JOHNSON CONTROLS

Creating a better climate for business.

- ■ Environmental Control System
- ■ Facility Management System
- ☐ Air and Water System Balancing
- ☐ Fire Management System
- ☐ Security System
- ☐ Lighting Services
- ☐ Instrumentation System Installation
- ☐ Building Operations Management
- ☐ Energy Conservation Control
- ☐ Training Programs
- ☐ Performance Contracting
- ☐ Planned Service Agreements

Air Conditioning
Heating
Diagnostic Services
Coil Cleaning
Refrigeration
Automatic Temperature Controls
Facility Management Systems
Fire Management
Security Management
Building Operations and Management
Water Treatment
Electrical Equipment
Emergency Generator / Lighting Equipment
Industrial Controls / Recording / Indication Equipment

PROJECT TITLE

DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

ARCHITECT	ENGINEER
THE DURRANT GROUP, INC.	THE DURRANT GROUP, INC.
MECHANICAL CONTRACTOR	ELECTRICAL CONTRACTOR
H & H INDUSTRIES, INC.	

REFERENCE DRAWING	NO	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

REVISION INFORMATION
NUMBER
DATE 04/18/08
TIME 04:15 PM
FILE NAME Title1.vsd

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

SALES ENGINEER	PROJECT MANAGER	APPLICATION ENGINEER	DATE	CONTRACT NUMBER
GLA	SEL	RJM	12/23/2003	0 3109-0044

REV	DRAWING NUMBER	DRAWING TITLE
	14.1-14.37	MISCELLANEOUS DETAILS
	14.1	DETAIL A - EXHAUST FANS CONTROL PANEL
	14.2	DETAIL A (CONT.) - EXHAUST FANS CONTROL PANEL WIRING
	14.3	DETAIL A (CONT.) - FIELD POINTS
	14.4-14.5	POINT SCHEDULE
	14.6	DETAIL B - LOWER LEVEL 2 VMA TRANSFORMER PANEL
	14.7	DETAIL B (CONT.) - LOWER LEVEL 2 VMA TRANSFORMER PANEL WIRING
	14.8	DETAIL C - LOWER LEVEL 1 VMA TRANSFORMER PANEL
	14.9	DETAIL C (CONT.) - LOWER LEVEL 1 VMA TRANSFORMER PANEL WIRING
	14.10	DETAIL D - 1ST FLOOR VMA TRANSFORMER PANEL
	14.11	DETAIL D (CONT.) - 1ST FLOOR VMA TRANSFORMER PANEL WIRING
	14.12	DETAIL E - 2ND FLOOR VMA TRANSFORMER PANEL
	14.13-14.14	DETAIL E (CONT.) - 2ND FLOOR VMA TRANSFORMER PANEL WIRING
	14.15	DETAIL F - 3RD FLOOR VMA TRANSFORMER PANEL
	14.16-14.17	DETAIL F (CONT.) - 3RD FLOOR VMA TRANSFORMER PANEL WIRING
	14.18	DETAIL G - 4TH FLOOR VMA TRANSFORMER PANEL
	14.19-14.20	DETAIL G (CONT.) - 4TH FLOOR VMA TRANSFORMER PANEL WIRING
	14.21	DETAIL H - 5TH FLOOR VMA TRANSFORMER PANEL
	14.22-14.23	DETAIL H (CONT.) - 5TH FLOOR VMA TRANSFORMER PANEL WIRING
	14.24	DETAIL I - 6TH FLOOR VMA TRANSFORMER PANEL
	14.25-14.26	DETAIL I (CONT.) - 6TH FLOOR VMA TRANSFORMER PANEL WIRING
	14.27	DETAIL J - 7TH FLOOR VMA TRANSFORMER PANEL
	14.28-14.29	DETAIL J (CONT.) - 7TH FLOOR VMA TRANSFORMER PANEL WIRING
	14.30	DETAIL K - 8TH FLOOR VMA TRANSFORMER PANEL
	14.31-14.32	DETAIL K (CONT.) - 8TH FLOOR VMA TRANSFORMER PANEL WIRING
	14.33	DETAIL L - MISCELLANEOUS UNT CONTROLLERS
		DETAIL M - FIRE / SMOKE DAMPERS CONTROL RELAYS
	14.34-14.35	POINT SCHEDULE
	14.36	DETAIL N - FIREMAN'S CONTROL PANEL
	14.37	DETAIL O - SNOWMELT SYSTEM
	PAGE 1	DAMPER SCHEDULE
	D1	DAMPER SCHEDULE DETAILS
	PAGE 1	FLOW STATION SCHEDULE
	PAGE 1-5	ROOM SCHEDULE
	PAGE 1	VALVE SCHEDULE
	D2	VALVE SCHEDULE DETAILS
	PAGE 1	WELL/TAP/METER SCHEDULE
	D3-D4	WELL/TAP/METER SCHEDULE DETAILS

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Air Conditioning
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Diagnostic Services
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Fire Management
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Electrical Equipment
Emergency Generator / Lighting Equipment
Industrial Controls / Recording / Indication Equipment

PROJECT TITLE

DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

ARCHITECT	ENGINEER
THE DURRANT GROUP, INC.	THE DURRANT GROUP, INC.
MECHANICAL CONTRACTOR	ELECTRICAL CONTRACTOR
H & H INDUSTRIES, INC.	

