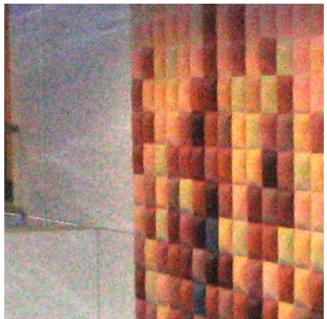


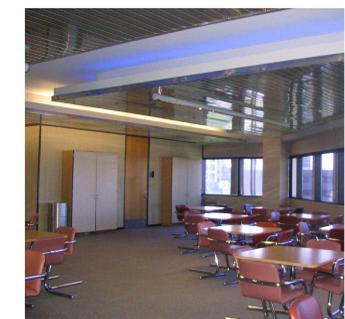
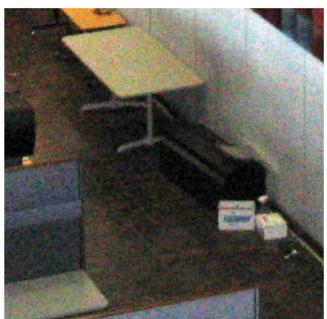
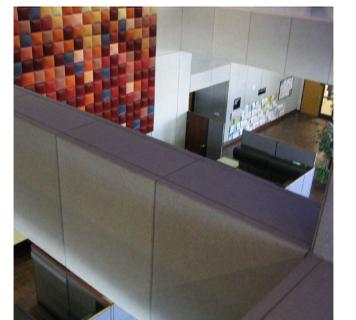
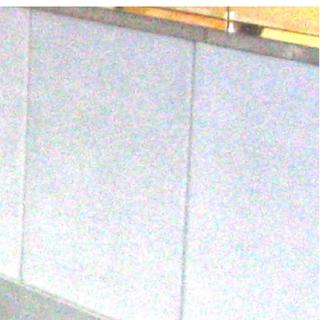
# HEBER M. WELLS BUILDING - COOLING REPLACEMENT



DFCM PROJECT # 06187310  
HEBER WELLS COMMERCE SPACE ENCLOSURE

Construction Documents

12/20/2006



# COOLING REPLACEMENT DFCM Project # 06187310 HEBER M. WELLS BUILDING

160 East 300 South  
Salt Lake City, Utah 84114

BID SET

## ABBREVIATIONS

A.F.F. ABOVE FINISH FLOOR	F.A. FIRE ALARM	R.O. ROUGH OPENING
A.S. AIR SPACE	FIN. FINISHED	RM. ROOM
ASPH. ASPHALT	F.H. FIRE HYDRANT	REINF. REINFORCED
& AND	F.V. FIELD VERIFY	REC. RECESSED
@ ALUM. ALUMINUM	G.W.B. GYPSUM WALLBOARD	R.W. RETAINING WALL
ARCH. ARCHITECTURAL	GYP. GYPSUM	S. SCUPPER
BLDG. BUILDING	GA. GAUGE	S.B.U. STRUCTURAL BRICK UNIT
BTM. BOTTOM	GALV. GALVANIZED	SF. SQUARE FOOT
BD. BOARD	G.I. GALVANIZED IRON	STOR. STORAGE
B.O.G. CORNER GUARD	H.M. HOLLOW METAL	SIM. SIMILAR
CT.J. CONTRACTION JOINT	H.C. HANDICAP	SUSP. SUSPENDED
CL. CENTER LINE	H.P. HIGH POINT	SYS. SYSTEM
CONC. CONCRETE	HT. HEIGHT	SPECS. SPECIFICATIONS
C.M.U. CONCRETE MASONRY UNIT	HORIZ. HORIZONTAL	STRG. STORAGE
CO. COMPANY	H.W. HARDWOOD	STRUCT. STRUCTURAL
CORR. CORRIDOR	INSUL. INSULATION	ST. STEEL
COL. COLUMN	I.D. INSIDE DIAMETER	SCH. SCHEDULE
COMP. COMPUTER	K.O. KNOCK OUT	S.S. STAINLESS STEEL
CONT. CONTINUOUS	KW. KILOWATTS	S.W. SOFT WOOD
C.O.C. CEILING	LBS. POUNDS	SERV. SERVICE
C.S. CLOSURE STRIP	MECH. MECHANICAL	TYP. TYPICAL
CLS. CLOSET	MEZZ. MEZZANINE	TRANS. TRANSFORMER
C.T. CERAMIC TILE	MFR/MNFR. MANUFACTURER	T & B TOP AND BOTTOM
CLR. CLEAR	MGR. MANAGER	T.O. TOP OF
C.O. CLEAN OUT	M.T. MENS TOILET	T. TOILET
C.O.T.G. CLEAN OUT TO GRADE	MTL. METAL	U.O.N./U.N.O. UNLESS OTHERWISE NOTED
C.I. CAST IRON	MAX. MAXIMUM	URINAL URINAL
DEPT. DEPARTMENT	MIN. MINIMUM	VAR. VARIES
DIA. DIAMETER	M.O. MOTOR OPENING	VEST. VESTIBULE
D.F. DRINKING FOUNTAIN	M.H. MANHOLE	VERT. VERTICAL
DN. DOWN	MACH. MACHINERY	W.C. WATER CLOSET
DISP. DISPENSER	M.C.C. MOTOR CONTROL CENTER	W.H. WATER HEATER
DM. DIMENSION	MISC. MISCELLANEOUS	W.T. WOMEN'S TOILET
DT./DTL./DET. DETAIL	N. NORTH	WD. WOOD
DWG./DRWG. DRAWING	NO. NUMBER	WSC. WAINSCOT
DRN. DRAIN	N.I.C. NOT IN CONTRACT	W. WITH
EA. EACH	NOM. NOMINAL	W.W.F. WELDED WIRE FABRIC
ELEV./EL. ELEVATION	NOT TO SCALE	
EXIST./E. EXISTING	OPENING ON CENTER	
ELECT. ELECTRICAL	O.H. OVERHEAD	
EQUIP. EQUIPMENT	O.D. OUTSIDE DIAMETER	
E.E.S. EMERGENCY EYEWASH AND SHOWER	PERM. PERIMETER	
E.J. EXPANSION JOINT	PL. PLATE	
E.I.F. EXTERIOR INSULATION SYSTEM	P.NTH. PENTHOUSE	
EVAP. EVAPORATIVE	PTN. PARTITION	
EXP. EXPANSION	PLYWOOD	
F.G. FINISH GRADE	P.O.C. POINT OF CONNECTION	
F.D. FLOOR DRAIN	P.C. PORTLAND CEMENT	
FDN./FDN.T. FOUNDATION	PANL. PANEL	
F.E. FIRE EXTINGUISHER	P.F.H. PERIMETER FELT JOINT	
FTG. FOOTING	Q.T. QUARRY TILE	
FLR. FLOOR	R.D. ROOF DRAIN	

## FIRE RESISTANCE DESIGN DATA (SPECIAL INSPECTION REQUIRED)

## DRAWING INDEX

### GENERAL

00-1 TITLE SHEET

### MECHANICAL

ME-001 MECHANICAL SYMBOLS, DETAILS AND SCHEDULES

ME-501 MECHANICAL SCHEMATIC

MH-101 PENTHOUSE MECHANICAL AND DEMOLITION PLAN

### ELECTRICAL

EE-001 SYMBOL LEGEND AND INDEX SHEET & EQUIP. SCHEDULE

EP-101 FIRST FLOOR PANEL PLAN

EP-102 PENTHOUSE POWER AND DEMO PLANS

EP-601 EXISTING POWER ONE-LINE DIAGRAM

EP-602 POWER ONE-LINE DIAGRAM



VCBO ARCHITECTURE  
524 SOUTH 600 EAST  
SALT LAKE CITY, UTAH 84102  
Phone: (801) 575-8800  
Fax: (801) 531-9850  
WWW: VCBOArchitecture.com

## SYMBOL LEGEND

	ROOM NAME & NUMBER SYMBOL
	DOOR SYMBOL
	WINDOW SYMBOL
	BLDG. SECTION
	WALL SECTION
	DETAIL REFERENCE MARK. SEE DETAILS
	ELEVATION MARKER
	INTERIOR ELEVATION
	EXTERIOR ELEVATION

## PROJECT TEAM

<b>OWNER</b> DFCM Rick James 4110 State Office Building Salt Lake City, UT 84114 USA Phone: 801-538-3270 Fax: 801-538-3287
<b>ARCHITECT</b> VCBO Architecture Peter Brunjes / Jim Smuin 524 South, 600 East Salt Lake City, UT 84102 USA Phone: 801-575-8800 Fax: 801-531-9850
<b>MECHANICAL ENGINEER</b> Spectrum Engineers Jonathan Jensen 175 S. Main St., Suite 300 Salt Lake City, UT 84111 USA Phone: 801-328-5151 Fax: 801-328-5155 email: j@j@spectrum-engineers.com
<b>ELECTRICAL ENGINEER</b> Spectrum Engineers Ralph Koerber 175 S. Main St., Suite 300 Salt Lake City, UT 84111 USA Phone: 801-328-5151 Fax: 801-328-5155 email: rk@spectrum-engineers.com
<b>STRUCTURAL ENGINEER</b>

