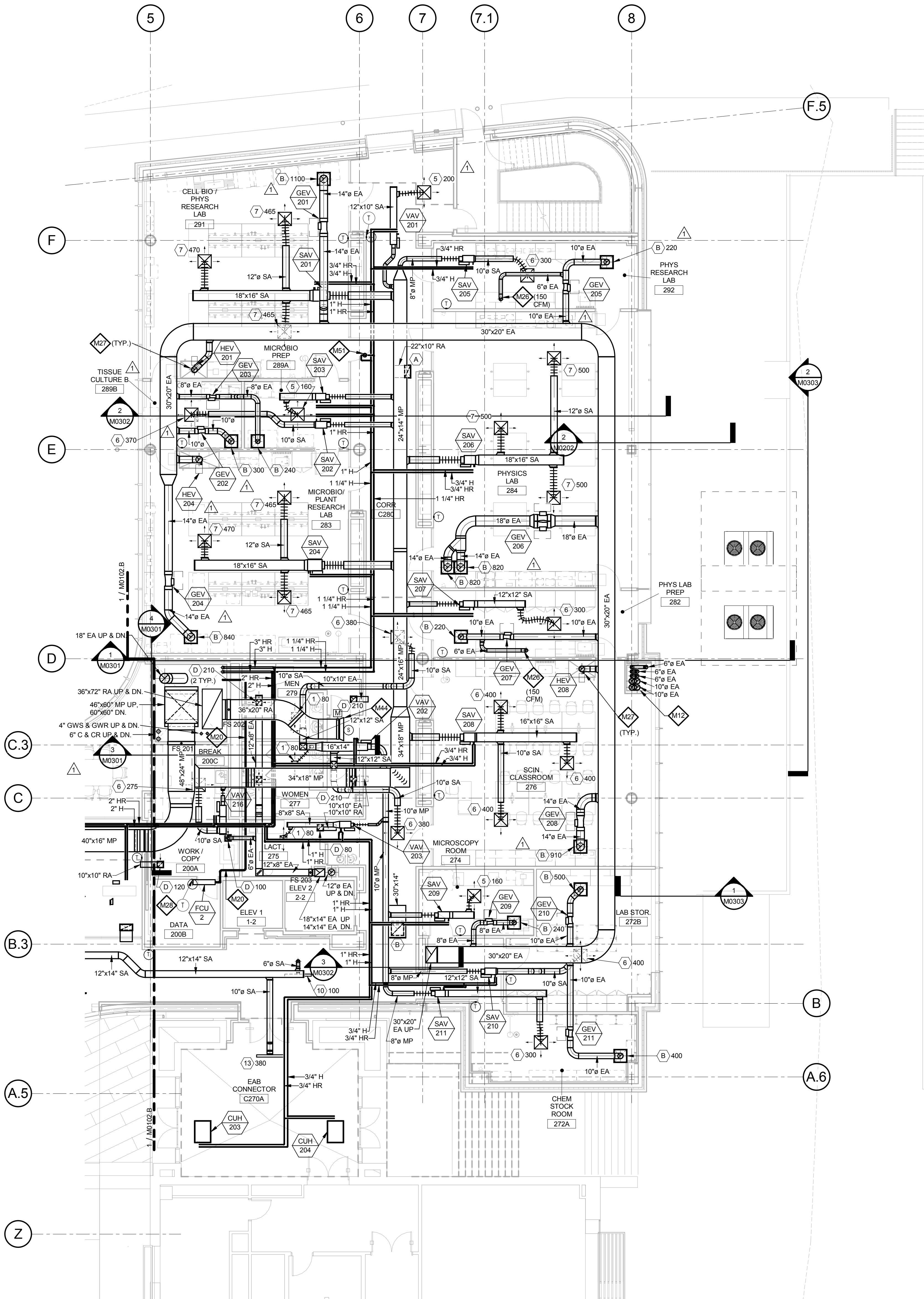
LEVEL 01 AREA A FLOOR PLAN - MECHANICAL

Project No.: 04561.01 Checked by:

M0101.A

© Cannon Design 2015
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written authorization by The Cannon Corporation.
11/4/2016 11:49:46 AM

© Cannon Design 2015
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written authorization by The Cannon Corporation.
11/4/2016 11:55:01 AM



GENERAL NOTES:

- Because of the limited space available to install all of the mechanical work, coordination between the various trades is of the utmost importance. This contractor shall coordinate with all other trades prior to the fabrication and installation of any work.
- Refer to the reflected ceiling plans for ceiling construction, ceiling grid layout, ceiling mounted devices, and coordinate exact location and mounting type of all air devices.
- All ductwork upstream of terminal units shall be Medium Pressure (MP). All ductwork downstream of terminal units shall be Low Pressure (LP). Refer to specifications.
- All ductwork dimensions indicated on plans are sheet metal sizes. All medium pressure ductwork shall be unlined, externally insulated. All low pressure ductwork shall be lined. See specifications.
- All mitered 90° rectangular elbows shall be furnished with turning vanes having maximum $c = 0.12$. All smooth radius rectangular elbows shall have a throat radius greater than one half the duct width, unless furnished with splitter vanes. Under no circumstances shall the throat radius be less than one third the duct width. Unless otherwise noted or specified.
- Contractor shall furnish and install volume dampers for each duct take-off unless otherwise noted. See detail.
- Maximum length of Low Pressure (LP) flexible ductwork shall be 8'-0". Round LP duct of lengths greater than 8'-0" shall be rigid round. Flexible duct sizes on plans shall be neck size of diffusers or as indicated. See specifications.
- Maximum length of Medium Pressure (MP) flexible ductwork shall be 2'-0". Round MP duct of lengths greater than 2'-0" shall be rigid round. Flexible duct sizes on plans shall be air Terminal Unit inlet size or as indicated. See specifications.
- All ductwork runouts to Air Terminal Units and diffusers shall be the connection size unless otherwise noted.
- Piping runouts to terminal units shall be 3/4" unless otherwise noted. Refer to reheat box schedule.
- Verify exact location of thermostats, humidistats, BAS sensors, and other exposed control sensors with architectural elevations and drawings before installation.
- Schedule systems or equipment shut downs required for new construction with owner two weeks in advance. Some premium time work may be required.
- Refer to piping details for final connections to equipment.
- Provide service shut-off valves in major piping branch lines. All connections to risers and each building wing: A & B.

KEYED NOTES

- M12** BOILER AND DOMESTIC WATER HEATER FLUES UP THROUGH ROOF.
- M20** REFRIGERANT LIQUID AND SUCTION PIPING BETWEEN DX COOLING COILS AND CONDENSING UNITS. COORDINATE PIPE SIZES WITH MANUFACTURER. PROVIDE 3/4" DRAIN LINE, ROUTE WITH REFRIGERANT PIPING, AND TERMINATE DRAINS FROM FCU-1, 2, 5A, 5B, AND 5C OVER FLOOR DRAIN IN LOWER LEVEL MECHANICAL ROOM. TERMINATE DRAINS FROM FCU-3 AND 4 OVER SERVICE SINK IN JANITORS CLOSET 375.
- M26** 6-INCH ROUND EXHAUST DUCT FOR SNORKEL EXHAUST. COORDINATE FINAL CONNECTION TO SNORKEL WITH ARCHITECTURAL DRAWINGS.
- M27** INSTALL HOOD EXHAUST VALVE IN VERTICAL POSITION NEAR HOOD. ELBOWS SHALL HAVE 1.5 DIAMETER RADIUS. USE 1.0 DIAMETER RADIUS ELBOWS ONLY WHERE NECESSARY.
- M28** BAS TEMPERATURE SENSOR TO MONITOR IT/TCOM SPACES. FCU CONTROLLED BY UNIT MOUNTED THERMOSTAT.
- M44** AIRFLOW MEASURING STATION, KELE MODEL KOAMS FURNISHED WITH INLET BELL FOR PLENUM APPLICATIONS LOCATED IN MINIMUM OA DUCT OR RETURN AIR INLET ON EACH FLOOR.
- M51** 1" HEATING HOT WATER BYPASS WITH BACKPRESSURE CONTROL VALVE (5 GPM).