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

REVISION INFORMATION
NUMBER
DATE 04/17/08
TIME 10:14 AM
FILE NAME Title2.vsd

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

SALES ENGINEER	PROJECT MANAGER	APPLICATION ENGINEER	DATE	CONTRACT NUMBER
GLA	SEL	RJM	12/23/2003	0 3109-0044

TABLE 1	CABLE / WIRE SPECIFICATION		TERMINALS PER CONDUCTOR COLOR					
USAGE	PLENUM PART NUMBER ANIXTER	DESCRIPTION	BLACK	WHITE	JACKET COLOR	RED	DRAIN	COMMENTS
AI	CBL-18/2YEL-PLN	18/2 Shld Yellow	AI Com	----------	AI	----------	TABLE 2	
AI	CBL-18/3YEL-PLN	18/3 Shld Yellow	AI Com	Power	AI	----------	TABLE 2	
AO	CBL-18/2TAN-PLN	18/2 Shld Tan	AO Com	----------	AO	----------	TABLE 2	
AO	CBL-18/3TAN-PLN	18/3 Shld Tan	AO Com	Power	AO	----------	TABLE 2	
BI	CBL-18/2ORG-PLN	18/2 Shld Orange	BI 24V	----------	BI	----------	TABLE 2	
BO	CBL-18/2VLT-PLN	18/2 Shld Violet	BO Com	----------	BO	----------	TABLE 2	
BO	CBL-18/3VLT-PLN	18/3 Shld Violet	BO Com	BO	BO	----------	TABLE 2	
GENERAL PURPOSE	CBL-18/2NAT-PLN	18/2 Shld Natural	Common	----------	----------	Power	----------	
GENERAL PURPOSE	CBL-18/3NAT-PLN	18/3 Shld Natural	Common	----------	Signal	Power	----------	
METASTAT	CBL-24/8NAT-PLN	24/8 Natural	----------	----------	----------	----------	----------	SEE TABLES 4, 5, & 6
METASTAT PHONE JACK	CBL-STAT25	Pre-Term'd Blue	----------	----------	----------	----------	----------	SEE TABLES 4, 5, & 6, NOTE #4
24VAC	CBL-18/2GRY-PLN	18/2 Shld Grey	24 V Com	----------	24 VAC	----------	----------	
24VAC POWER BUS	AL-1402C-2-2N-01	14/2 Unsh White	Common	----------	----------	24 VAC	----------	
600 V	B8248	18/2	----------	----------	----------	----------	----------	
600 V	B83336	18/3	----------	----------	----------	----------	----------	
N2 BUS	CBL-18/3BLU-PLN	18/3 Shld Blue	N2-	REF	N2+	----------	TABLE 3	
N1 BUS-ARCNET	CBL-RG62PUR-PLN	RG62 Purple	----------	----------	----------	----------	----------	
N1 BUS-ETHERNET	CBL-130216-07	24/8 Purple	----------	----------	----------	----------	----------	SEE TABLES 7 & 8
BACNET BUS	CBL-130216-07	24/8 Purple	----------	----------	----------	----------	----------	SEE TABLES 7 & 8
LON BUS	9J2201544	22/2 Shld Blue	----------	----------	----------	----------	----------	
NT BUS	CBL-PLN2204-91	22/4 Shld White	----------	----------	----------	----------	----------	
XT BUS	CBL-18/3BLU-PLN	18/3 Shld Blue	XT-	REF	XT+	----------	----------	

NOTE #1: REFERENCE DETAILS OVERRIDE COLOR CODE IN TABLE 1.

NOTE #2: EXISTING JOB STANDARDS OVERRIDE NOTE #1 AND TABLE1.

NOTE #3: SEE JOHNSON CONTROLS INSTALLATION INFORMATION FOR CABLE LENGTH LIMITATIONS.

NOTE #4: ALSO AVAILABLE IN 50FT, 75FT AND 100FT LENGTH.

SYMBOL LEGEND

- PNEUMATIC TUBING
- LOW VOLTAGE
- CABLE
- HIGH VOLTAGE

REVISION INFORMATION
NUMBER
DATE 04/17/08
TIME 09:50 AM
FILE NAME Legend-a.vsd

Drawing Title: LEGEND

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER 0 3109-0044

DRAWING NUMBER 1.1

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CAP-1	1	PD-101-10	CAPACITOR, 560PF
FILTER-1	1	81F4523	CORCOM 3VB1 LINE FILTER - NEWARK
MOV-1	1	AS-MOVKIT-0	KIT,TRANSIENT NOISE SUPPRESSOR, PK OF 12

TABLE 2	DRAIN CABLE		
	I/O GROUNDING		
TERMINALS	ENCLOSURE	NO ENCLOSURE	COMMENTS
I/O	HARD GROUND @ EACH PANEL. TAPE BACK @ EACH DEVICE	TAPE BACK @ EACH END	SEE FIGURE A
BO (NOISY INDUCTIVE LOADS)	TAPE BACK @ EACH END	TAPE BACK @ EACH END	ADD MOV-1 @ CONTROLLER TERMINALS
BO (GAS IGNITION)	TAPE BACK @ EACH END	TAPE BACK @ EACH END	ADD FILTER-1 @ CONTROLLER TERMINALS. HARD GROUND CASE.