## APPROVALS

	DATE
Rick James Project Manager, DFCM	
	DATE
Francine Glani Director, Dept. of Commerce Executive Director	
	DATE
Marshall Carter Facilities Coordinator, Heber M. Wells	

## CODE ANALYSIS

APPLICABLE CODES	
Code	Year
International Building Code	2003
International Mechanical Code	2003
International Plumbing Code	2003
International Fire Code	2003
International Energy Conservation Code	2003
National Electrical Code	2005
Uniform Code for Building Conservation	1997
ADA Accessibility Guidelines	

A. Occupancy and Group: Business Group B

Change in Use: Yes  No  Mixed Occupancy: Yes  No   
Special Use and Occupancy (e.g. High Rise, Covered Mall): \_\_\_\_\_

B. Seismic Design Category: E Design Wind Speed: NA mph

C. Type of Construction (circle one): (EXISTING CLASSIFIED TYPE I PER 1979 UBC)

I	II	III	IV	V	VI
A	B	A	B	A	B

D. Fire Resistance Rating Requirements for the Exterior Walls based on the fire separation distance (in hours):  
North: Exist. South: Exist. East: Exist. West: Exist.

E. Mixed Occupancies: None Nonseparated Uses: \_\_\_\_\_

F. Sprinklers:  
Required:  X Provided:  X Type of Sprinkler System: DiY system.

G. Number of Stories: SIX Building Height: 94'-0" Top of Parapet

H. Actual Area per Floor (square feet): 33,300 S.F.

I. Tabular Area: Service Area = 199,800 S.F. TOTAL

J. Area Modifications:  
a)  $A_s = A_t + \left[ \frac{A_1 I_1}{100} \right] + \left[ \frac{A_2 I_2}{100} \right]$   $I_1 = 100 \left[ \frac{F}{P} - 0.25 \right] W$

b) Sum of the Ratio Calculations for Mixed Occupancies:  
Actual Area 33,300 Allowable Area 33,300  $\leq 1$

c) Total Allowable Area for:  
1) One Story: \_\_\_\_\_  
2) Two Story:  $A_2(2)$  \_\_\_\_\_  
3) Three Story:  $A_3(3)$  \_\_\_\_\_  
d) Unlimited Area Building: Yes  No  Code Section: Table 503

K. Fire Resistance Rating Requirements for Building Elements (hours).

Element	Hours	Assembly Listing	Element	Hours	Assembly Listing
Exterior Bearing Walls	Exist.	Exist.	Floors - Ceiling Floors	2	D754.1
Interior Bearing Walls	Exist.	Exist.	Roofs - Ceiling Roofs		Exist.
Exterior Non-Bearing Walls	Exist.	Exist.	Exterior Doors and Windows		Exist.
Structural Frame	3	D754	Shaft Enclosures		Exist.
Partitions - Permanent	Exist.	Exist.	Fire Walls		Exist.
Fire Barriers	Exist.	Exist.	Fire Partitions		Exist.
			Smoke Partitions		Exist.

\* DESIGN LISTING FOR NEW FLOOR STRUCTURAL SYSTEMS IS UL D754 AS SHOWN THIS SHEET.  
FLOOR CEILING ASSEMBLY RATING WOULD EQUAL THIS.

L. Design Occupant Load: 333/Floor (Exist.)  
Exit Width Required: Exist. Exit Width Provided: Exist.

M. Minimum Number of Required Plumbing Facilities: Existing Fixtures PER Floor

a) Water Closets - Required (m) \_\_\_\_\_ (f) \_\_\_\_\_ Provided (m) 6 (f) 6  
b) Lavatories - Required (m) \_\_\_\_\_ (f) \_\_\_\_\_ Provided (m) 5 (f) 5  
c) Bath Tubs or Showers: NA  
d) Drinking Fountains: 2 Service Sinks: \_\_\_\_\_

FOOTNOTES:  
1) In case of conflict with the U.S. Department of Justice Federal Registers Parts 1 through X - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.  
2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:  
a) High Rise Requirements.  
b) Atriums.  
c) Performance Based Criteria.  
d) Means or Egress Analysis.  
e) Fire Assembly Locator Sheet.  
f) Exterior and Interior Accessibility Route.  
g) Fire Stopping, Including Tested Design Number.

## NOTES

THIS SHEET CONTAINS A LIST OF DRAWINGS WHICH COMPRISE A FULL SET OF DRAWINGS FOR THIS PROJECT. ANY CONTRACTOR, SUBCONTRACTOR, VENDOR OR ANY OTHER PERSON PARTICIPATING IN OR BIDDING ON THIS PROJECT SHALL BE RESPONSIBLE FOR THE INFORMATION CONTAINED IN ANY AND ALL SHEETS OF DRAWINGS AND SPECIFICATIONS. IF ANY PERSON, PARTY OR ENTITY ELECTS TO SUBMIT BIDS FOR ANY PORTION, OR ALL, OF THIS PROJECT, THAT PERSON, PARTY OR ENTITY SHALL BE RESPONSIBLE FOR ANY AND ALL INFORMATION CONTAINED IN THESE DRAWINGS AND SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY SUBSEQUENT ADDENDUMS OR CLARIFICATIONS THAT MAY BE ISSUED.

DFCM Project # 06187310  
Heber M. Wells Building Remodel  
Salt Lake City, Utah

T.1.

Rev # Date Description

Job # 05310  
CAD File R:\2005\05235\CDL\_G0\_1  
Drawn Checked  
Date 05/10/2006  
Owner #  
Iss. #

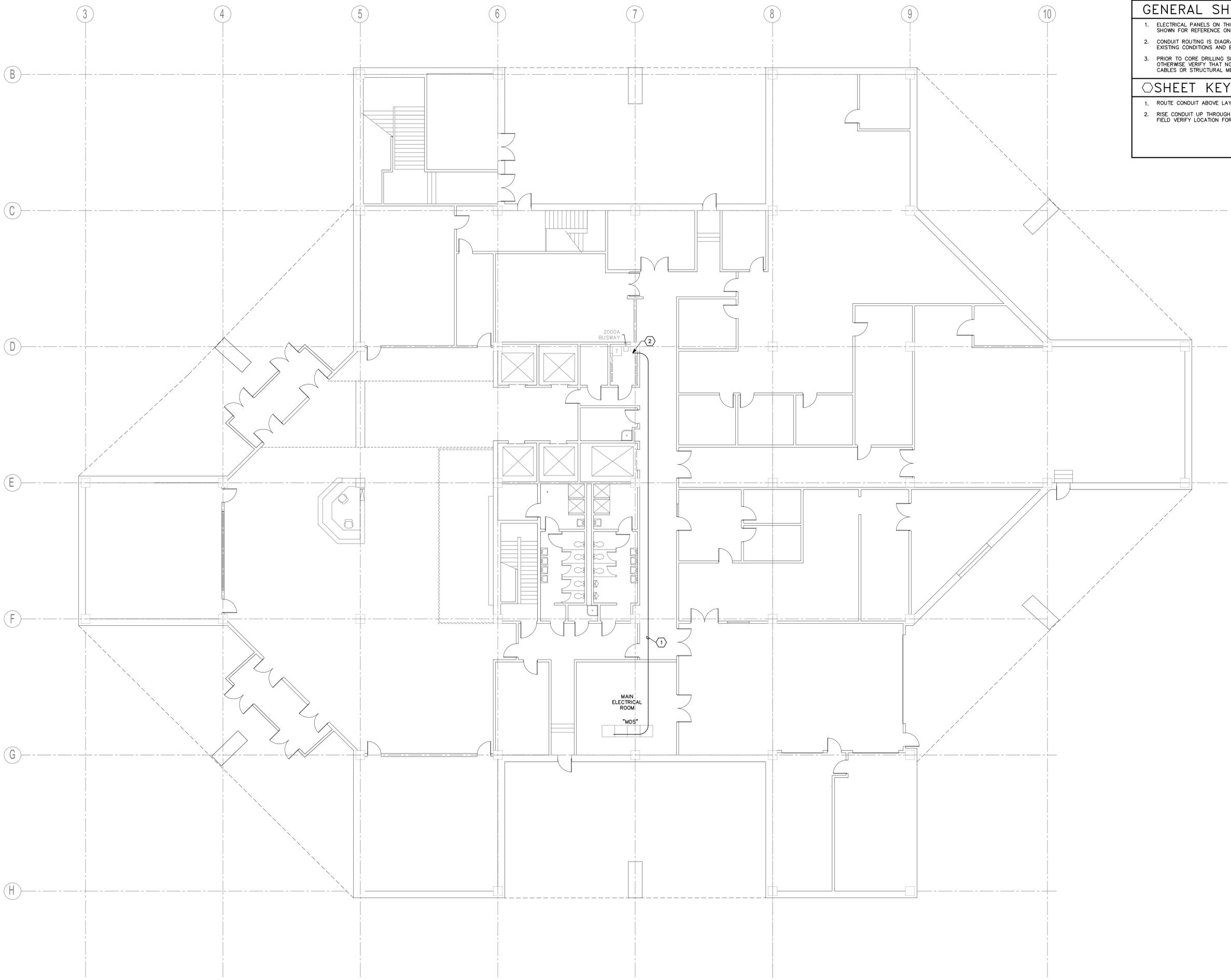
GENERAL INFORMATION

G0.1

Sheet 1 of 5



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**GENERAL SHEET NOTES**

- ELECTRICAL PANELS ON THIS SHEET ARE EXISTING AND ARE SHOWN FOR REFERENCE ONLY.
- CONDUIT ROUTING IS DIAGRAMMATIC ONLY. FIELD VERIFY EXISTING CONDITIONS AND EXACT ROUTING.
- PRIOR TO CORE DRILLING SUSPENDED SLABS, X-RAY OR OTHERWISE VERIFY THAT NO CONDUITS, POST-TENSIONED CABLES OR STRUCTURAL MEMBERS WILL BE DAMAGED.