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

Webster
UNIVERSITY

Webster University
Interdisciplinary Science
Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
MEP/FP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd., Suite 100
St. Louis, MO 63143
314.591.2229

Kuhlmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

KWA Architects
Architecture
8721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

3	ASH-034	04 NOV 2016
2	ASH-032	18 OCT 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016

No.	Description	Date
1	KEY PLAN	

Drawing Title:

**LEVEL 02 AREA A FLOOR
PLAN - MECHANICAL**

Project No.: 04561.01 Checked by:

M0102.A

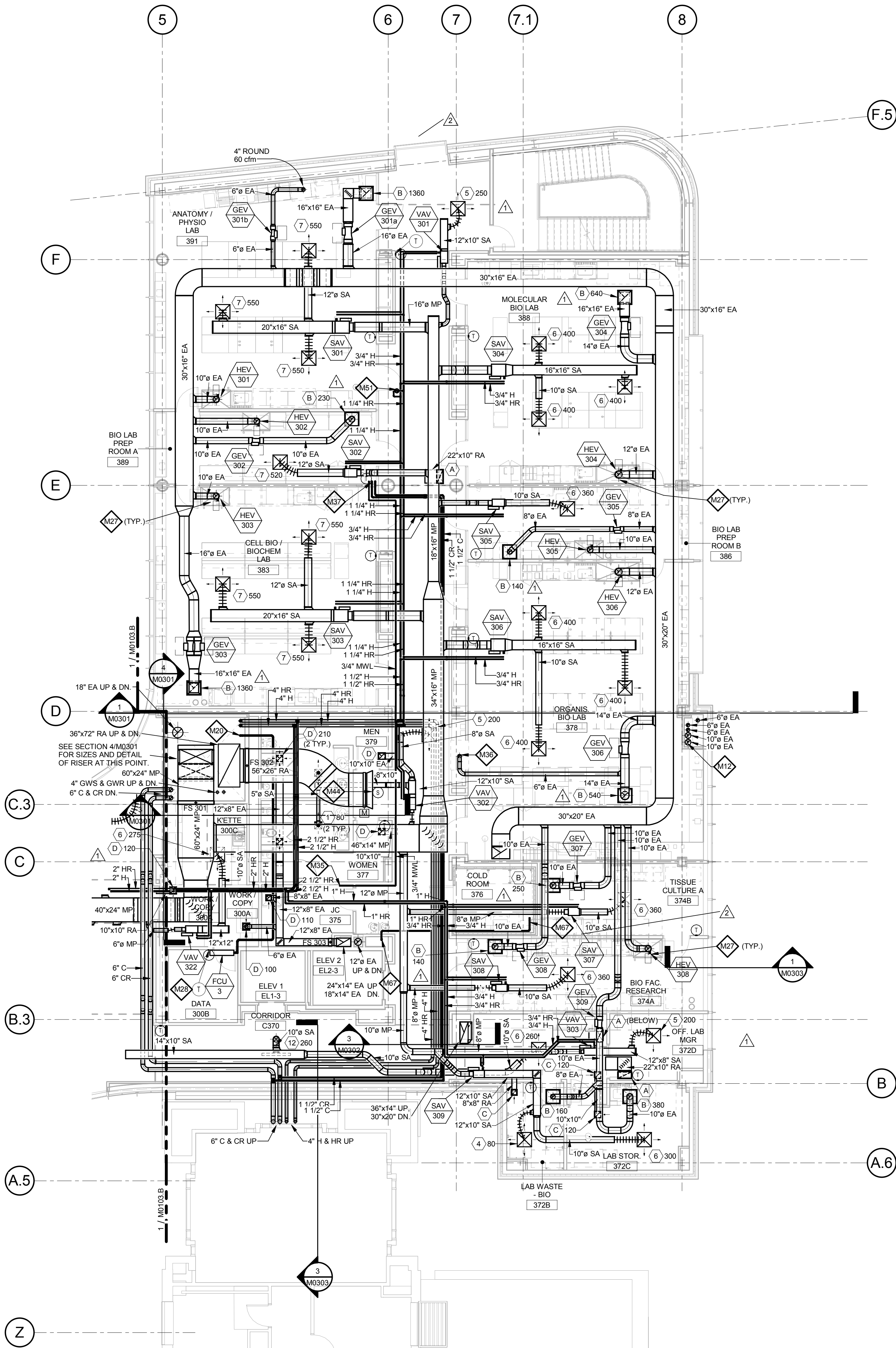
© Cannon Design 2015

© Cannon Design 2015
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written authorization by The Cannon Corporation.
11/4/2016 11:56:54 AM

11/4/2016 11:56:54 AM WTA 14127.01 D:\Autodesk\Revit 2015 Local\14127.01_MWS\14127.01.WU_WTA-ME_MWS.rvt

1 LEVEL 03 - AREA A - MECHANICAL PLAN

1/8" = 1'-0"



GENERAL NOTES:

- Because of the limited space available to install all of the mechanical work, coordination between the various trades is of the utmost importance. This contractor shall coordinate with all other trades prior to the fabrication and installation of any work. Refer to the reflected ceiling plans for ceiling construction, ceiling grid layout, ceiling mounted devices, and coordinate exact location and mounting type of all air devices.
- All ductwork upstream of terminal units shall be Medium Pressure (MP). All ductwork downstream of terminal units shall be Low Pressure (LP). Refer to specifications.
- All ductwork dimensions indicated on plans are sheet metal sizes. All medium pressure ductwork shall be unlined, externally insulated. All low pressure ductwork shall be lined. See specifications.
- All mitered 90° rectangular elbows shall be furnished with turning vanes having maximum $c = 0.12$. All smooth radius rectangular elbows shall have a throat radius greater than one half the duct width, unless furnished with splitter vanes. Under no circumstances shall the throat radius be less than one third the duct width. Unless otherwise noted or specified.
- Contractor shall furnish and install volume dampers for each duct take-off unless otherwise noted. See detail.
- Maximum length of Low Pressure (LP) flexible ductwork shall be 8'-0". Round LP duct of lengths greater than 8'-0" shall be rigid round. Flexible duct sizes on plans shall be neck size of diffusers or as indicated. See specifications.
- Maximum length of Medium Pressure (MP) flexible ductwork shall be 2'-0". Round MP duct of lengths greater than 2'-0" shall be rigid round. Flexible duct sizes on plans shall be air Terminal Unit inlet size or as indicated. See specifications.
- All ductwork runouts to Air Terminal Units and diffusers shall be the connection size unless otherwise noted.
- Piping runouts to terminal units shall be 3/4" unless otherwise noted. Refer to reheat box schedule.
- Verify exact location of thermostats, humidistats, BAS sensors, and other exposed control sensors with architectural elevations and drawings before installation.
- Schedule systems or equipment shut downs required for new construction with owner two weeks in advance. Some premium time work may be required.
- Refer to piping details for final connections to equipment.
- Provide service shut-off valves in major piping branch lines. All connections to risers and each building wing: A & B.

KEYED NOTES

- M15 BOILER AND DOMESTIC WATER HEATER FLUES UP THROUGH ROOF.
- M20 REFRIGERANT LIQUID AND SUCTION PIPING BETWEEN DX COOLING COILS AND CONDENSING UNITS. COORDINATE PIPE SIZES WITH MANUFACTURER. PROVIDE 3/4" DRAIN LINE, ROUTE WITH REFRIGERANT PIPING, AND TERMINATE DRAINS FROM FCU-1, 2, 5A, 5B, AND 5C OVER FLOOR DRAIN IN LOWER LEVEL MECHANICAL ROOM. TERMINATE DRAINS FROM FCU-3 AND 4 OVER SERVICE SINK IN JANITORS CLOSET 375.
- M27 INSTALL HOOD EXHAUST VALVE IN VERTICAL POSITION NEAR HOOD. ELBOWS SHALL HAVE 1.5 DIAMETER RADIUS, USE 1.0 DIAMETER RADIUS ELBOWS ONLY WHERE NECESSARY.
- M28 BAS TEMPERATURE SENSOR TO MONITOR IT/TCOM SPACES. FCU CONTROLLED BY UNIT MOUNTED THERMOSTAT.
- M35 3/4" MWL CONNECTED TO BACKFLOW DEVICE IN JANITOR'S CLOSET. SEE PLUMBING DRAWINGS. ROUTE TO LEVEL 04 FOR PROCESS COOLING SYSTEM.
- M36 6" ROUND DUCT FOR AQUARIUM SPACE. BALANCE AIRFLOW TO 100 CFM. TERMINATE OPEN END AS HIGH AS POSSIBLE.
- M37 1-1/2" C & CR, AND 3/4" MWL UP TO LEVEL 04.
- M44 AIRFLOW MEASURING STATION, KELE MODEL KOAMS FURNISHED WITH INLET BELL FOR PLENUM APPLICATIONS LOCATED IN MINIMUM OA DUCT OR RETURN AIR INLET ON EACH FLOOR.
- M51 1" HEATING HOT WATER BYPASS WITH BACKPRESSURE CONTROL VALVE (5 GPM).
- M67 LOCATION FOR REFRIGERANT PIPING FOR COOLER, SEE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS. PIPING SHALL BE INSTALLED PER COOLER SUPPLIERS REQUIREMENTS.