FIGURE A

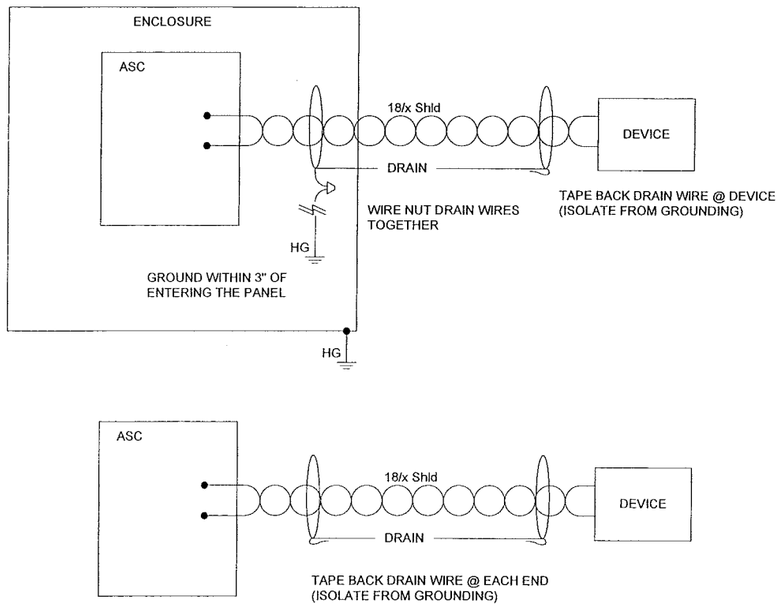
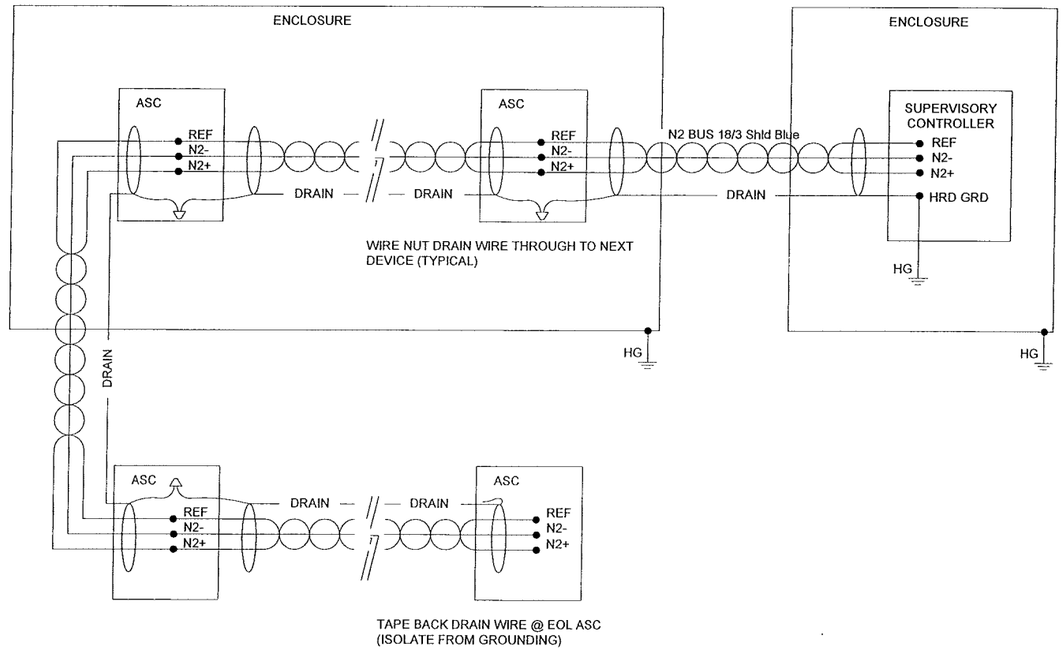


TABLE 3	DRAIN CABLE		
	N2 GROUNDING		
TERMINALS	ENCLOSURE	NO ENCLOSURE	COMMENTS
SUPERVISORY CONTROLLER	HARD GROUND TO BACK PLANE	NA	SEE FIGURE B
ASC	STRAIGHT THROUGH TO NEXT DEVICE	STRAIGHT THROUGH TO NEXT DEVICE	
ASC (EOL)	TAPE BACK @ ASC	TAPE BACK @ ASC	
ASC (NOISY)	SOFT GROUND ONCE PER ENCLOSURE	TAPE BACK @ ASC	ADD CAP-1 @ ENCLOSURE

FIGURE B



SYMBOL LEGEND

- PNEUMATIC TUBING
- LOW VOLTAGE
- CABLE
- HIGH VOLTAGE

REVISION INFORMATION
NUMBER
DATE: 04/17/08
TIME: 09:49 AM
FILE NAME: Legend-b.vsd

Drawing Title: LEGEND

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

	1	RECORD DRAWINGS		03/30/08	WCS
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
Sales Engineer / Project Manager / Application Engineer: GLA / SEL / RJM	DRAWN: BY / DATE	APPROVED: BY / DATE			

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044
DRAWING NUMBER: 1.2

TE-6700 SERIES

TABLE 4	PHONE JACK PIN DESIGNATIONS	
PHONE JACK PIN NO.	SIGNAL DESIGNATION	COLOR
1	HEATING SETPOINT OR LED AND MANUAL OVERRIDE	WHT / GRN
2	SETPOINT (COOLING)	WHT / BLU
3	TEMPERATURE SENSOR	WHT / BRN
4	TEMPERATURE SENSOR COMMON	ORN / WHT
5	15 VDC POWER (VMA) 24 VAC POWER (AHU, UNT, VAV)	BLU / WHT
6	POWER COMMON OR ZONE BUS COMMON	GRN / WHT
7	SETPOINT COMMON	BRN / WHT
8	ZONE BUS	WHT/ ORN