**SHEET KEYNOTES**

- ROUTE CONDUIT ABOVE LAY-IN CEILING.
- RISE CONDUIT UP THROUGH ELECTRICAL ROOMS TO PENTHOUSE. FIELD VERIFY LOCATION FOR CONDUIT RISER.



DFCM Project # 06187310  
 Heber M. Wells Building - Cooling Replacement  
 Salt Lake City, Utah  
 T.I.

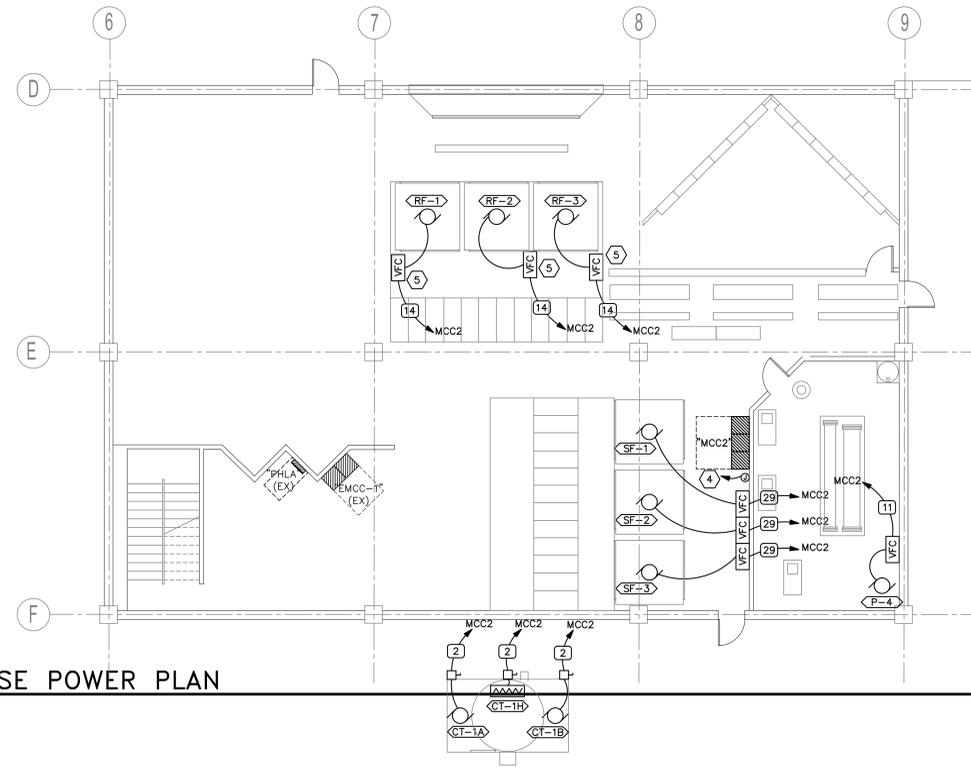
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Job #	05310
CAD File	WJS
Drawn	WJS
Date	12/20/2006
Owner #	
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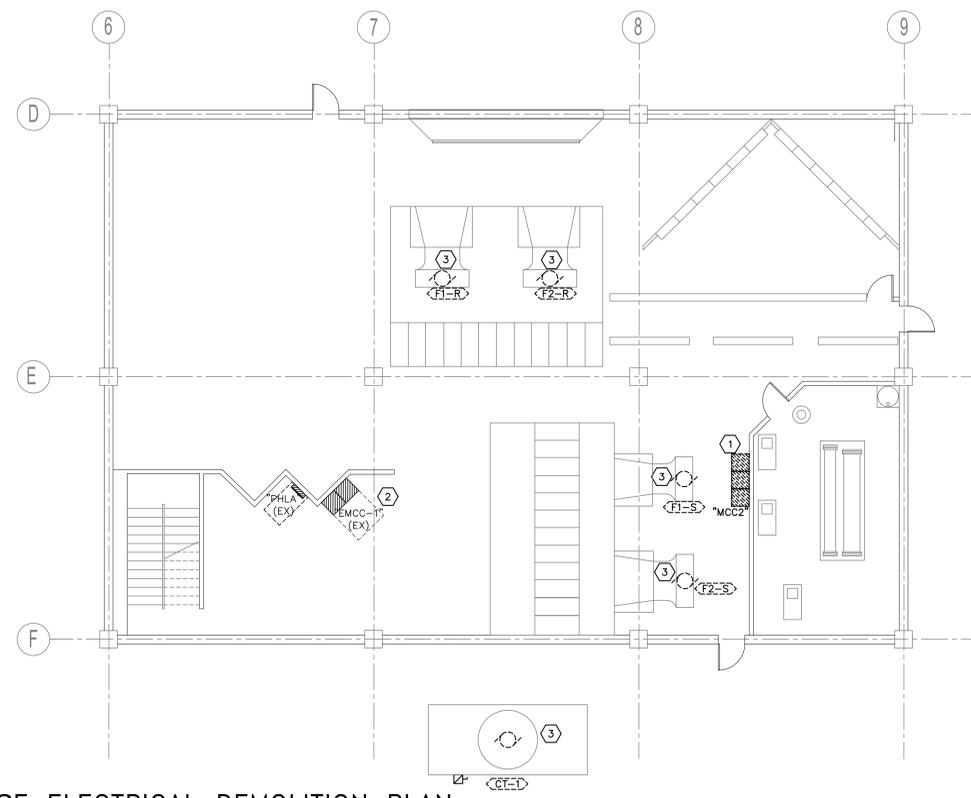
FIRST FLOOR  
PANEL PLAN

**A1** FIRST FLOOR POWER PLAN  
SCALE: 1/8" = 1'-0"

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**2** PENTHOUSE POWER PLAN  
SCALE: 1/8" = 1'-0"



**1** PENTHOUSE ELECTRICAL DEMOLITION PLAN  
SCALE: 1/8" = 1'-0"

**SHEET KEYNOTES**

1. REMOVE AND DISPOSE OF EXISTING "MCC2" INCLUDING FEEDER CONDUIT AND WIRING TO ITS SOURCE. INSTALL NEW MOTOR CONTROL CENTER AND RE-CONNECT EXISTING LOADS AND CONTROL WIRING. COORDINATE MCC REPLACEMENT WITH BUILDING MANAGER TO MINIMIZE INTERRUPTION OF SUPPLY AIR FAN OPERATION.
2. REMOVE AND DISPOSE OF CONDUIT AND WIRING FEEDING EXISTING FAN MOTORS FED FROM EXISTING "EMCC1" (F1-R AND F1-S). FEED NEW SUPPLY AND RETURN FAN MOTORS FROM NEW "MCC2".
3. REMOVE EXISTING CONDUIT AND WIRING FROM EXISTING FAN MOTORS. NEW FAN MOTORS TO BE FED FROM NEW MCC2 AS INDICATED ON ONE-LINE DIAGRAMS.
4. PROVIDE 20A 120V CIRCUIT FOR TEMPERATURE CONTROL PANEL. CIRCUIT TO EXISTING PANEL "PHLA" AND PROVIDE 20/1 CIRCUIT BREAKER TO MATCH EXISTING. COORDINATE EXACT LOCATION WITH CONTROLS CONTRACTOR.
5. PROVIDE UNISTRUT MOUNTING RACK FOR VFC ADJACENT TO RETURN FAN.



**ARCHITECTURE**  
VALENTINER  
CRANE  
BRUNJES  
ONYON

Phone:  
Fax:  
WWW:



**SPECTRUM ENGINEERS**  
175 South Main Street, Suite 300  
Salt Lake City, Utah 84111  
801-328-5151  
801-467-9177  
FAX 801-328-5155  
www.spectrum-engineers.com

**DFCM Project # 06187310**  
**Heber M. Wells Building - Cooling Replacement**  
Salt Lake City, Utah

T.I.