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

Webster
UNIVERSITY

Webster University
Interdisciplinary Science
Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
ME/PFP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd, Suite 100
St. Louis, MO 63143
314.591.2223

Kuhlmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

KWA Architects
Architecture
8721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

4	ASI-034	04 NOV 2016
3	ASI-032	18 OCT 2016
2	ADDENDUM 2-2	19 APRIL 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016

No.	Description	Date
KEY PLAN		

Drawing Title:

**LEVEL 03 AREA A FLOOR
PLAN - MECHANICAL**

Project No.: 04561.01 Checked by:

M0103.A

© Cannon Design 2015

SUPPLY FAN												HEAT RECOVERY COILS						COOLING COIL										HEATING COIL										FILTERS						
TAG ID	TAG NO	MANUFACTURER & MODEL NO.	MIN OUTSIDE AIR (CFM)	AIRFLOW	WHEEL TYPE	DIA.	TSP "W.C." IN-W.G.	ESP "W.C." IN-W.G.	BHP	DRIVE	MIN FAN EFF. (%)	MAX P.A.D. (IN W.C.)	SUMMER PERFORMANCE (°F)			WINTER PERFORMANCE (°F)			MAX FACE VELOCITY (FPM)	MAX AIR PD IN-WG	AIR TEMP. (°F)		CIRCULATING FLUID				TOTAL MBH	SENSIBLE MBH	ROWS	MAX FACE VELOCITY (FPM)	MAX AIR PD (IN W.C.)	AIR TEMP. (°F)		CIRCULATING FLUID				MBH	MERV	TYPE	SPD (W.G.) @ 500FPM			NOTES
													EAT (°F) DB/WB	LAT (°F) DB/WB	EXH LAT (°F) DB/WB	EAT (°F) DB/WB	LAT (°F) DB/WB	EXH LAT (°F) DB/WB			GPM	EWT (°F)	LWT (°F)	MAX WATER PD (FT)	EAT (°F)	LAT (°F)						GPM	EWT (°F)	LWT (°F)	MAX WATER PD (FT)	INITIAL	FINAL				DESIGN			
AHU	1	TRANE CSAA SIZE 66	16000 CFM	32000 CFM	PLENUM	(4) 20"	6.85 in-w.g.	4.00 in-w.g.	57.25	DIRECT	60	0.75 in-wg	95/78	85.6/75.6	86/66.7	4/0	37.7/24.3	38.7/30.3	500 FPM	1.00 in-wg	80/70	53.5/53	210 GPM	42 °F	58 °F	10	1,655.2	949.8	8	750 FPM	0.25 in-wg	36 °F	75 °F	68 GPM	140 °F	100 °F	2	1,346.5	14	4" CARTRIDGE	0.50 in-wg	1.50 in-wg	1.25 in-wg	1 to 12
AHU	2	TRANE CSAA SIZE 66	16000 CFM	32000 CFM	PLENUM	(4) 20"	6.85 in-w.g.	4.00 in-w.g.	57.25	DIRECT	60	0.75 in-wg	95/78	85.6/75.6	86/66.7	4/0	37.7/24.3	38.7/30.3	500 FPM	1.00 in-wg	80/70	53.5/53	210 GPM	42 °F	58 °F	10	1,655.2	949.8	8	750 FPM	0.25 in-wg	36 °F	75 °F	68 GPM	140 °F	100 °F	2	1,346.5	14	4" CARTRIDGE	0.50 in-wg	1.50 in-wg	1.25 in-wg	1 to 12
AHU	3	TRANE CSAA SIZE 06	2800 CFM	2800 CFM	PLENUM	15"	5.44 in-wg	2.00 in-wg	3.46	DIRECT	65	0.75 in-wg	-	-	-	-	-	-	500 FPM	1.00 in-wg	97/76	50.5/50	30 GPM	42 °F	58 °F	10	240.8	142.8	6	750 FPM	0.25 in-wg	0 °F	75 °F	12 GPM	140 °F	100 °F	2	227.7	14	4" CARTRIDGE	0.50 in-wg	1.50 in-wg	1.25 in-wg	1 to 10
AHU	4	TRANE CSAA SIZE 06	2800 CFM	2800 CFM	PLENUM	15"	5.44 in-wg	2.00 in-wg	3.46	DIRECT	65	0.75 in-wg	-	-	-	-	-	-	500 FPM	1.00 in-wg	97/76	50.5/50	30 GPM	42 °F	58 °F	10	240.8	142.8	6	750 FPM	0.25 in-wg	0 °F	75 °F	12 GPM	140 °F	100 °F	2	227.7	14	4" CARTRIDGE	0.50 in-wg	1.50 in-wg	1.25 in-wg	1 to 10
AHU	5	TRANE UCCAG SIZE 10	0 CFM	5000 CFM	PLENUM	-	2.10 in-wg	1.50 in-wg	3.15	DIRECT	50	0.00 in-wg	-	-	-	-	-	-	550 FPM	0.75 in-wg	85/60	60/50	37 GPM	56 °F	63 °F	10	136.56	136.6	6	750 FPM	0.00 in-wg	0 °F	75 °F	12 GPM	140 °F	100 °F	2	227.7	14	2" THROW AWAY	0.25 in-wg	1.50 in-wg	1.25 in-wg	1 to 10
PLAN DESIGNATION:					X 1 TAG ID TAG NUMBER NOTES: 1. PROVIDE TRANE PERFORMANCE CLIMATE CHANGER AIR HANDLING UNITS WITH SIZES, CAPACITIES AND CONFIGURATIONS AS SCHEDULED. 2. 2" FOAM INJECTED R-13 INSULATION. 3. AIR LEAKAGE LESS THAN 1% AND L240 DEFLECTION AT +/- 8" W.G. PRESSURE. 4. COOLING COILS WITH STAINLESS STEEL, DRAIN PAN, COIL HEADERS AND CASING. 5. PROVIDE SERVICE PANELS FOR COIL ACCESS, REMOVAL AND MAINTENANCE. 6. ACCESS DOORS SHALL BE AS SHOWN ON MECHANICAL DRAWINGS. 7. UNIT TO BE COMPLETE THERMAL BREAK CONSTRUCTION INCLUDING ALL ACCESS DOORS. 8. UNIT MOUNTED RUSKIN AMCA CERTIFIED LOW LEAK DAMPERS. 9. VFD'S ARE WALL MOUNTED. PROVIDE FACTORY MOTORS WITH SHAFT GROUNDING RING WIRED TO A JUNCTION BOX WITH TERMINALS FOR CONNECTION TO VFD. AT CONTRACTOR'S OPTION, PROVIDE FACTORY MOUNTED SUPPLY FAN VFD WITH SHAFT GROUNDING RING AND FACTORY INVERTER BALANCE TESTING. 10. SOUND DATA SHALL NOT EXCEED SPECIFIED VALUES AND SHALL BE ARR20B CERTIFIED FOR THE COMPLETELY ASSEMBLED UNIT. AMCA BARE FAN SOUND DATA NOT ACCEPTABLE. 11. UNIT SHALL BE SHIPPED IN SECTIONS TO FIT THROUGH A FLOOR SLAB OPENING 7'-4" WIDE x 16'-0" LONG. 12. PROVIDE MARINE GRADE LIGHT FIXTURES AND LIGHT SWITCHES AT ALL ACCESS SECTIONS AND ONE RECEPTACLE ON EXTERIOR ACCESS SIDE. SEE ELECTRICAL DRAWINGS FOR 120V POWER. HEAT RECOVERY COIL SHALL BE 8-ROW, 54"HIGH BY 130" LONG, 16,000 CFM, 110-GPM.																																							

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

Webster
UNIVERSITY

Webster University
Interdisciplinary Science
Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc
MEP/FP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd, Suite 100
St. Louis, MO 63143
314.991.2228

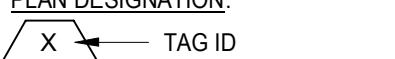
Kuhlmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave
St. Louis, MO 63130
314.725.6616