TABLE 5	TERMINAL BLOCK WIRING	
TERMINAL NO.	SIGNAL DESIGNATION	COLOR
1	TEMPERATURE SENSOR AND MANUAL OVERRIDE	WHT / BLU
2	TEMPERATURE SENSOR COMMON	BLU / WHT
3	SETPOINT COMMON	WHT / ORN
4	SETPOINT	ORN / WHT
5	15 VDC POWER (VMA) 24 VAC POWER (AHU, UNT, VAV)	WHT / GRN
6	COMMON FOR POWER, ZONE BUS, OR MANUAL OVERRIDE AND LED	GRN / WHT
7	ZONE BUS	WHT / BRN
8	LED AND MANUAL OVERRIDE	BRN / WHT

NOTE: MANUAL OVERRIDE IS SELECTED FOR EITHER TERMINALS 1 AND 2 OR 6 AND 8 WITH THE LED ENABLED. TERMINAL 6 IS COMMON FOR TERMINAL 7.
A DUAL (HEATING/COOLING SETPOINT IS NOT AVAILABLE WITH A TERMINAL BLOCK.

HE-6700 SERIES

TABLE 6	TERMINAL BLOCK WIRING	
TERMINAL NO.	SIGNAL DESIGNATION	COLOR
1	TEMPERATURE SENSOR COMMON	WHT / BLU
2	TEMPERATURE SENSOR AND MANUAL OVERRIDE	BLU / WHT
3	SETPOINT (WARMER/COOLER)	WHT / ORN
4	SETPOINT COMMON	ORN / WHT
5	COMMON (FOR POWER, ZONE BUS, OR MANUAL OVERRIDE AND LED)	WHT / GRN
6	15 VDC POWER (VMA) 24 VAC POWER (AHU, UNT, VAV)	GRN / WHT
7	RH OUTPUT	WHT / BRN
8	ZONE BUS	BRN / WHT
9	LED AND MANUAL OVERRIDE	

NOTE: MANUAL OVERRIDE IS SELECTED FOR EITHER TERMINALS 1 AND 2 OR 5 AND 9 WITH THE LED ENABLED. TERMINAL 5 IS COMMON FOR TERMINAL 7.

ETHERNET PATCH CABLE

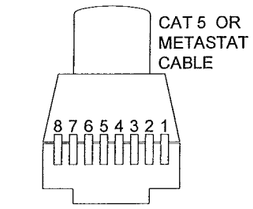
TABLE 7	STANDARD EIA/TIA T568B
PIN NO.	COLOR
1	WHT / ORN
2	ORN / WHT
3	WHT / GRN
4	BLU / WHT
5	WHT / BLU
6	GRN / WHT
7	WHT / BRN
8	BRN / WHT

NOTE: A PATCH CABLE HAS BOTH ENDS CONFIGURED AS A PATCH CABLE.

ETHERNET CROSSOVER CABLE

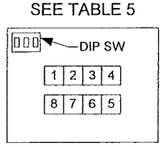
TABLE 8	STANDARD EIA/TIA T568B
PIN NO.	COLOR
1	WHT / GRN
2	GRN / WHT
3	WHT / ORN
4	BLU / WHT
5	WHT / BLU
6	ORN / WHT
7	WHT / BRN
8	BRN / WHT

NOTE: A CROSSOVER CABLE HAS ONE END CONFIGURED AS A CROSSOVER CABLE AND THE OPPOSITE END CONFIGURED AS A PATCH CABLE.

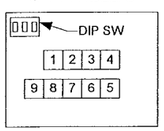


END VIEW OF 8-PIN PLUG TAB DOWN

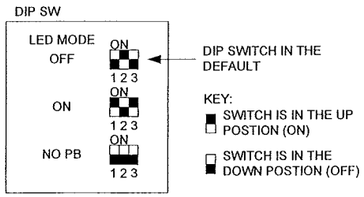
TERMINALS ON BACK OF TE-6700 SERIES SEE TABLE 5



TERMINALS ON BACK OF HE-6700 SERIES SEE TABLE 6



DIP SW



NOTE: SENSOR WILL CAUSE ERRORS IF DIP SWITCHES ARE SET ANY OTHER WAY BUT THOSE SHOWN ABOVE.

SYMBOL LEGEND

- PNEUMATIC TUBING
- LOW VOLTAGE
- CABLE
- HIGH VOLTAGE

REVISION INFORMATION
NUMBER
DATE: 04/17/08
TIME: 09:49 AM
FILE NAME: Legend-c.vsd

Drawing Title: LEGEND

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044
DRAWING NUMBER: 1.3

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
HUB-1	1	464163	NETGEAR-5 PORT 10/100 SWITCHING HUB-ITAS
NIE01	2	064321	3' RJ45 PATCH CABLE-ITAS
	1	EN-EWC35-0	TRIPLE ENCLOSURE WITH 100VA POWER
	1	MS-NIE5510-0	NIE FOR EXIST NCM, 24VAC, 50VA

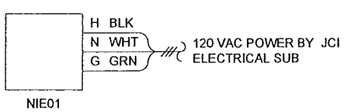
CITY/COUNTY BUILDING

NOTE: HUB-1 IS LOCATED
INSIDE THE PANEL FOR NIE01.