Rev #	Date	Description

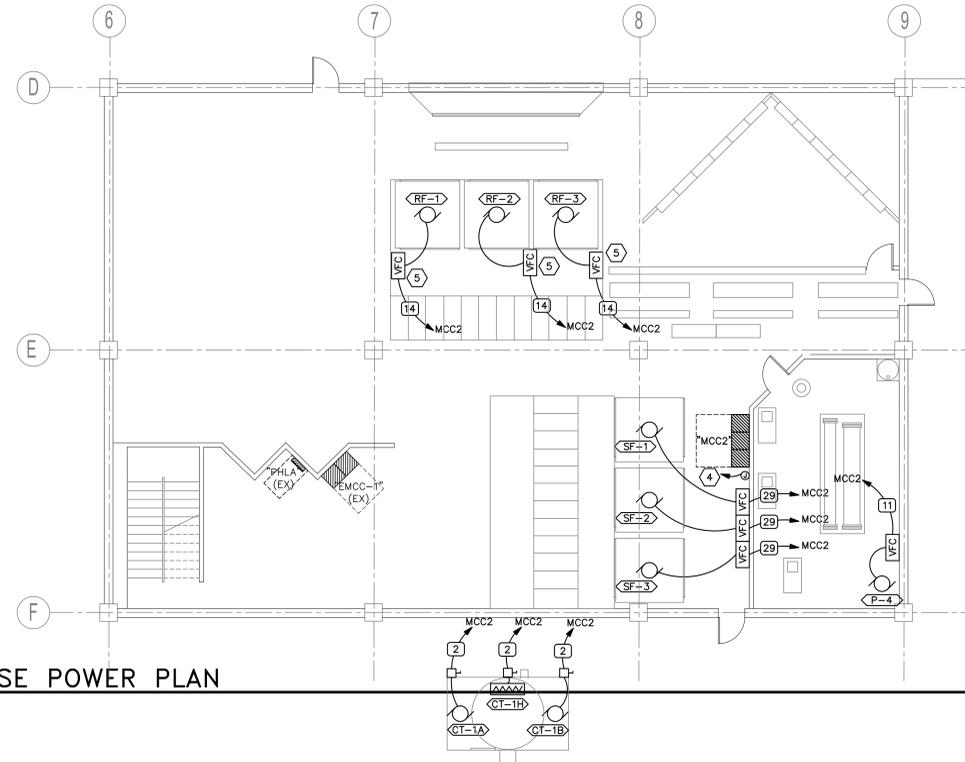
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Iss. #	

PENTHOUSE  
POWER AND DEMOLITION PLANS

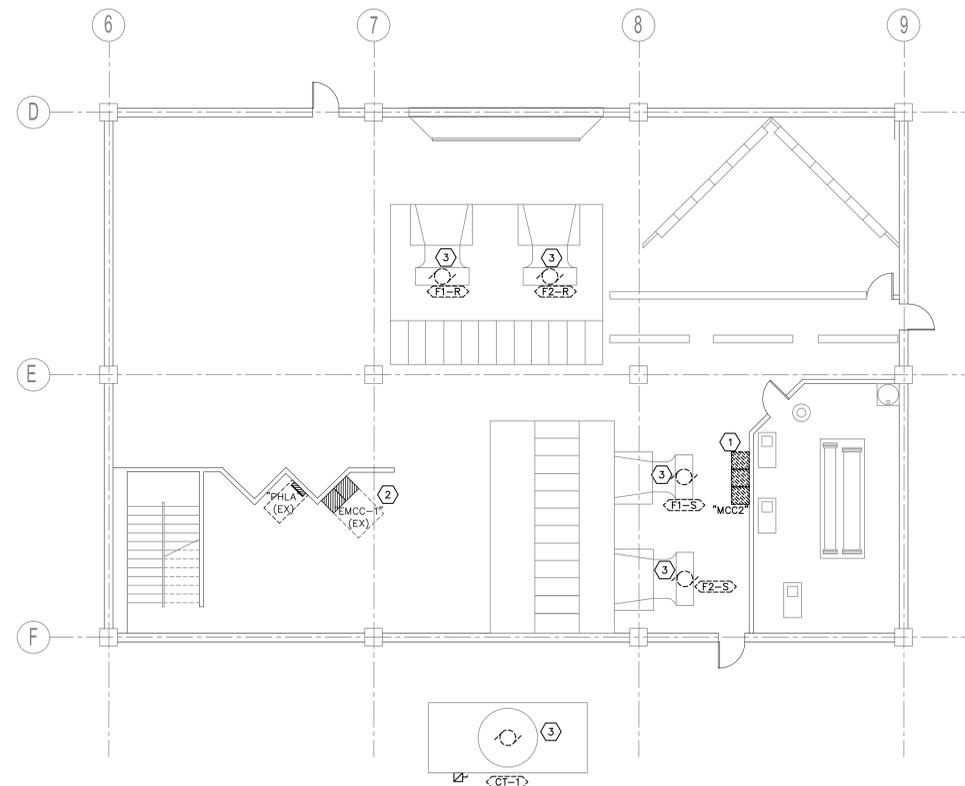
**EP-102**

Sheet of Sheets

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**2** PENTHOUSE POWER PLAN  
SCALE: 1/8" = 1'-0"



**1** PENTHOUSE ELECTRICAL DEMOLITION PLAN  
SCALE: 1/8" = 1'-0"

**SHEET KEYNOTES**

1. REMOVE AND DISPOSE OF EXISTING "MCC2" INCLUDING FEEDER CONDUIT AND WIRING TO ITS SOURCE. INSTALL NEW MOTOR CONTROL CENTER AND RE-CONNECT EXISTING LOADS AND CONTROL WIRING. COORDINATE MCC REPLACEMENT WITH BUILDING MANAGER TO MINIMIZE INTERRUPTION OF SUPPLY AIR FAN OPERATION.
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**ARCHITECTURE**  
VALENTINER  
CRANE  
BRUNJES  
ONYON

Phone:  
Fax:  
WWW:



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ENGINEERS  
175 South Main Street, Suite 300  
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Salt Lake City, Utah

T.I.

Rev #	Date	Description

Job #	05310
CAD File	
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Checked	DEW
Date	12/20/2006
Owner #	
Iss. #	

PENTHOUSE  
POWER AND DEMOLITION PLANS

**EP-102**

Sheet of Sheets

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### FAULT CURRENT TABLE

BUS	FAULT CURRENT
MCC2	29,000 SCA

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

### CONDUCTOR AND CONDUIT SCHEDULE

SYM	AMP	CONDUIT SIZE	CONDUCTOR(NOTE 1)		IG	SE	NOTES
			QTY	SIZE			
1	20	.75	2	12	12	8	2
2	20	.75	3	12	12	12	8, 2,3
3	20	.75	4	12	12	12	8, 2,3
4	30	.75	2	10	10	10	8 2
5	30	.75	3	10	10	10	8 2
6	30	.75	4	10	10	10	8 2
7	40	1	2	8	10	8	6 2
8	40	1	3	8	10	8	6 2
9	40	1	4	8	10	8	6 2
10	55	1	2	6	10	8	4 2
11	55	1	3	6	10	8	4 2
12	55	1.25	4	6	10	8	4 2
13	70	1	2	4	8	4	2 2
14	70	1.25	3	4	8	4	2 2
15	70	1.25	4	4	8	4	2 2
16	85	1.25	2	3	8	3	2 2
17	85	1.25	3	3	8	3	2 2
18	85	1.25	4	3	8	3	2 2
19	95	1.25	3	2	8	2	2 2
20	95	1.50	4	2	8	2	2 2
21	130	1.50	3	1	6	2	2 2
22	130	1.50	4	1	6	2	2 2
23	150	2	3	1/0	6	2	1/0 2
24	150	2	4	1/0	6	2	1/0 2
25	175	2	3	2/0	6	2	2/0 2
26	175	2	4	2/0	6	2	2/0 2
27	200	2	3	3/0	6	2	2/0 2
28	200	2.50	4	3/0	6	2	2/0 2
29	230	2.50	3	4/0	4	2	2/0 2
30	230	2.50	4	4/0	4	2	2/0 2
31	255	2.50	3	250	4	1	2/0 2
32	255	2.50	4	250	4	1	2/0 2
33	310	3	3	350	3	1/0	3/0 2
34	310	3	4	350	3	1/0	3/0 2
35	380	3.50	3	500	3	3/0	3/0 2
36	380	4	4	500	3	3/0	3/0 2
37	400	2 EA 2	3	3/0	3	3/0	3/0 2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0 2
39	510	2 EA 2.50	3	250	1	4/0	3/0 2
40	510	2 EA 3	4	250	1	4/0	3/0 2
41	620	2 EA 3	3	350	1/0	4/0	3/0 2,4
42	620	2 EA 3	4	350	1/0	4/0	3/0 2,4
43	760	2 EA 3.50	3	500	1/0	4/0	3/0 2,4
44	760	2 EA 4	4	500	1/0	4/0	3/0 2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0 2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0 2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0 4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0 4
49	1140	3 EA 4	3	500	3/0	4/0	3/0 4
50	1140	3 EA 4	4	500	3/0	4/0	3/0 4
51	1240	4 EA 3	3	350	3/0	4/0	3/0 4
52	1240	4 EA 3	4	350	3/0	4/0	3/0 4
53	1675	5 EA 3.50	4	400	4/0	4/0	4/0 4
54	2010	6 EA 3.50	4	400	250	250	250 4
55	2660	7 EA 4	4	500	350	350	350 4
56	3040	8 EA 4	4	500	500	500	500 4
57	4180	11 EA 4	4	500	500	500	500 4
58		5 EA 4					6
59		5					6
60		10 EA 4					6