KWA Architects
Architecture
9721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	ARRANGEMENT	SERVICE	AIRFLOW	AMBIENT TEMP (°F)	SEER	NET CAPACITY (MBH)	NOMINAL CAPACITY (TONS)	REFRIGERANT TYPE	RS/RL SIZES (IN.)	NOTES
FCU	1	TRANE 4MYWV5624A1/ 4TYK6524A1	WALL MOUNTED	DATA CLOSET	590	95	16	24	2-TON	R410A	1/2" / 1/4"	1, 2
FCU	2	TRANE 4MYWV5624A1/ 4TYK6524A1	WALL MOUNTED	DATA CLOSET	590	95	16	24	2-TON	R410A	1/2" / 1/4"	1, 2
FCU	3	TRANE 4MYWV5624A1/ 4TYK6524A1	WALL MOUNTED	DATA CLOSET	590	95	16	24	2-TON	R410A	1/2" / 1/4"	1, 2, 3
FCU	4	TRANE 4MYWV5624A1/ 4TYK6524A1	WALL MOUNTED	DATA CLOSET	590	95	16	24	2-TON	R410A	1/2" / 1/4"	1, 2, 3
FCU	5A	TRANE 4MYWV5624A1/ 4TXM6542A1	WALL MOUNTED	MDF/IT WORK ROOM	590	95	16	24	2-TON	R410A	3/8" / 5/8"	1, 2, 4
FCU	5B	TRANE 4MYWV5624A1/ 4TXM6542A1	WALL MOUNTED	MDF/IT WORK ROOM	590	95	16	24	2-TON	R410A	3/8" / 5/8"	1, 2, 4
FCU	5C	TRANE 4MYWV5624A1/ 4TXM6542A1	WALL MOUNTED	MDF/IT WORK ROOM	590	95	16	24	2-TON	R410A	3/8" / 5/8"	1, 2, 4
PLAN DESIGNATION:  X → TAG ID 1 → TAG NUMBER NOTES: - PROVIDE WALL MOUNTING KIT AND SPACE TEMPERATURE CONTROLS FOR FAN COIL UNIT. - PROVIDE REFRIGERANT PIPING AS REQUIRED BY MANUFACTURE. VERIFY SIZE AND EXACT LENGTH OF PIPING. - PROVIDE ROOF CURB RAIL SUPPORTS FOR CONDENSING UNITS ON ROOF. PROVIDE LOW AMBIENT CONTROL DOWN TO 0°F. - SINGLE CONDENSING UNIT WITH MULTIPLE ZONES COOLING FAN COIL UNITS. 												

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	SERVICE	LOCATION	AIRFLOW CFM	WHEEL		STATIC PRESSURE ("WC)	BHP	DRIVE	ACCESSORIES	NOTES
						TYPE	DIAMETER					
VF	1	GREENHECK SQ-140-A	MECH RM VENTILATION	LEVEL 0	2,000	INLINE	14"	1.5 in-wg	0.99	DIRECT	DS	
VF	2	GREENHECK SP-A700	ELEV. CONTROL RM VENTILATION	LEVEL 01	400	CEILING	7"	0.8 in-wg	0.18	DIRECT	BD,DS,GRILLE	
VF	3	GREENHECK SP-A700	AV EQUIP 100D VENTILATION	LEVEL 01	400	CEILING	7"	0.8 in-wg	0.18	DIRECT	BD,DS,GRILLE	
VF	4	GREENHECK SQ-160-VG	MECH RM VENTILATION	LEVEL 01	3,500	INLINE	16"	0.5 in-wg	0.87	DIRECT	DS	3
EF	1	GREENHECK CUE 101HP	TOILET EXHAUST	ROOF	3,000	BI	18"	2.4 in-wg	1.8	BELT	BD,DS,BP,PC	
EF	2	GREENHECK LBP-24	BLDG. RELIEF	ROOF	31,000	BI	54"	0.5 in-wg	6.72	BELT	BD,DS,BP,PC	
EF	3	GREENHECK CUE 240XP	LAB EXHAUST	ROOF	2,270	BI	24"	3.0 in-wg	2.1	BELT	BD,DS,BP,PC	
EF	4	GREENHECK CUE 141HP-VG	VENTED CABINET EXH.	ROOF	700	BI	14"	1.5 in-wg	0.34	DIRECT	BD,DS,BP,PC	
HEF	1	STROBIC M48 1x3	LAB EXHAUST	ROOF	28,000	MIXED FLOW	48"	5.0 in-wg	22	DIRECT	SEE NOTES	1
HEF	1	GREENHECK CUE 141HP-VG	KITCHEN HOOD	ROOF	1,200	BI	14"	1.5 in-wg	0.60	DIRECT	DS,SD,PC	2
X TAG ID 1 TAG NUMBER PLAN DESIGNATION: HEF - HOOD EXHAUST FAN EF - EXHAUST FAN KEF - KITCHEN EXHAUST FAN VF - VENTILATION FAN COATING - SEE SPECS ACCESSORIES BD - BACK DRAFT DAMPER BG - BELT GUARD PC - PULVERIZER DS - DISCONNECT SWITCH PC - PREFABRICATED CURB FG - FAN GUARD SD - SCROLL DRAIN WPH - WEATHERPROOF HOUSING TYPE FC - FORWARD CURVE BI - BACK INCLINE AF - AIR FLOW PR - PROPELLER NOTES 1. FAN SYSTEM INCLUDES (3) THREE MIXED FLOW LAB FANS ON A COMMON PLENUM WITH BYPASS DAMPERS AND RAIN HOOD. PROVIDE (2) TWO 48" HIGH BY 84" LONG HEAT RECOVERY COLS. SUMMER ENTERING AIR 75°F DB/63°F WB. WINTER ENTERING AIR 32°F DB/28°F WB. 15,000 CFM. 6-ROW. FANS SHALL INCLUDE 1/2" SOUND ATTENUATION. SOUND DATA SHALL NOT EXCEED SPECIFIED VALUES AND SHALL BE AHJ260 CERTIFIED FOR THE COMPLETELY ASSEMBLED UNIT. AMCA BARE FAN SOUND DATA NOT ACCEPTABLE. 2. KITCHEN EXHAUST FAN SHALL INCLUDE VENTED ROOF CURB AND GREASE DRAINTRAP. 3. PROVIDE CONTROLLER FOR EC MOTOR TO VARY AIRFLOW BASED ON 4-20 mA SIGNAL FROM THE BAS. COORDINATE WITH BAS CONTRACTOR AND PROVIDE CONNECTIONS FROM CONTROLLER TO MOTOR AND BAS.												

[illegible]

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	SERVICE	LOCATION	PUMP TYPE	SIZE	PUMP INLET	PUMP DISCHARGE	GPM	HEAD FT.	NPSH FT.	RPM	MIN EFF.	NOTES
CP	1	BELL & GOSSETT e-80SC	CHILLED WATER	LEVEL 0 MECH RM	IN-LINE	6x6x1B	6"	6"	520	75	6.9	1750	72%	1, 2
CP	2	BELL & GOSSETT e-80SC	CHILLED WATER	LEVEL 0 MECH RM	IN-LINE	6x6x1B	6"	6"	520	75	6.9	1750	72%	1, 2
CP	3	BELL & GOSSETT e-80	CHILLED WATER	LEVEL 01	IN-LINE	1.5 AB	1.5"	1.5"	40	35	3.1	1725	63%	2
CP	4A	BELL & GOSSETT PL-36	CHILLED WATER	LEVEL 04	IN-LINE	PL-36	1.5"	1.5"	13.1	25	-	3300	-	4
CP	4B	BELL & GOSSETT PL-36	CHILLED WATER	LEVEL 04	IN-LINE	PL-36	1.5"	1.5"	13.1	25	-	3300	-	4
FZP	1	BELL & GOSSETT SERIES 60	FREEZE PROTECTION	LEVEL 0 MECH RM	IN-LINE	2x2x.25	2	2	50	20	5.2	1750	60%	
FZP	2	BELL & GOSSETT SERIES 60	FREEZE PROTECTION	LEVEL 0 MECH RM	IN-LINE	2x2x.25	2	2	50	20	5.2	1750	60%	
FZP	3	BELL & GOSSETT PL-36	FREEZE PROTECTION	LEVEL 0 MECH RM	IN-LINE	PL-36	1.25"	1.25"	10	20	-	3300	-	
FZP	4	BELL & GOSSETT PL-36	FREEZE PROTECTION	LEVEL 0 MECH RM	IN-LINE	PL-36	1.25"	1.25"	10	20	-	3300	-	
HP	1	BELL & GOSSETT e-80SC	HEATING WATER	LEVEL 0 MECH RM	IN-LINE	4x4x1B	4"	4"	350	65	4.0	1750	71%	1, 2
HP	2	BELL & GOSSETT e-80SC	HEATING WATER	LEVEL 0 MECH RM	IN-LINE	4x4x1B	4"	4"	350	65	4.0	1750	71%	1, 2
HRP	1	BELL & GOSSETT e-80SC	HEAT RECOVERY	LEVEL 0 MECH RM	IN-LINE	3x3x7C	3"	3"	220	95	10.2	3550	62%	1, 2, 3
HRP	2	BELL & GOSSETT e-80SC	HEAT RECOVERY	LEVEL 0 MECH RM	IN-LINE	3x3x7C	3"	3"	220	95	10.2	3550	62%	1, 2, 3
PCP	1A	BELL & GOSSETT PL-55	PROCESS CHILLED WATER	LEVEL 04	IN-LINE	PL-55	1.5"	1.5"	25	30	-	3250	-	4
PCP	1B	BELL & GOSSETT PL-55	PROCESS CHILLED WATER	LEVEL 04	IN-LINE	PL-55	1.5"	1.5"	25	30	-	3250	-	4

PLAN DESIGNATION:

X TAG ID
1 TAG NUMBER

TAG ID:

CH - CHILLED WATER PUMP
HP - HEATING WATER PUMP
HR - HEAT RECOVERY LOOP PUMP
FZP - FREEZE PUMP

NOTES:

1. BASE BID SHALL INCLUDE WALL MOUNTED VFD. SEE SPECIFICATIONS. AT CONTRACTOR'S OPTION, PROVIDE PUMP WITH INTEGRATED MOTOR/VFD AND CONTROLS.
2. PROVIDE BASE FLANGED SUPPORT FOR FLOOR MOUNTING.
3. HEAT RECOVERY SYSTEM INCLUDE 30% PROPYLENE GLYCOL.
4. PUMPS ARE CONNECTED IN SERIES.