ETHERNET ADDRESSES		
REV	TYPE	ADDRESS
	SUBNET MASK	255.255.255.0
	DEFAULT GATEWAY	134.48.250.101

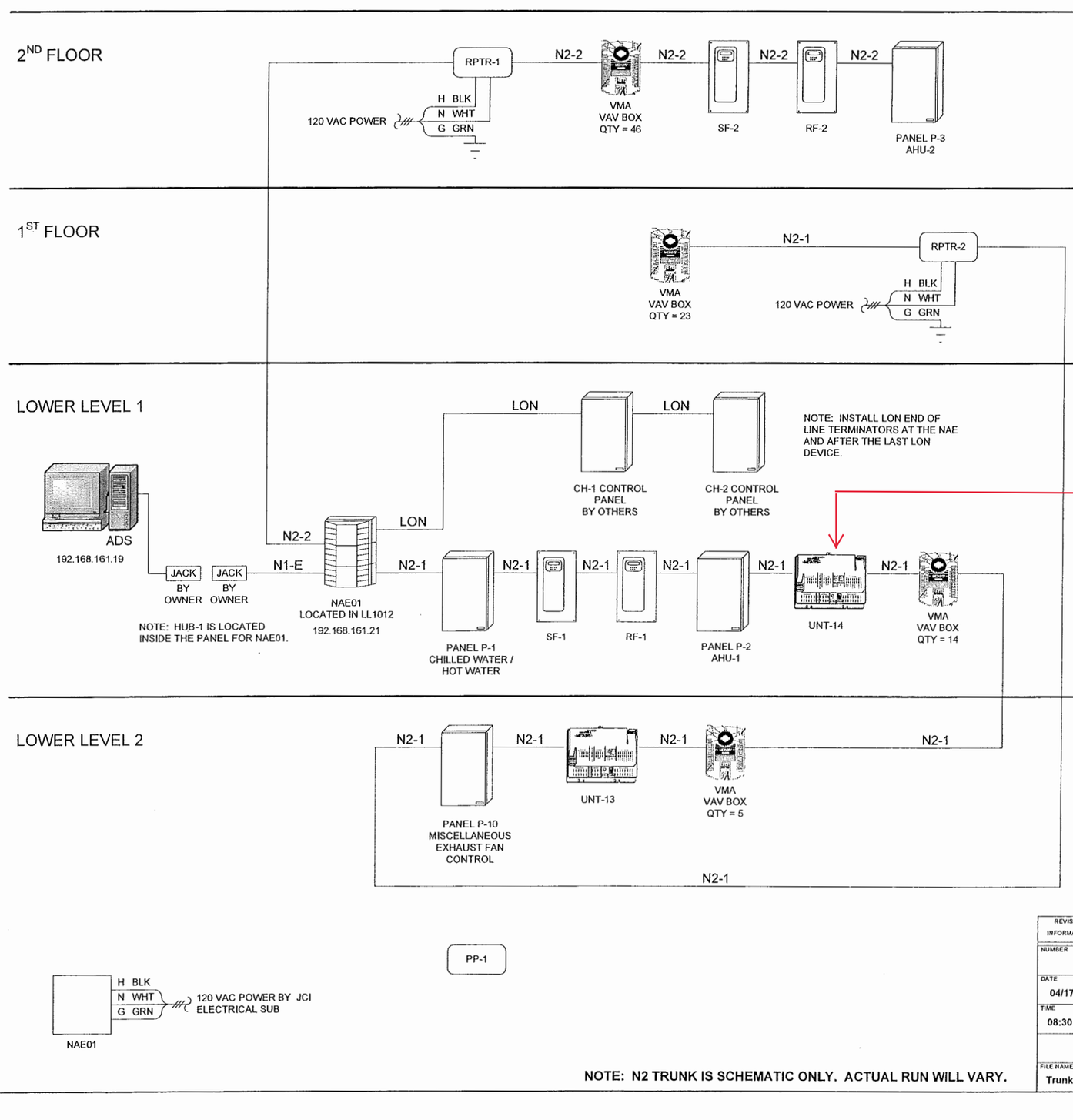
TRUNK SCHEMATIC LEGEND

N1-A	N1 ARCNET BUS	R	RS232 CABLE
N1-E	N1 ETHERNET BUS	M	MODEM CABLE - RS232
N1-F	N1 FIBER BUS	P	PARALLEL PRINTER CABLE
BAC	BACNET (N30) BUS	XT	XT BUS
N2	N2 BUS	*	N2 BUS END OF LINE
NT	NT BUS	#	LON BUS END OF LINE
N2/NT	N2 AND NT BUS	+	N1 BUS END OF LINE
LON	LON BUS		



NOTE: N2 TRUNK IS SCHEMATIC ONLY. ACTUAL RUN WILL VARY.