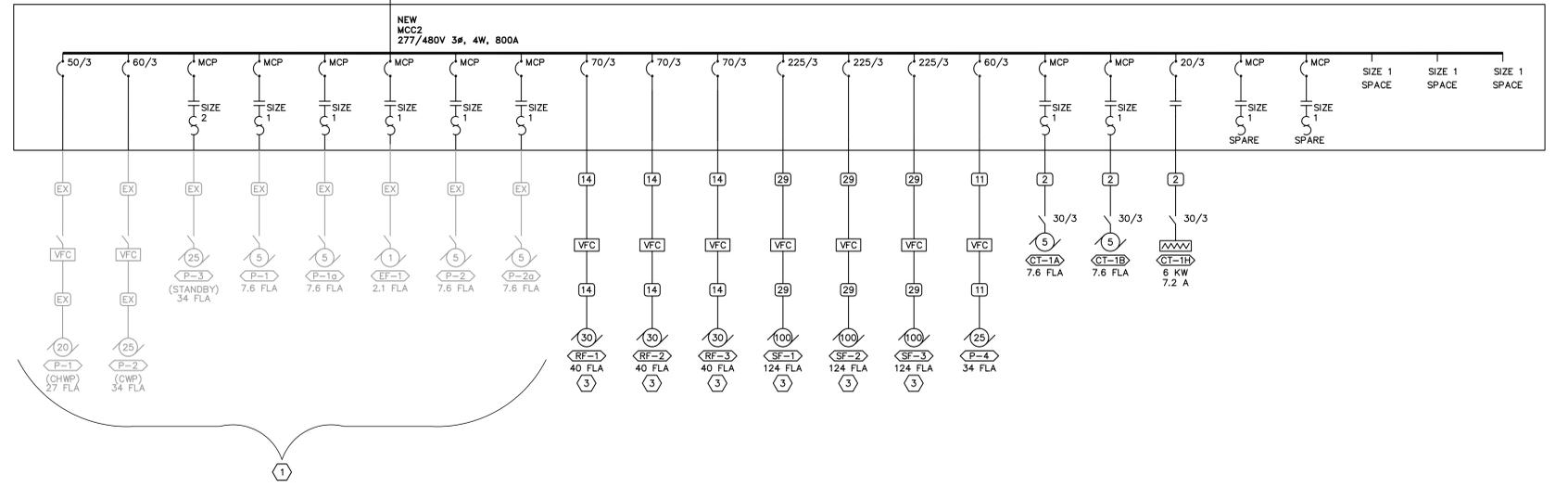
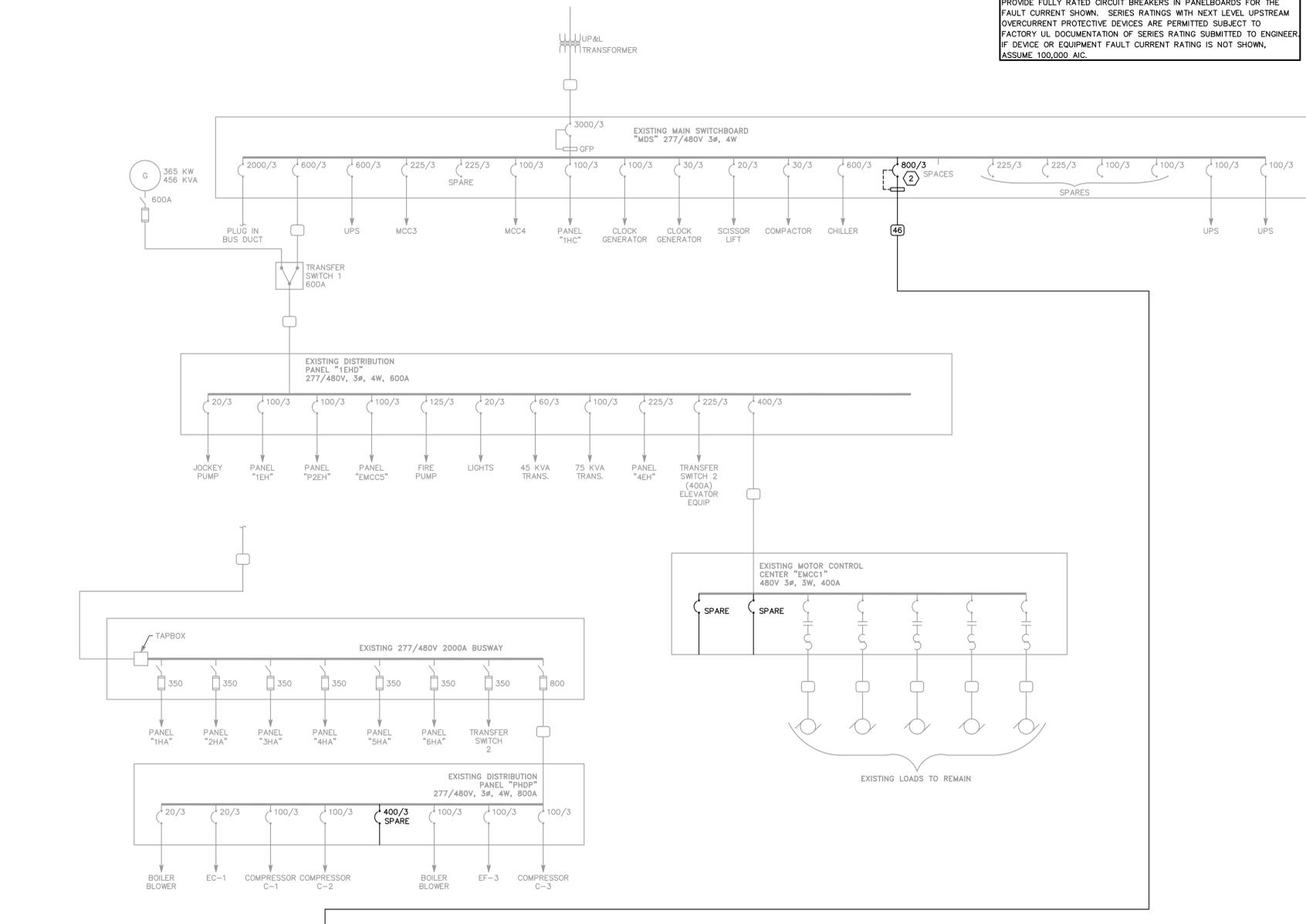
- CONDUCTOR AND CONDUIT SCHEDULE NOTES**
- CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
  - PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
  - PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
  - GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
  - WHEN SYMBOL SUBSCRIPT INDICATES "IG", INCLUDE "IG" OR INSULATED GROUND CONDUCTOR SCHEDULED ALONG WITH GROUND OR EQUIPMENT GROUND CONDUCTOR. WHEN SYMBOL SUBSCRIPT INDICATES "SE", SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEMS.
  - RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

### GENERAL SHEET NOTES

- PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
- REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
- ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
- FIELD VERIFY SIZE OF ALL EXISTING MOTORS PRIOR ORDERING MOTOR CONTROL CENTER.

### SHEET KEYNOTES

- EXISTING LOADS TO BE RECONNECTED. EXTEND CIRCUITS AS REQUIRED. RECONNECT ALL CONTROL WIRING AND TEST FOR COMPLETE OPERATION.
- PROVIDE NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD, COMPATIBLE WITH ORIGINAL SWITCHBOARD AND RATED AT 65,000 AIC.
- RECONNECT EXISTING FIRE ALARM FAN SHUTDOWN TO NEW FAN SPEED CONTROLLERS.



## 1 POWER ONE-LINE DIAGRAM

SCALE: N.T.S.



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DFCM Project # 06187310  
Heber M. Wells Building - Cooling Replacement  
Salt Lake City, Utah  
T.I.