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	NOMINAL CAPACITY (TONS)	NET CAPACITY (MBH)	REFRIGERANT TYPE	EER	AMBIENT TEMP (°F)	SUCTION TEMP (°F)	RS/RL SIZES (IN.)	NOTES
CU	1	TRANE TTAJ4	25	292	R-410A	11.7	95	40	5/8" / 2-1/8"	1, 2
CU	2	TRANE TTAJ4	25	292	R-410A	11.7	95	40	5/8" / 2-1/8"	1, 2

PLAN DESIGNATION:



X → TAG ID

1 → TAG NUMBER

NOTES:

1. VERIFY REFRIGERANT PIPING SIZES AND ARRANGEMENTS WITH MANUFACTURER.
2. MOUNT UNITS ON CONCRETE PAD WITH ANTI-VIBRATION PADS.

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	SERVICE	TYPE	PROCESS COOLING WATER				CHILLED WATER				FOULING FACTOR	HEATING SURFACE SQ. FT.	NOTES
					GPM	EW ¹ °F	LWT °F	PD	GPM	EW ¹ °F	LWT °F	PD			
PHX		BELL & GOSSETT - BP405-50	PROCESS CHILLED WATER	BRAZED PLATE	21	70	60	8.90 PSI	13	44	60	3.74 PSI	0.0000	13.87	1, 2
PLAN DESIGNATION:		1 2 3 4 5 6													
		1 2 3 4 5 6													

TAG ID	TAG NUMBER	MANUFACTURER & MODEL NO.	FIRING RATE (CFH)	OUTPUT CAPACITY (MBH)	BURNER TYPE	TYPE	TURNDOWN	LOCATION	NOTES
B	1	LOCKINVAR CREST FBN2500	2,500	2,300	FIRE-TUBE	CONDENSING	20:1	MECH. RM. 178	1, 2, 3
B	2	LOCKINVAR CREST FBN2500	2,500	2,300	FIRE-TUBE	CONDENSING	20:1	MECH. RM. 178	1, 2, 3

PLAN DESIGNATION:

NOTES:

- DISCONNECT BY E.C.
- PROVIDE WITH CONDENSATE NEUTRALIZER.
- PROVIDE ASTM CSD-1 CONTROLS AND SAFETY DEVICES INCLUDING SAFETY SHUT-OFF SWITCHES AT EXIT DOORS.
- PROVIDE WITH FLUE DAMPER KIT #100141562.

TAG ID	MANUFACTURER & MODEL	TYPE	NECK SIZE	ACCESSORIES	FINISH	MATERIAL	MAX SP DROP	MAX NC	MAX FLOW	NOTES
A	PRICE 81	EGGORATE	22x10	-	BWE	AL	0.10	20	1,100	1
B	PRICE 81	EGGORATE	22x22	-	BWE	AL	0.10	20	2,400	1
C	PRICE 530D	3/4" 45 DEG. BLADES	SEE PLAN	VC	BWE	ST	0.10	20	-	
D	PRICE 630D	3/4" 45 DEG. BLADES	SEE PLAN	VC	BWE	AL	0.10	20	-	
E	PRICE 530D	3/4" 45 DEG. BLADES	SEE PLAN	VC	BWE	ST	0.10	20	-	SIDEWALL
F	PRICE 530D	3/4" 45 DEG. BLADES	SEE PLAN	VC	BWE	AL	0.10	20	-	SIDEWALL
H1	GREENHECK FGR	ROOF EXHAUST HOOD	24x24	BD,RFC	STD	AL	0.15	-	1200	ROOF HOOD
H2	GREENHECK FGR	RAIN EXHAUST HOOD	30x30	RFC	STD	AL	0.15	-	2000	RAIN HOOD
PLAN DESIGNATION		ACCESSORIES	FINISH	MATERIAL	NOTES					
△ CFM		RC - REMOVABLE CORE	BWE - BAKED WHITE ENAMEL	ST - STEEL	1. PROVIDE LINED SOUND BOOT FOR RETURN AIR DEVICES. SEE DETAIL.					
NECK SIZE (IF REQ'D)		VC - VOLUME CONTROL	STD - STANDARD	AL - ALUMINUM	2. 0" DEFLECTION BLADES.					
		PC - PATTEREN CONTROL	ENL - BAKED ENAMEL, COLOR SELECTED BY ARCHITECT	SS - STAINLESS STEEL	3. 45° DEFLECTION BLADES.					
		AP - AIR PLAIN (LINED)	P - PLASTIC	FR - FRAMING	4. PROVIDE ALUMINUM DAMPER.					
		EQ - EQUALIZING GRID	PGE - PRIME GRAY	SP - SPECIAL	5. PROVIDE HEAVY DUTY FLOOR MOUNTING FRAME.					
		RFC - ROOF CURB			6. PROVIDE FRAME AND BORDER WITH CONCEALED FASTENING.					
		BD - BACKDRAFT DAMPER			7. PROVIDE CONCEALED BORDER.					
					8. PROVIDE WITH FACE OPERATED VOLUME DAMPER.					

© Cannon Design 2015
All rights reserved. No part of this document may be reproduced or utilized in any form, without prior written authorization by The Cannon Corporation.

4	ASI-034	04 NOV 2016
3	ADDENDUM 2-4	24 MAY 2016
2	ADDENDUM 2-2	19 APRIL 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016
No.	Description	Date

Drawing Title:

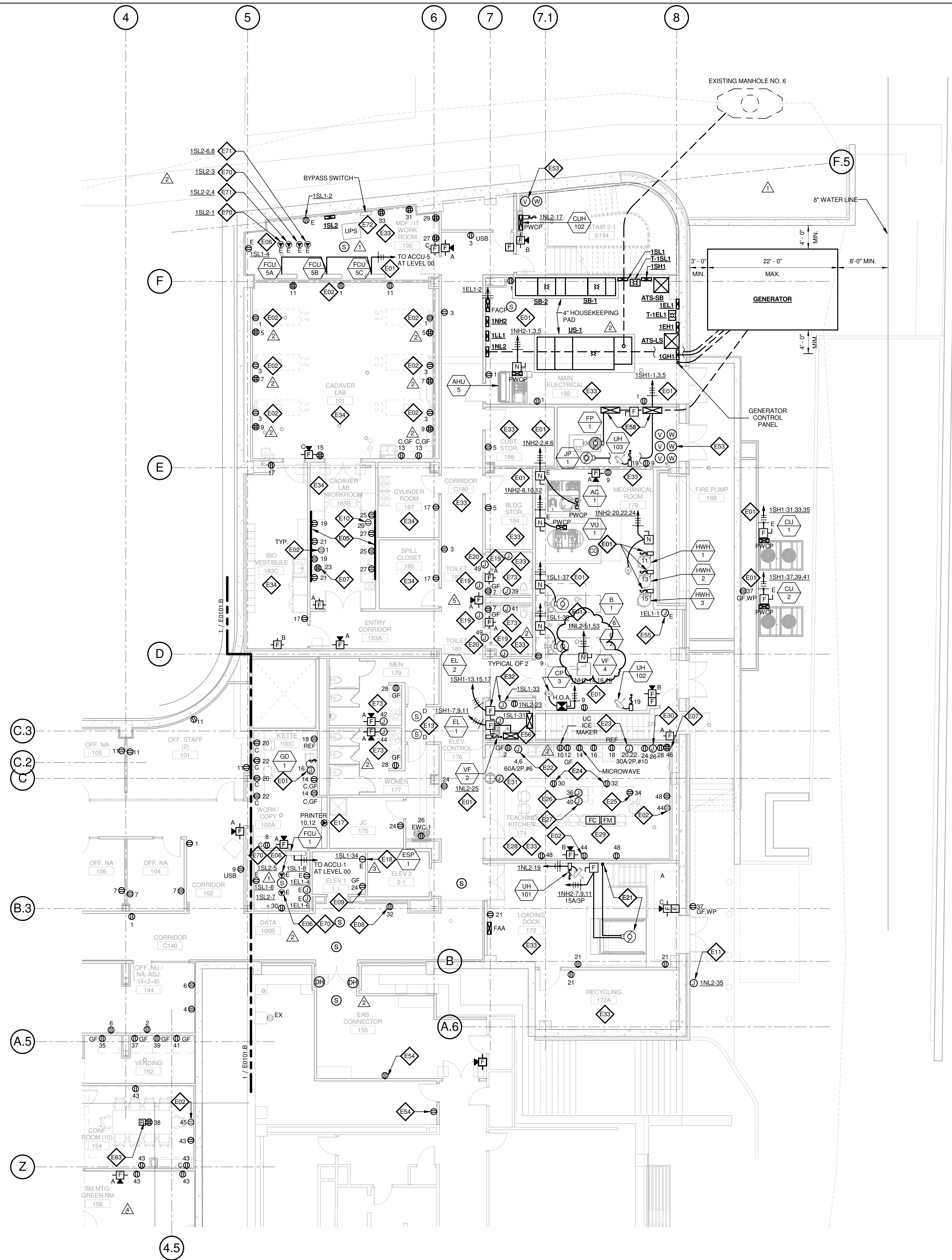
SCHEDULES - MECHANICAL

Project No.: 04561.01

Checked by:

M0601

© Cannon Design 2015



1 LEVEL 01 - AREA A - FLOOR PLAN - POWER AND AUXILIARY
1/8" = 1'-0"

GENERAL NOTES:

- DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR LOCATION AND ORIENTATION OF DEVICES. WHERE LOCATIONS ARE NOT INDICATED ON ARCHITECTURAL DRAWINGS, COORDINATE LOCATION AND ORIENTATION OF DEVICES IN FIELD WITH ARCHITECT PRIOR TO ROUGH-IN.
- ALL DEVICES SHOWN ARE NEW UNLESS NOTED OTHERWISE.
- ALL DEVICES TO REMAIN ARE INDICATED WITH A THIN SOLID LINE WEIGHT AND SUBSCRIPT "EX".
- CONTRACTOR SHALL VISIT PRIOR TO BID SUBMITTALS TO DETERMINE SITE CONDITIONS EFFECTING THE EXECUTION OF WORK. FAILURE TO BE ACQUAINTED WITH EXISTING CONDITIONS WILL NOT JUSTIFICATION FOR ADDITIONAL SERVICES.
- PROVIDE FACE PLATES ON ALL J-BOXES ABANDONED IN FINISHED FLOOR, WALL OR CEILINGS. COORDINATE COLOR AND FINISH WITH ARCHITECT. CONTRACTOR TO VERIFY QUANTITY IN THE FIELD.
- WHERE EXPOSED CONDUIT IS NOTED, CONTRACTOR SHALL IDENTIFY ROUTING IN FIELD AND OBTAIN ARCHITECT'S APPROVAL OF ROUTING PRIOR TO ROUGH-IN. EXPOSED CONDUIT SHALL BE ROUTED TIGHT TO STRUCTURE.
- ALL SINGLE PHASE BRANCH CIRCUITS SHOWN SHALL HAVE DEDICATED NEUTRALS. TO MEET NEC SECTION 210.4 MULTI-WIRE BRANCH CIRCUIT REQUIREMENTS.
- REFER TO TECHNOLOGY DRAWINGS FOR CONDUIT ROUGH-IN OF DATA, VOICE AND A/V.
- ALL 120V BRANCH CIRCUITS ON THIS SHEET SHALL BE FED FROM PANEL 1NL1 UNLESS NOTED OTHERWISE.

KEYED NOTES

- E01 REFER TO EQUIPMENT DATA SCHEDULE FOR BRANCH CIRCUIT INFORMATION.
- E02 PROVIDE NEW RECEPTACLE FOR MONITOR. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND TECHNOLOGY PLANS.
- E05 PROVIDE NEW TWO SECTION ALUMINUM RACEWAY, WIREMOLD AL4320 WITH RECEPTACLES MOUNTED 24" ON CENTER UNLESS NOTED OR SHOWN OTHERWISE. PROVIDE ALL ACCESSORIES FOR A COMPLETE INSTALLATION. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT AND LENGTH. SEE DETAILS ON SHEET E402.
- E06 OUTLET SHALL BE MOUNTED TO THE BACK SIDE OF THE TELECOMMUNICATION RACK AND FED FROM ABOVE. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH TELECOMMUNICATIONS CONTRACTOR PRIOR TO INSTALLATION.
- E07 OUTLET FOR RACK MOUNTED A/V EQUIPMENT. COORDINATE MOUNTING HEIGHT AND EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS AND A/V DRAWINGS.
- E08 OUTLET FOR DIGITAL SIGNAGE. COORDINATE MOUNTING HEIGHT AND EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS AND A/V DRAWINGS.
- E09 MOUNT RECEPTACLE IN ELEVATOR PIT. COORDINATE EXACT LOCATION WITH ELEVATOR CONTRACTOR.
- E10 UNDERCOUNTER REFRIGERATOR. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL PLANS AND ELEVATIONS.
- E11 PROVIDE POWER AND FINAL CONNECTION TO WALL MOUNTED BLUE LIGHT EMERGENCY INTERCOM STATION.
- E13 PROVIDE A DUCT MOUNTED SMOKE DETECTOR(S) AT RETURN AIR GRILLE OF AHU-1 & AHU-2. BOTH AIR HANDLING UNITS SHALL SHUT DOWN UPON ACTIVATION OF THE DUCT MOUNTED SMOKE DETECTOR(S). PROVIDE REMOTE INDICATOR LIGHT(S) IN CEILING BELOW.
- E17 PROVIDE NEMA 6-30R, 30A-208V RECEPTACLE FOR PRINTER. CONTRACTOR SHALL VERIFY PRINTER PLUG TYPE WITH OWNERS REPRESENTATIVE PRIOR TO ROUGH-IN.
- E18 PROVIDE POWER AND FINAL CONNECTION TO ELEVATOR SUMP PUMP. COORDINATE EXACT LOCATION WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
- E19 PROVIDE POWER AND FINAL CONNECTION TO ELECTRIC DOOR OPENER. COORDINATE POWER REQUIREMENTS WITH DOOR INSTALLER PRIOR TO ROUGH-IN.
- E20 PROVIDE POWER AND FINAL CONNECTION TO ELECTRIC DOOR OPENER CONTROLS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.
- E21 PROVIDE POWER AND FINAL CONNECTION TO DOCK LEVELER AND CONTROLS PER MANUFACTURERS WRITTEN INSTRUCTIONS. COORDINATE CONTROL AND DISCONNECT LOCATION WITH DOCK LEVELER INSTALLER PRIOR TO INSTALLATION.
- E22 PROVIDE POWER AND FINAL CONNECTION TO DISH WASHER. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.
- E23 PROVIDE POWER AND FINAL CONNECTION TO DOUBLE OVEN. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.
- E24 RECEPTACLE MOUNTED IN COUNTER APRON. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR EXACT LOCATION.
- E25 RECEPTACLE MOUNTED INSIDE CABINET FOR COMPUTER. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR EXACT LOCATION.
- E26 PROVIDE POWER AND FINAL CONNECTION TO DROP IN COOK TOP. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.
- E27 PROVIDE POWER AND FINAL CONNECTION TO ISLAND HOOD. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.
- E28 REFER TO KITCHEN EQUIPMENT DRAWINGS FOR MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES IN THIS ROOM AND FOR POWER REQUIREMENTS PRIOR TO ROUGH-IN.
- E29 PROVIDE FIRE ALARM MONITOR MODULE AND CONTROL MODULE CONNECTED TO FIRE ALARM SYSTEM AT HOOD. PROVIDE WIRING BETWEEN HOOD AND FIRE SUPPRESSION SYSTEM. REFER TO KITCHEN HOOD EXTINGUISHING SYSTEM WIRING DIAGRAM, ON SHEET E402.
- E30 PROVIDE POWER FOR HOOD FIRE PROTECTION SYSTEM. INTERCONNECT EXHAUST FANS AND MAKE-UP AIR FANS TO MICRO SWITCH IN FIRE PROTECTION CABINET. REFER TO KITCHEN HOOD EXTINGUISHING SYSTEM WIRING DIAGRAM.
- E31 PROVIDE J-BOX AND CONDUIT IN WALL FOR REMOTE MANUAL PULL STATION. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.
- E32 PROVIDE POWER MODULE SWITCH FOR ELEVATOR AND A JUNCTION BOX WITH A 120V/20A CIRCUIT FOR CONNECTION OF ELEVATOR CONTROLS. PROVIDE ALL FINAL CONNECTIONS TO ELEVATOR CONTROLLER AND ELEVATOR CAB PER MANUFACTURERS WRITTEN INSTRUCTIONS. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- E33 ALL 120V BRANCH CIRCUITS IN THIS ROOM SHALL BE FED FROM PANEL 1NL2.
- E34 ALL 120V BRANCH CIRCUITS IN THIS ROOM SHALL BE FED FROM PANEL 1LL1.
- E53 COORDINATE QUANTITY AND LOCATION OF TAMPER AND FLOW SWITCHES WITH FIRE PROTECTION CONTRACTOR.
- E54 EXTEND CIRCUIT FROM EXISTING RECEPTACLES SERVING THIS AREA.
- E55 PROVIDE POWER TO BUILDING AUTOMATION SYSTEM PANEL. COORDINATE LOCATION WITH AUTOMATION CONTRACTOR.
- E56 SEE ELEVATOR DETAIL ON SHEET E402 FOR ADDITIONAL POWER & FIRE ALARM REQUIREMENTS.
- E58 FIRE PUMP CONTROLLER AND JOCKEY PUMP CONTROLLER SEE ONE LINE DIAGRAM FOR FEEDER INFORMATION.
- E63 PROVIDE A 2HR FIRE CLASSIFIED 4-GANG MULTI-SERVICE STEEL RECESSED FLOOR BOX EQUAL TO WIREMOLD CAT. NO. RFB4S-FC WITH A BRASS FLANGED COVER CAT. NO. FPB4S-NA. THE FLOOR BOX SHALL HAVE ALL NECESSARY MOUNTING BRACKETS FOR (2) 20A DUPLEX RECEPTACLE, (1) GANG - DATA/VOICE (SEE TECHNOLOGY DRAWINGS FOR DEVICE TYPE), (1) GANG - A/V (SEE A/V DRAWINGS FOR DEVICE TYPES). THE BOX SHALL BE INSTALLED PER MANUFACTURERS WRITTEN INSTRUCTIONS SO THAT THE COVER IS FLUSH WITH THE FLOOR.
- E70 PROVIDE NEMA L5-20R, 20A-120V TWIST LOCK RECEPTACLE FOR RACK MOUNTED PDU. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.
- E71 PROVIDE NEMA L6-20R, 30A-208V TWIST LOCK RECEPTACLE FOR RACK MOUNTED PDU. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.
- E72 UPS AND EXTERNAL BYPASS SWITCH FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR. REFER TO TECHNOLOGY DRAWINGS AND ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- E73 PROVIDE POWER AND FINAL CONNECTIONS FOR ELECTRIC HAND DRYER.