REVISION INFORMATION	Drawing Title							
NUMBER	COMMUNICATIONS BUS							
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS	
TIME 09:49 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION		ECN	DATE	BY
FILE NAME Trunka.vsd	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER 0 3109-0044		
						DRAWING NUMBER 2.1		



BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
NAE01	2	NU-EOL202-0	END OF LINE MOD. FTT10
PP-1	1	634118	PALM-HOTSYNC CABLE-ITAS
	1	821089	BLACK BOX-NULL MODEM ADAPTER DBP M/M-ITAS
	1	AS-CVTPRO100-1	CONVERTER, N-AMERICAN W/ CABLES & CASE
	1	D48608	PALM-TUNGSTEN W, COLOR, RECHARGEABLE-ITAS
RPTR-x	2	4683-TTM-1	REPEATER,RS-485>RS-485,115VAC
Panel Devices:			
HUB-1	1	464163	NETGEAR-5 PORT 10/100 SWITCHING HUB-ITAS
NAE01	2	064321	3' RJ45 PATCH CABLE-ITAS
	1	EN-EWC35-0	TRIPLE ENCLOSURE WITH 100VA POWER
	1	MS-NAE5520-0	NAE W/N2 BUS, LON CARD, 24VAC, 50VA
	1	MS-SCTSWO-0	SYSTEM CONFIGURATION TOOL S/W, NEW
	1	MW-MCLTOL064-0	MCL TOOL 5.1 64 NODES

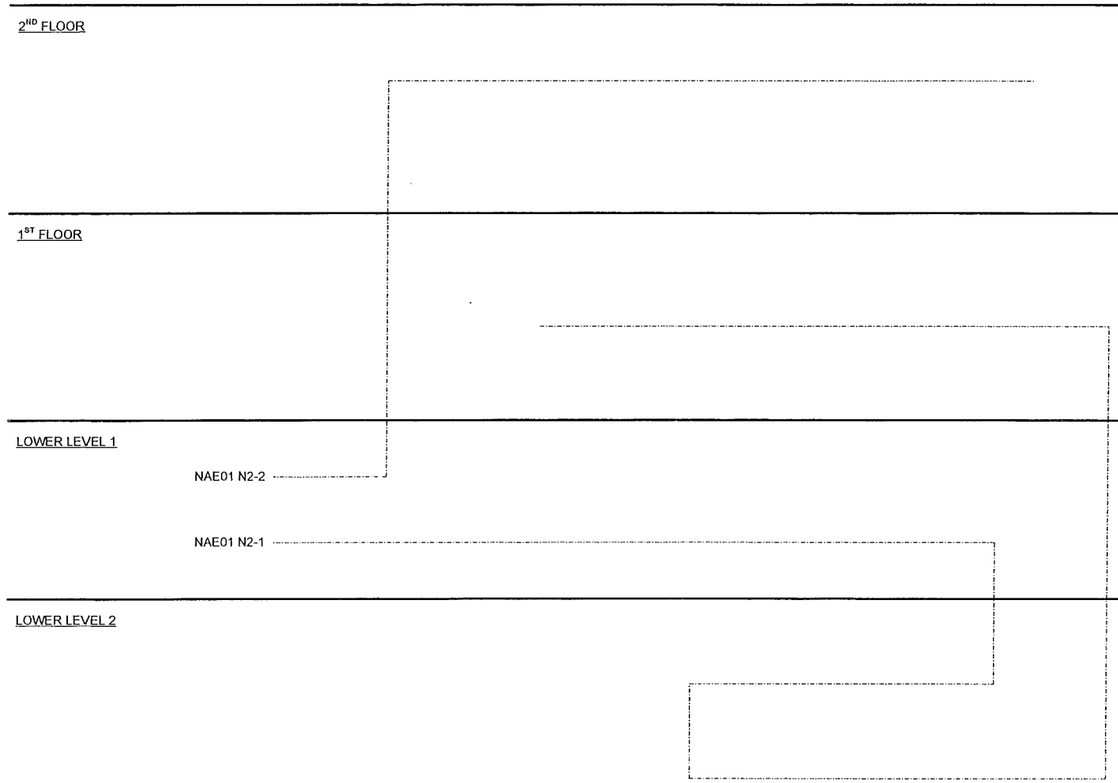
ETHERNET ADDRESSES		
REV	TYPE	ADDRESS
	SUBNET MASK	255.255.255.0
	DEFAULT GATEWAY	134.48.250.101

TRUNK SCHEMATIC LEGEND

N1-A	N1 ARCNET BUS	R	RS232 CABLE
N1-E	N1 ETHERNET BUS	M	MODEM CABLE - RS232
N1-F	N1 FIBER BUS	P	PARALLEL PRINTER CABLE
BAC	BACNET (N30) BUS	XT	XT BUS
N2	N2 BUS	*	N2 BUS END OF LINE
NT	NT BUS	#	LON BUS END OF LINE
N2/NT	N2 AND NT BUS	+	N1 BUS END OF LINE
LON	LON BUS		

NOTE: N2 TRUNK IS SCHEMATIC ONLY. ACTUAL RUN WILL VARY.

REVISION INFORMATION	Drawing Title: COMMUNICATIONS BUS							
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS	
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME: 08:30 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: Trunkb.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490				CONTRACT NUMBER: 0 3109-0044		
						DRAWING NUMBER: 2.2		