Rev #    Date    Description

Job #    05310  
CAD File  
Drawn    DLM    Checked    DEW  
Date    12/20/2006  
Owner #  
Iss. #

POWER ONE-LINE DIAGRAM

**EP-602**

Sheet    of    Sheets

### SUPPLY FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LOCATION	TYPE	ARRANGEMENT, ROTATION & DISCHARGE	FAN				MOTOR				SOUND POWER DATA, Db, INLET/OUTLET				COMMENTS				
						CFM (2)	RPM	SP "WG	BHP	H.P.	VOLT	PHASE	CONTROL METHOD (3)	63	125	250	500		1000	2000	4000	8000
SF-1	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	732	4.49	79.9	100	460	3	VFD	96/99	99/103	97/100	93/97	89/92	87/88	82/86	78/85	1
SF-2	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	667	4.49	79.9	100	460	3	VFD	96/99	99/103	97/100	93/97	89/92	87/88	82/86	78/85	1
SF-3	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	667	4.49	79.9	100	460	3	VFD	96/99	99/103	97/100	93/97	89/92	87/88	82/86	78/85	1

- FAN TO BE COMPLETE WITH FLEXIBLE CONNECTION, FAN STEEL SEISMIC ISOLATION BASE, SPRING TYPE SEISMIC VIBRATION ISOLATORS WITH THRUST RESTRAINTS, C AND OUTLET SCREEN
- DESIGN BASIS: 180,000 CFM TOTAL REQUIRED. FANS SELECTED TO PROVIDE 160,000 CFM (88% CAPACITY) IF ONE FAN IS OUT OF SERVICE.
- VFD'S FURNISHED BY DIVISION 15

### RETURN FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LOCATION	TYPE	ARRANGEMENT, ROTATION & DISCHARGE	FAN				MOTOR				SOUND POWER DATA, Db, INLET/OUTLET				COMMENTS				
						CFM (2)	RPM	SP "WG	BHP	H.P.	VOLT	PHASE	CONTROL METHOD (3)	63	125	250	500		1000	2000	4000	8000
RF-1	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	543	1.25	26	30	460	3	VFD	91/95	91/97	88/95	87/91	85/87	79/81	72/74	65/66	1
RF-2	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	543	1.25	26	30	460	3	VFD	91/95	91/97	88/95	87/91	85/87	79/81	72/74	65/66	1
RF-3	COOK	600QMD-HP	PENTHOUSE	MIXED FLOW	HORIZONTAL	80000	543	1.25	26	30	460	3	VFD	91/95	91/97	88/95	87/91	85/87	79/81	72/74	65/66	1

- FAN TO BE COMPLETE WITH FLEXIBLE CONNECTION, FAN STEEL SEISMIC ISOLATION BASE, SPRING TYPE SEISMIC VIBRATION ISOLATORS WITH THRUST RESTRAINTS, C AND OUTLET SCREEN
- DESIGN BASIS: 180,000 CFM TOTAL REQUIRED. FANS SELECTED TO PROVIDE 160,000 CFM (88% CAPACITY) IF ONE FAN IS OUT OF SERVICE.
- VFD'S FURNISHED BY DIVISION 15

### COOLING COIL SCHEDULE

SYMBOL	CFM	TOTAL FACE AREA (SQ. FT.)	NO. OF ROWS	COIL SIZE (IN)		ENTERING AIR		LEAVING AIR		MAX S.P. DROP	CIRCULATING FLUID			MAX. HEAD LOSS FT.	COMMENTS
				FINNED LENGTH	FINNED WIDTH	DB (F)	WB (F)	DB (F)	WB (F)		FLUID	GPM	TEMP OUT (F)		
CC-1	60000	120	8	120	48	82	63	53.9	53.3	0.56	30% PG	334	44	53.9	6.9
CC-2	60000	120	8	120	48	82	63	53.9	53.3	0.56	30% PG	334	44	53.9	6.9
CC-3	60000	120	8	120	48	82	63	53.9	53.3	0.56	30% PG	334	44	53.9	6.9

- 45F ENTERING WATER TEMPERATURE, 55F LEAVING WATER TEMPERATURE
- MAXIMUM FIN SPACING - 11 FPI.

### COOLING TOWER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LOCATION	AMBIENT AIR TEMP		WATER TEMP.		WATER FLOW		ELECTRICAL			OPERATING WEIGHT		ACCESSORIES REMARKS	
				F	WB	IN	OUT	GPM	H.P.	RPM	VOLT	PHASE	Hz	(LBS)		
CT-1	DELTA	TM-115412	ROOF	97/82		95/85		1252		(3)	1800.0	230/460	3.0	60.0	12125.0	(1)(2)(4)

- MOTOR STARTER TO BE FACTORY MOUNTED AND PREWIRED.
- PROVIDE NON-METALLIC COOLING TOWER MADE OF FIBERGLASS OR POLY
- TWO 15 HP MOTORS
- PROVIDE WITH ANTIFREEZE PROTECTION

### MOTORIZED DAMPER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SIZE	FUNCTION	COMMENTS
MD-1	RUSKIN	CD-40X2	20' X 10'	EXHAUST AIR	
MD-2	RUSKIN	CD-50	20' X 12'	RETURN AIR	
MD-3	RUSKIN	CD-40X2	20' X 12'	OUTSIDE AIR	

### PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	GPM	HEAD FT.	(3)	RPM	EFF %	VOLTS/PHASE/CYCLE	EQUIP. OR AREA	COMMENTS
P-4	BELL & GOSSETT	1510	1252	50	25	1750	70	460/1/60	WATER SIDE ECONOMIZER COILS	(1) (2)

- COMPLETE WITH MATCHED SUCTION DIFFUSER
- BASE MOUNTED
- COORDINATE STARTER WITH ELECTRICAL

### ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED

AD	ACCESS DOOR	MCA	MINIMUM CIRCUIT AMPS
AIR COND	AIR CONDITION(-ING,-ED)	MFR	MANUFACTURER
APD	AIR PRESSURE DROP	MIN	MINIMUM
BD	BALANCING DAMPER	N/A	NOT APPLICABLE
BHP	BRAKE HORSE POWER	NC	NORMALLY CLOSED
BTU	BRITISH THERMAL UNIT	NC	NOISE CRITERIA
BTUH	BTU/HOUR	NO	NOT IN CONTRACT
CFH	CUBIC FEET PER HOUR	NO	NORMALLY OPEN
CFM	CUBIC FEET PER MINUTE	NPISH	NET POSITIVE SUCTION HEAD
CLG	COOLING COMPONENT	NTS	NOT TO SCALE
COMP	CONDENSER(-ER, -ING, -ATION)	OD	OUTSIDE DIAMETER
COND	CONDENSER	OZ	OUNCE
CV	CONTROL VALVE	PD	PRESSURE DROP OR DIFFERENCE
CW	COLD WATER	PG	PROPYLENE GLYCOL
DIA	DIAMETER	PH	PHASE
DISCH	DISCHARGE	PPM	PARTS PER MILLION
DP	DEPTH OR DEEP	PRESS	PRESSURE
DB	DRY BULB TEMPERATURE	PSF	POUNDS PER SQUARE FOOT
(E)	EXISTING	PSI	POUNDS PER SQUARE INCH
EER	ENERGY EFFICIENCY RATIO	PSIA	PSI ABSOLUTE
ELEC	ELECTRIC	PSIG	PSI GAUGE
ELEV	ELEVATION	R	THERMAL RESISTANCE
ENT	ENTERING	RA	RETURN AIR
EVAP	EVAPORAT(-E, -ING, -ED, -OR)	RECIRC	RE-CIRCULATE
EWT	ENTERING WATER TEMPERATURE	REFR	REFRIGERATION
EXT	EXTERNAL	REQD	REQUIRED
(F)	FUTURE	RATD	RATED --- AMPS
F	FARENHEIT	RPM	REVOLUTIONS PER MINUTE
FC	FLEXIBLE CONNECT(-OR, -ION)	RW	RAINWATER
FD	FIRE DAMPER	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SC	SHADING COEFFICIENT
FPI	FINS PER INCH	SCFM	STANDARD CUBIC FEET PER MINUTE
FPM	FEET PER MINUTE	SCW	SOFT COLD WATER
FPS	FEET PER SECOND	SF	SAFETY FACTOR
FSD	FIRE SMOKE DAMPER	SH	SENSIBLE HEAT
FT	FEET	SL	SEA LEVEL
GAL	GALLON(S)	SP	STATIC PRESSURE
GPH	GALLONS PER HOUR	SPECS(S)	SPECIFICATION(S)
GPM	GALLONS PER MINUTE	SQ	SQUARE
HD	HEAD	STD	STANDARD
HG	MERCURY	STM	STEAM
HR	HOUR	TEMP	TEMPERATURE
HT	HEIGHT	TD	TEMP. DROP OR DIFF.
HTG	HEATING	THERM	THERMAL
HP	HORSE POWER	TOT	TOTAL
HW	HOT WATER	TSTAT	THERMOSTAT
HZ	HERTZ(FREQUENCY)	V	VOLT
ID	INSIDE DIAMETER	VAC	VACUUM
IN	INCH	VAV	VARIABLE AIR VOLUME
KW	KILOWATT	VEL	VELOCITY
LAT	LEAVING AIR TEMPERATURE	VENT	VENTILATION
LBS	POUNDS	VERT	VERTICAL
LG	LENGTH	VFD	VARIABLE FREQUENCY DRIVE
LH	LATENT HEAT	VOL	VOLUME
LRA	LOCKED ROTOR AMPS	WC	WATER COLUMN
LWG	LEAVING WATER TEMPERATURE	WG	WATER GAUGE
LWT	LEAVING WATER TEMPERATURE	WPD	WATER PRESSURE DROP
MAX	MAXIMUM	WTR	WATER
MBH	THOUSAND BTU PER HOUR	WT	WEIGHT
		WB	WET BULB TEMP
		YR	YEAR