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.



Webster University
Interdisciplinary Science Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
MEP/FP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd., Suite 100
St. Louis, MO 63143
314.591.2229

Kuhmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

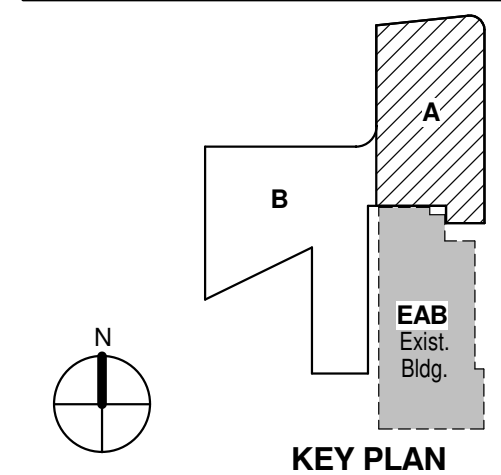
KWA Architects
Architecture
3721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd.
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.558.0600

6	ASHI-034	04 NOV 2016
5	ASHI-031	26 OCT 2016
4	RFI-329	20 OCT 2016
3	ASHI-010	21 JULY 2016
2	ADDENDUM 2-2	19 APRIL 2016
1	ADDENDUM 2-1	17 MAR 2016
-	ISSUED FOR CONSTRUCTION (BP2)	01 MAR 2016
No.	Description	Date



Drawing Title:

LEVEL 01 AREA A FLOOR PLAN - ELECTRICAL & AUXILIARY

Project No.: 04561.01 Checked by:

E0101.A

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.



Webster University
Interdisciplinary Science
Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
MERFP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd., Suite 100
St. Louis, MO 63143
314.591.2229

Kuhnmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

KWA Architects
Architecture
3721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd.
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

Panel: 1NL2

Location: MAIN ELECTRICAL 192
Supply From: SB-1
Mounting: S
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Main Type: MLO
Mains Rating: 225 A
MCB Rating:

			A		B		C				
CKT	Circuit Description	Trip	Poles					Poles	Trip	Circuit Description	CKT
1	Main Electrical 192 - Receptacles	20 A	1	720	180			1	20 A	Teaching Kitchen 174 - Counter	2
3	Corridor C180 - Receptacles	20 A	1			540	4118				4
5	Bldg. Stor. 184, Cust. Stor 186 - Receptacles	20 A	1					360	4118	1	60 A Teaching Kitchen 174 - Dish Washer
7	Toilet 180, 182 - Receptacles	20 A	1	360	0					1	20 A Spare
9	Mechanical Room 178 - Receptacles	20 A	1			720	1800			1	20 A Teaching Kitchen 174 - Ice Machine
11	Mechanical Room 178 - HHW-1	20 A	1					720	180	1	20 A Teaching Kitchen 174 - Counter
13	Mechanical Room 178 - HHW-2	20 A	1	720	1500					1	20 A Teaching Kitchen 174 - Microwave
15	Mechanical Room 178 - HHW-3	20 A	1			720	180			1	20 A Teaching Kitchen 174 - Counter
17	Stair 2-1 - CUH-102	15 A	1							1	20 A Teaching Kitchen 174 - Refrigerator
19	Dock 172 - UH-101, Mech Rm 178 UH-102	15 A	1	48	2700						20
21	Loading Dock 172, Recycling 172A ...	20 A	1			720	2700			2	30 A Teaching Kitchen 174 - Double Oven
23	Elevator Control Room - Receptacle	20 A	1					180	180	1	20 A Teaching Kitchen 174 - Counter
25	Elevator Control Room - VF-2	15 A	1	350	180					1	20 A Teaching Kitchen 174 - Ansatl System
27	MDF Room - Receptacles	20 A	1			360	180			1	20 A Teaching Kitchen 174 - Counter
29	MDF Room - Receptacles	20 A	1					360	180	1	20 A Teaching Kitchen 174 - Island Apron
31	MDF Room - Receptacles	20 A	1	360	180					1	20 A Teaching Kitchen 174 - Island Apron
33	MDF Room - Receptacles	20 A	1			360	180			1	20 A Teaching Kitchen 174 - Island Computer
35	BLUE LIGHT EMERGENCY STATION	20 A	1					180	600	1	20 A Teaching Kitchen 174 - Drop in Hood
37	Exterior - East Wall	20 A	1	360	0					--	-- Shunt Trip
39	Toilet 182 - Electric Hand Dryer	20 A	1			1490	1800			1	20 A Teaching Kitchen 174 - Island Hood
41	Toilet 180 - Electric Hand Dryer	20 A	1					1490	0	--	-- Shunt Trip
43	Spare	20 A	1	0	360					1	20 A Teaching Kitchen 174 - Projector/Monitor
45	Spare	20 A	1			0	360			1	20 A Teaching Kitchen 174 - A/V Rack
47	Spare	20 A	1							1	20 A Teaching Kitchen 174 - Wall Receptacles
49	Power TOILET 182	20 A	1	1080	0			0	540	1	20 A Spare
51	MECHANICAL ROOM 178 - VF-4	30 A	2			1248	0			1	20 A Spare
53								1248	0	1	20 A Spare
Total Load				9098 VA	1746 VA			1376 VA			
Total Amps				76 A	149 A			98 A			

Notes:

Panel: 1NL1

Location: ELEC 110B
Supply From: SB-1
Mounting: S
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Main Type: MCB/SFL
Mains Rating: 225 A
MCB Rating:

				A	B	C				
CKT	Circuit Description	Trip	Poles				Poles	Trip	Circuit Description	CKT
1	Power Elec 11.0B.1	20 A	1	900 VA 360 VA				1	20 A Office NUNNA ADJ 144 - Receptacles	2
3	Power Mock Beds Stor. 7.10	20 A	1		540 VA 360 VA			1	20 A Office NUNNA ADJ 144 - Receptacles	4
5	Power Nursing 7.03.3	20 A	1			540 VA 360 VA		1	20 A Office NUNNA ADJ 144 - Receptacles	6
7	Power Anesthesia 6.08.3	20 A	1	540 VA 180 VA				1	20 A Work/Copy 100A - Counter	8
9	Power Corridor 102 USB	20 A	1		180 VA 180 VA			2	30 A Work/Copy 100A - Printer	10
11	Power Staff (2) 9.06.1	20 A	1			720 VA 180 VA		1	20 A K'tette 100C - Counter	12
13	Power Anesthesia 6.08.2	20 A	1	720 VA 360 VA				1	20 A K'tette 100C - GD-1	14
15	Power Nursing 7.03.2	20 A	1		720 VA 1656...			1	20 A K'tette 100C - Refrigerator	16
17	Power Nursing 7.03.4	20 A	1			720 VA 1000...		1	20 A K'tette 100C - Desk	18
19	Power Nursing 7.03.6	20 A	1	180 VA 360 VA				1	20 A K'tette 100C - Desk	20
21	Power Mock Beds 7.10	20 A	1		720 VA 360 VA			1	20 A K'tette 100C - Desk	22
23	Power Conf Rm 24 Seats 10.06 Monitor	20 A	1			360 VA 540 VA		1	20 A Elev 1 Pit, JC 175, Corridor C180	24
25	Power Conference Room 24 Seats 10.06	20 A	1	360 VA 370 VA				1	20 A EWC-1	26
27	Power Conference Room 24 Seats 10.06	20 A	1		540 VA 360 VA			1	20 A Women 177, Men 179	28
29	Power Conference Room 24 Seats 10.06	20 A	1			540 VA 180 VA		1	20 A Data - 100B	30
31	Power Conference Room 24 Seats 10.06	20 A	1	360 VA 180 VA				1	20 A Corridor C140 - Digital Signage	32
33	Power Commons-2 10.04-2	20 A	1		540 VA 0 VA			1	20 A Spare	34
35	Power Vending 11.28	20 A	1			180 VA 720 VA		1	20 A Power Rm. 114.116	36
37	Power Vending 11.28	20 A	1	180 VA 180 VA				1	20 A Power Rm. 154	38
39	Power Vending 11.28	20 A	1		180 VA 720 VA			1	20 A Power Conference Room 24 Seats - Shades	40
41	Power Vending 11.28	20 A	1			180 VA 1490...		1	20 A Men 179 - Electric Hand Dryer	42
43	Power Conf Rm 154	20 A	1	1260... 1490...				1	20 A Women 177 - Electric Hand Dryer	44
45	Power Conf Rm 154 Monitor	20 A	1		180 VA 540 VA			1	20 A Power Courtyard Bollard - Receptacles	46
47	Power Sin Mfg/ Green Rm 156 Monitor	20 A	1			180 VA 360 VA		1	20 A Power Courtyard Bollard - Receptacles	48
49	Vest, C153 - Elec Door Opener	20 A	1	360 VA 540 VA				1	20 A Power	50
51	Vest, C153 - CUH-101	15 A	1		40 VA 0 VA			1	20 A Spare	52
53	Fire Protection Room 137A - FPA-1	15 A	1			528 VA 0 VA		1	20 A Spare	54
55	Spare	20 A	1	0 VA 0 VA				1	20 A Spare	56
57	Spare	20 A	1		0 VA 0 VA			1	20 A Spare	58
59	Spare	20 A	1			0 VA 0 VA		1	20 A Spare	60
Total Load:				8880 VA	7816 VA	8778 VA				
Total Amps:				75 A	65 A	74 A				

Notes:

Panel: 1LL1

Location: MAIN ELECTRICAL 192
Supply From: SB-2
Mounting: S
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Main Type: MCB
Mains Rating: 225 A
MCB Rating:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	Cadaver Lab 191 - Projector / Motorized Screen	20 A	1	720	0			1	20 A Spare	2
3	Cadaver Lab 191 - Monitors	20 A	1		720	0		1	20 A Spare	4
5	Cadaver Lab 191 - Tables	20 A	1			720	0	1	20 A Spare	6
7	Cadaver Lab 191 - Tables	20 A	1	720	0			1	20 A Spare	8
9	Cadaver Lab 191 - Tables	20 A	1		720	0		1	20 A Spare	10
11	Cadaver Lab 191 - Teacher	20 A	1			540	0	1	20 A Spare	12
13	Cadaver Lab 191 - Counter	20 A	1	360	0			1	20 A Spare	14
15	Power CADAVER LAB 191	20 A	1		360	0		1	20 A Spare	16
17	185, 187, 193C - Receptacles	20 A	1			720	0	1	20 A Spare	18
19	Cadaver Lab Workroom 183B - Surface...	20 A	1	360	0			1	20 A Spare	20
21	Cadaver Lab Workroom 183B - Surface...	20 A	1		360	0		1	20 A Spare	22
23	Cadaver Lab Workroom 183B - A/V Cabinet	20 A	1			180	0	1	20 A Spare	24
25	Cadaver Lab Workroom 183B - Surface...	20 A	1	360	0			1	20 A Spare	26
27	Cadaver Lab Workroom 183B - Surface...	20 A	1		360	0		1	20 A Spare	28
29	Cadaver Lab Workroom 183B - UC Refrigerator	20 A	1			500	0	1	20 A Spare	30
31		20 A	1		0			1	20 A Spare	32
33		20 A	1		0			1	20 A Spare	34
35	Spare	20 A	1			0	0	1	20 A Spare	36
37	Spare	20 A	1	0	0			1	20 A Spare	38
39	Spare	20 A	1		0	0		1	20 A Spare	40
41	Spare	20 A	1			0	0	1	20 A Spare	42
Total Load:				2520 VA	2520 VA	2660 VA				
Total Amps:				21 A	21 A	22 A				

Notes:

Panel: 1NH2

Location: MAIN ELECTRICAL 192
Supply From: US-1
Mounting: S
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Main Type: MLO
Mains Rating: 225 A
MCB Rating:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				2900	9141								2
3	Main Electrical 192 - AHU-5	15 A	3			2900	9141			3	70 A	Mechanical Room 178 - AC-1	4
5								2900	9141				6
7				2105	4210								8
9	Loading Dock 172 - Dock Leveler	15 A	3			2105	4210			3	40 A	Mechanical Room 178 - VU-1	10
11								2105	4210				12
13	Space	--	--	0	942								14
15	Space	--	--			0	942			3	15 A	Mechanical Room 178 - CP-3	16
17	Space	--	--					0	942				18
19	Space	--	--	0	831								20
21	Space	--	--			0	831			3	15 A	Mechanical Room 178 - HWP-1	22
23	Space	--	--					0	831				24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
Total Load:				20129 VA		20129 VA		20129 VA					
Total Amps:				73 A		73 A		73 A					

Notes:

Panel: 1NL3

Location: CONTROL 160B
Supply From: SB-1
Mounting: S
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Main Type: MCB
Mains Rating: 225 A
MCB Rating:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Circuit Description	CKT			
1	Power Lecture Hall 10.09 - Shades	20 A	1	1080	360		1	Control 160B - A/V Cabinet	2			
3	Spare	20 A	1		0	360	1	Control 160B - A/V Cabinet	4			
5	Spare	20 A	1			0	360	1	Control 160B - A/V Cabinet	6		
7	Spare	20 A	1	0	360		1	Control 160B - A/V Cabinet	8			
9	Spare	20 A	1		0	360	1	Control 160B - A/V Cabinet	10			
11	Spare	20 A	1			0	360	1	Control 160B - A/V Cabinet	12		
13	Spare	20 A	1	0	180		1	Control 160B - Receptacle	14			
15	Spare	20 A	1		0	180	1	Control 160B - Receptacle	16			
17	Spare	20 A	1			0	180	1	Control 160B - Receptacle	18		
19	Spare	20 A	1	0	180		1	Lecture Hall 150 - Receptacle	20			
21	Spare	20 A	1		0	540	1	Lecture Hall 160 - Receptacle	22			
23	Spare	20 A	1			0	180	1	Lecture Hall 160 - Stage Floor Box	24		
25	Spare	20 A	1	0	180		1	Lecture Hall 160 - Stage Floor Box	26			
27	Spare	20 A	1		0	180	1	Lecture Hall Storage - Receptacle	28			
29	Spare	20 A	1			0	0	1	Spare	30		
31	Spare	20 A	1	0	0		1	20 A	Spare	32		
33	Spare	20 A	1		0	0	1	20 A	Spare	34		
35	Spare	20 A	1			0	0	1	20 A	Spare	36	
37	Spare	20 A	1	0	180		1	20 A	Lecture Hall 160 - Subwoofer	38		
39	Spare	20 A	1		0	350		1	15 A	Lecture Hall 160 - VF-3	40	
41	Spare	20 A	1				0	0	1	20 A	Spare	42
Total Load:				2520 VA	1970 VA	1080 VA						
Total Amps:				22 A	18 A	9 A						