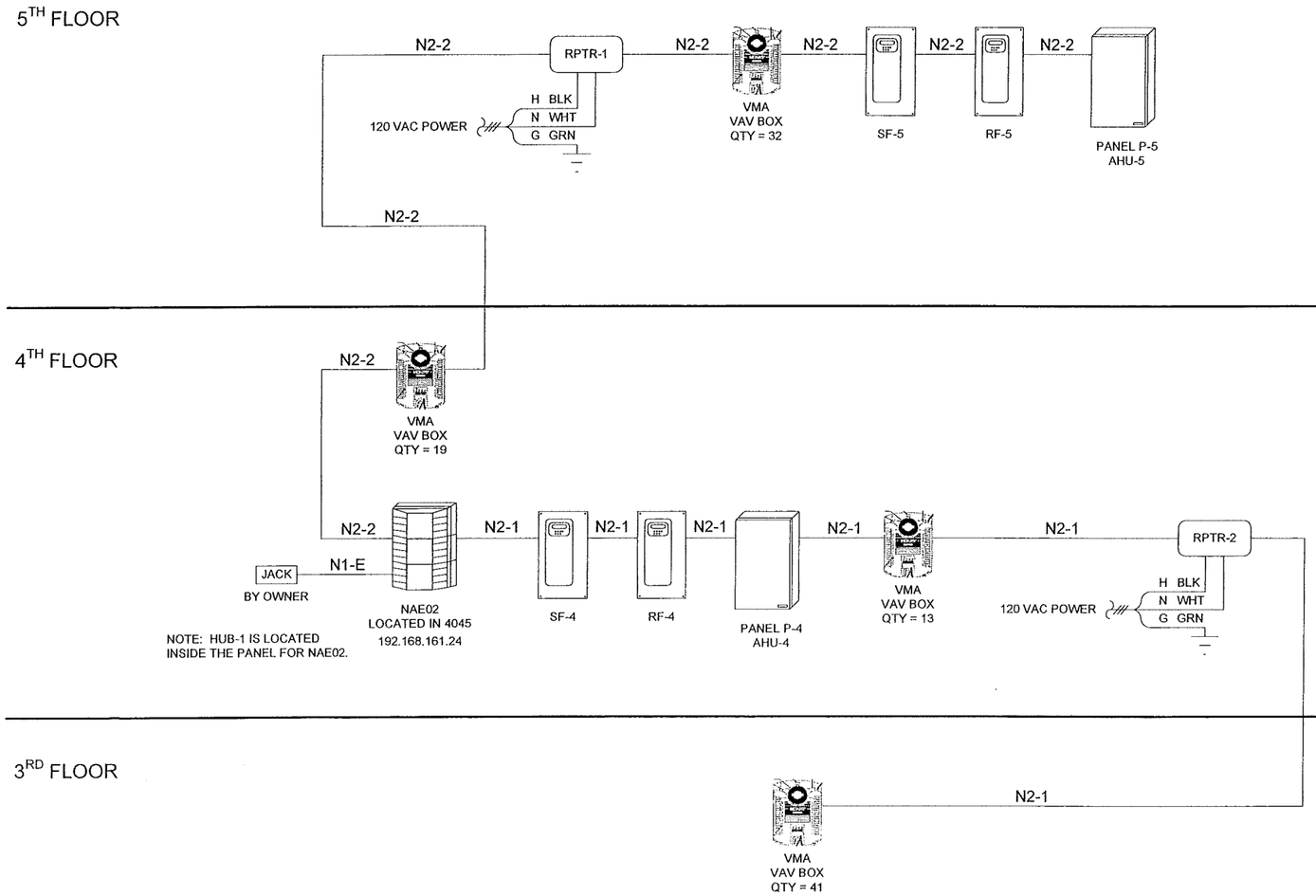
NOTES:

INSTALL REPEATERS EVERY 50 N2 DEVICES.

REVISION INFORMATION	Drawing Title							
NUMBER	COMMUNICATIONS BUS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
04/17/08		Sales Engineer / Project Manager: GLA / SEL	Application Engineer: RJM	DRAWN: BY / DATE	APPROVED: BY / DATE			
TIME 09:48 AM	Project Title			Branch Information		CONTRACT NUMBER		
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
FILE NAME Vavrisra.vsd						DRAWING NUMBER 2.3		

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
RPTR-x	2	4683-TTM-1	REPEATER,RS-485>RS-485,115VAC
Panel Devices:			
HUB-1	1	464163	NETGEAR-5 PORT 10/100 SWITCHING HUB-ITAS
NAE02	2	064321	3' RJ45 PATCH CABLE-ITAS
	1	EN-EWC35-0	TRIPLE ENCLOSURE WITH 100VA POWER
	1	MS-NAE5510-0	NAE W/N2 BUS, 24VAC, 50VA



ETHERNET ADDRESSES		
REV	TYPE	ADDRESS
	SUBNET MASK	255.255.255.0
	DEFAULT GATEWAY	134.48.250.101

TRUNK SCHEMATIC LEGEND

N1-A	N1 ARCNET BUS	R	RS232 CABLE
N1-E	N1 ETHERNET BUS	M	MODEM CABLE - RS232
N1-F	N1 FIBER BUS	P	PARALLEL PRINTER CABLE
BAC	BACNET (N30) BUS	XT	XT BUS
N2	N2 BUS	*	N2 BUS END OF LINE
NT	NT BUS	#	LON BUS END OF LINE
N2/NT	N2 AND NT BUS	+	N1 BUS END OF LINE
LON	LON BUS		

NOTE: N2 TRUNK IS SCHEMATIC ONLY. ACTUAL RUN WILL VARY.