### SYMBOL LEGEND

SYMBOL	DESCRIPTION
<b>DUCTWORK</b>	
	RECTANGULAR SUPPLY DUCT UP
	RECTANGULAR SUPPLY DUCT DOWN
	RECTANGULAR RETURN DUCT UP
	RECTANGULAR RETURN DUCT DOWN
	RECTANGULAR EXHAUST DUCT UP
	RECTANGULAR EXHAUST DUCT DOWN
	ROUND DUCT UP
	ROUND DUCT DOWN
	ACCOUSTICALLY LINED RECTANGULAR DUCT
	90° RECTANGULAR ELBOW WITH TURNING VANES
	90° RADIUS ELBOW R=1.5
	DUCT SIZE OR SHAPE TRANSITION
	OPPOSED BLADE BALANCING DAMPER (O.B.D.) IN RECT DUCT
	BUTTERFLY BALANCING DAMPER IN ROUND DUCTS
	COMBINATION TEE
	SPLITTER DAMPER
	SQUARE OR RECTANGULAR CEILING DIFFUSER
	ROUND CEILING DIFFUSER
	SIDEWALL REGISTER SUPPLY OR RETURN
	ROUND FLEXIBLE DUCT
	RETURN GRILLE
	EXHAUST GRILLE
	FIRE/SMOKE DAMPER
	FIRE DAMPER
	SMOKE DAMPER
	FLEXIBLE CONNECTION
	EXISTING DUCT
	DUCT TO BE REMOVED
<b>HVAC SYMBOLS</b>	
	THERMOSTAT
	TEMPERATURE SENSOR
	HUMIDISTAT

### GENERAL MECHANICAL NOTES

- DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH. DO NOT ROUTE DUCTS AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
- IF CONTRACTOR ENCOUNTERS MATERIAL WHICH MAY CONTAIN ASBESTOS IMMEDIATELY STOP WORK IN THIS AREA AND NOTIFY THE OWNER.
- THE WORKING DRAWINGS ARE DIAGRAMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR PLUMBING EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.
- THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENTS AND THE EXTENT OF THE SYSTEM. IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE CONSULTING ENGINEER.

### SYMBOL LEGEND

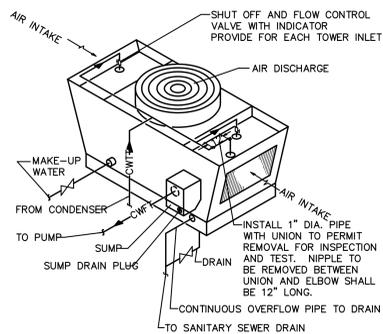
SYMBOL	DESCRIPTION
<b>REFERENCE AND LINE SYMBOLS</b>	
	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
	ELEVATION OR SECTION INDICATOR, INTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
	ROOM OR SPACE NUMBER.
	KEYNOTE INDICATOR.
	REVISION INDICATOR.
	EQUIPMENT INDICATOR.
	PLUMBING FIXTURE INDICATOR.
	DIFFUSER/GRILLE INDICATOR.
	DIFFUSER/GRILLE INDICATOR.
	BREAK, STRAIGHT
	BREAK, ROUND.
	MATCH LINE INDICATOR
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
	NEW CONNECTION POINT TO EXISTING

### SHEET INDEX

SHEET NO	SHEET TITLE
ME-001	MECHANICAL SYMBOLS, DETAILS AND SCHEDULES
ME-501	MECHANICAL SCHEMATIC
MH-101	PENTHOUSE MECHANICAL AND DEMOLITION PLANS

### (B1) INDUCED DRAFT COOLING TOWER PIPING

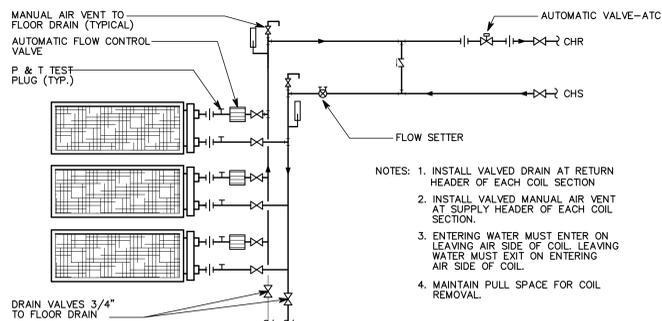
SCALE:



- NOTE:  
1. DETAIL INDICATES ONE CELL. WHEN FLOOR PLANS AND SCHEDULES INDICATE MORE THAN ONE CELL, THE BASINS OF THE CELLS ARE TO BE INTERCONNECTED BY FLUMES. EACH CELL SHALL BE PROVIDED WITH ITS OWN SUMP AND ANTI-CAVITATION PLATE. THE MATCH-CELL TOWER SHALL HAVE ONE MAKE-UP VALVE, ONE OVERFLOW, AND ONE DRAIN. SEE FLOOR PLANS FOR LOCATIONS. ONE INCH PIPE FOR INSPECTION AND TEST SHALL BE PROVIDED ONLY AT ONE CELL.

### (A1) CHILLED WATER COIL PIPING SCHEMATIC

SCALE:



- NOTES:  
1. INSTALL VALVED DRAIN AT RETURN HEADER OF EACH COIL SECTION.  
2. INSTALL VALVED MANUAL AIR VENT AT SUPPLY HEADER OF EACH COIL SECTION.  
3. ENTERING WATER MUST ENTER ON LEAVING AIR SIDE OF COIL. LEAVING WATER MUST EXIT ON ENTERING AIR SIDE OF COIL.  
4. MAINTAIN PULL SPACE FOR COIL REMOVAL.



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ENGINEERS  
175 South Main Street, Suite 300  
Salt Lake City, Utah 84111  
801-328-5151  
800-697-9777  
FAX 801-328-5155  
www.spectrum-engineers.com

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Drawn ARA Checked JTJ  
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Res #

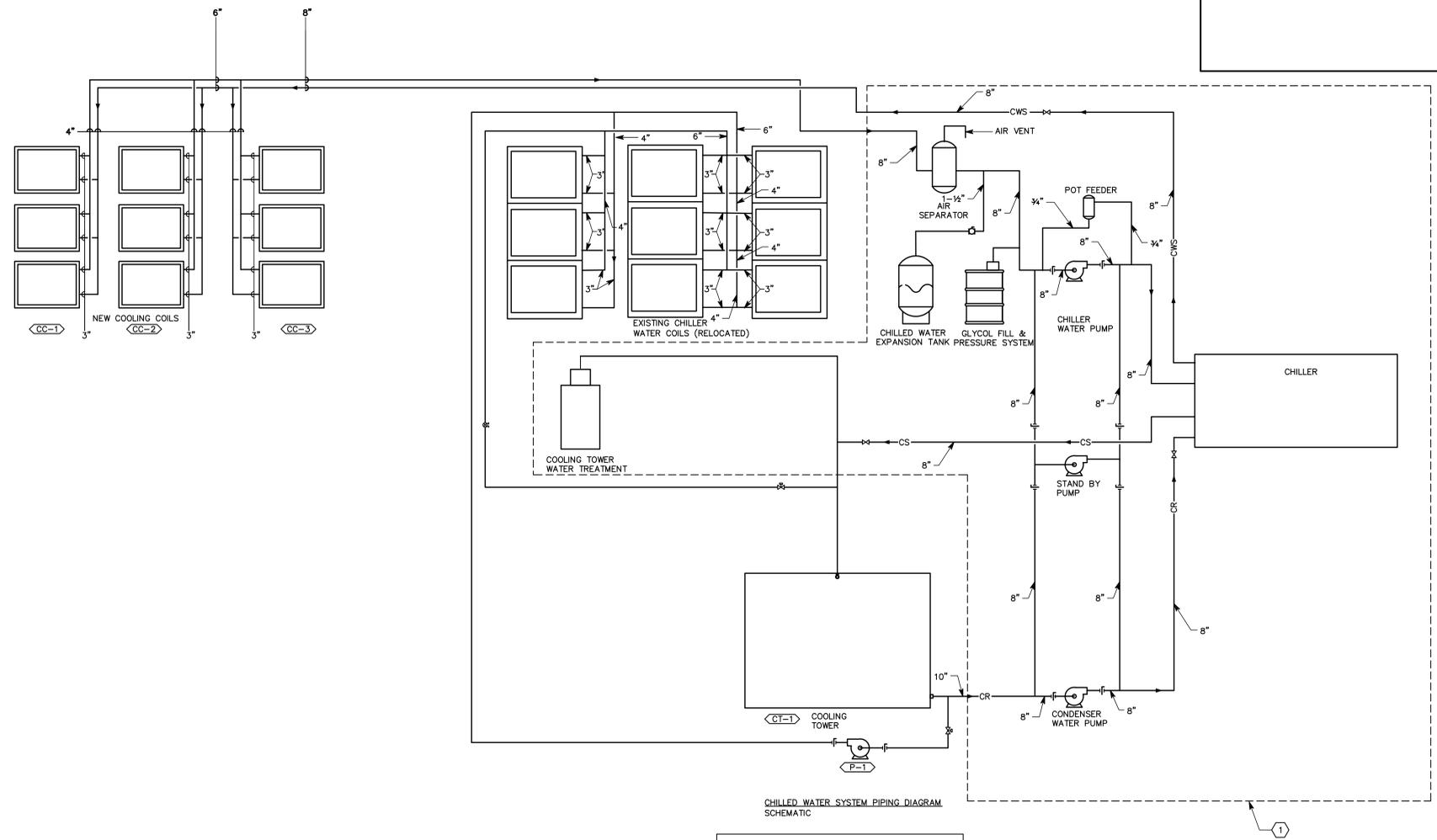
MECHANICAL  
SCHEDULES  
AND DETAILS

ME-001

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○ SHEET KEYNOTES  
 1. PART OF EXISTING SYSTEM



NOTE: ON THE CHILLED WATER SYSTEM, PROVIDE THE FOLLOWING:  
 1. MANULA AIR VENTS ONLY (NO AUTOMATIC AIR VENTS)  
 2. CAP ALL DRAINS AND BLOWDOWN VALVES.



Phone:  
 Fax:  
 WWW:  
  
**SPECTRUM ENGINEERS**  
 175 South Main Street, Suite 300  
 Salt Lake City, Utah 84111  
 801-328-5151  
 801-467-9177  
 FAX 801-328-5155  
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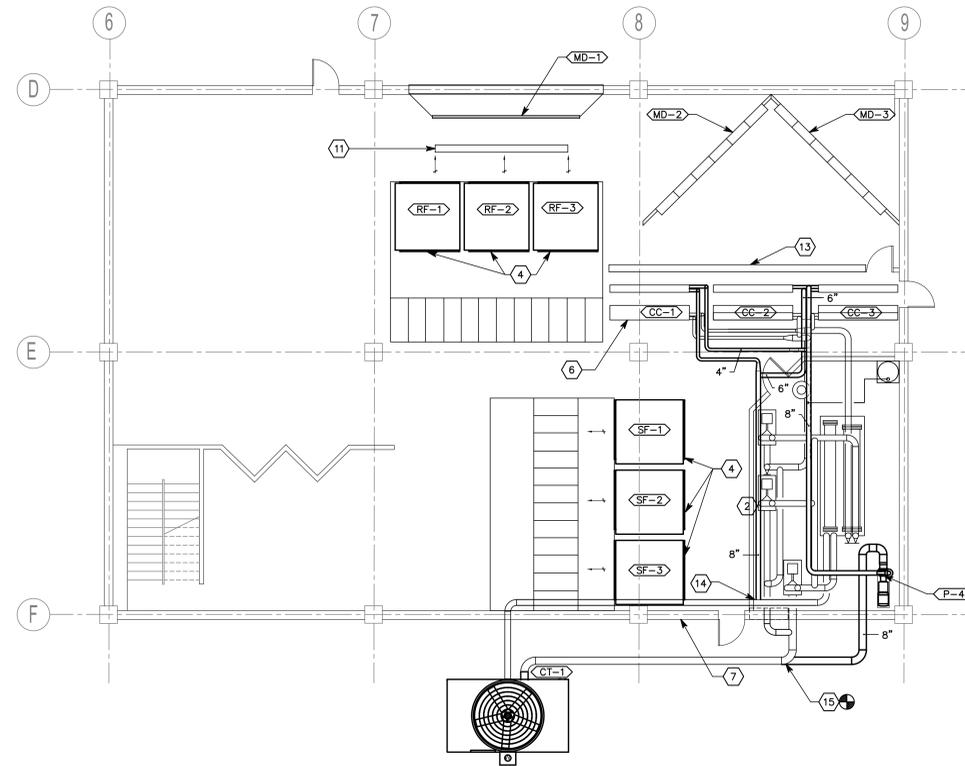
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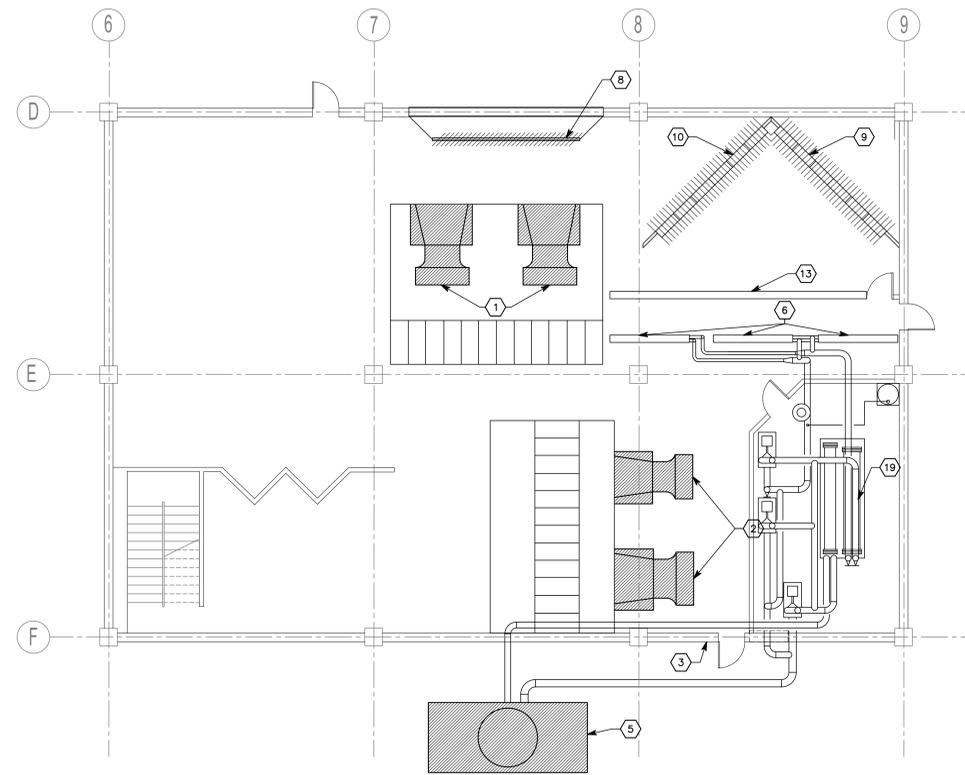
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MECHANICAL SCHEMATIC

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**2** PENTHOUSE MECHANICAL HVAC PLAN  
SCALE: 1/8"=1'-0"



**1** PENTHOUSE MECHANICAL HVAC DEMOLITION PLAN  
SCALE: 1/8"=1'-0"

**SHEET KEYNOTES**

1. REMOVE EXISTING 20HP RETURN FANS.
2. REMOVE EXISTING 100 HP SUPPLY FANS.
3. CUT HOLE IN WALL LARGE ENOUGH TO BRING IN NEW FAN EQUIPMENT. RELOCATE DOOR IF NECESSARY.
4. CONTRACTOR TO VERIFY SPACE AND MOUNTING REQUIREMENTS FOR NEW FANS. CONTRACTOR TO PROVIDE ANY NECESSARY MODIFICATIONS TO SUPPORT STRUCTURE FOR FAN INSTALLATION. COORDINATE CENTERLINE OF FANS AND SOUND TRAPS. MOUNT FANS ON SPRING ISOLATORS.
5. REMOVE EXISTING COOLING TOWER. CAP EXISTING CONNECTING PIPING FOR FUTURE CONNECTION WITH FUTURE COOLING TOWER.
6. REMOVE EXISTING COOLING COILS AND RELOCATE.
7. REMOVE EXISTING RELIEF AIR DAMPERS.
8. PATCH AND REPAIR HOLE TO MATCH EXISTING.
9. REMOVE EXISTING OUTSIDE AIR DAMPERS.
10. REMOVE EXISTING RETURN AIR DAMPERS.
11. REMOVE EXISTING RETURN AIR DAMPERS.
12. PROVIDE 16" X 8" LOUVER FOR DAMPER PRESSURE RELIEF. MOUNT TO FLOOR SUFFICIENT TO WITHSTAND MAXIMUM FAN PRESSURE. USE AIROLITE MODEL 609A OR EQUIVALENT.
13. RELOCATE WALL, DOOR, AND EXISTING FILTER BANK TO ALLOW 18" MINIMUM CLEARANCE BETWEEN FILTERS AND COILS.
14. CONNECT TO EXISTING CONDENSER WATER SUPPLY.
15. CONNECT TO EXISTING CONDENSER WATER RETURN.
16. EXISTING CHILLER PIPING.
17. NEW PIPE SHOWN IN BOLD TYP.
18. EXISTING COOLING COILS RELOCATED.



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PENTHOUSE  
MECHANICAL AND  
DEMOLITION PLANS

MH-101

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