REVISION INFORMATION
NUMBER
DATE 04/17/08
TIME 08:30 AM
FILE NAME Trunkc.vsd

Drawing Title
COMMUNICATIONS BUS

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER **0 3109-0044**
DRAWING NUMBER **2.4**

5TH FLOOR

4TH FLOOR

NAE02 N2-2

NAE02 N2-1

3RD FLOOR

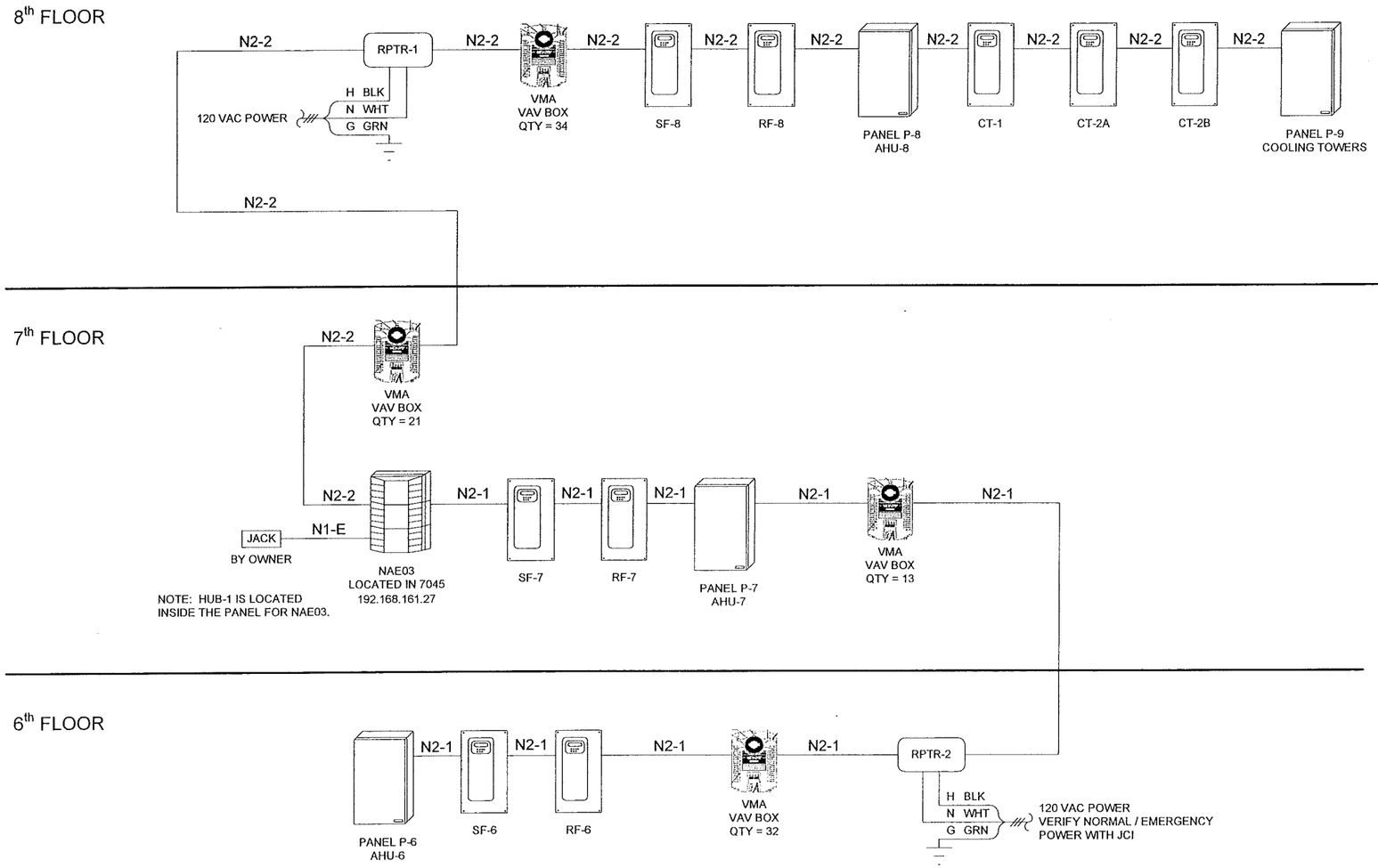
NOTES:

INSTALL REPEATERS EVERY 50 N2 DEVICES.

REVISION INFORMATION	Drawing Title							
NUMBER	COMMUNICATIONS BUS		1	RECORD DRAWINGS		03/30/08	WCS
		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
DATE 04/17/08		Sales Engineer / Project Manager: GLA / SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
TIME 08:30 AM	Project Title	JOHNSON CONTROLS	Branch Information	CONTRACT NUMBER			
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division	Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	0 3109-0044			
FILE NAME Vavrisrb.vsd				DRAWING NUMBER 2.5			

BILL OF MATERIALS

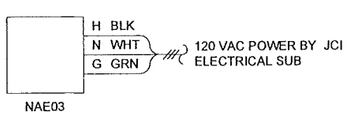
Designation	Qty	Part Number	Description
Field Devices:			
RPTR-x	2	4683-TTM-1	REPEATER,RS-485>RS-485,115VAC
Panel Devices:			
HUB-1	1	464163	NETGEAR-5 PORT 10/100 SWITCHING HUB-ITAS
NAE03	2	064321	3' RJ45 PATCH CABLE-ITAS
	1	EN-EWC35-0	TRIPLE ENCLOSURE WITH 100VA POWER
	1	MS-NAE5510-0	NAE W/N2 BUS, 24VAC, 50VA



ETHERNET ADDRESSES		
REV	TYPE	ADDRESS
	SUBNET MASK	255.255.255.0
	DEFAULT GATEWAY	134.48.250.101

TRUNK SCHEMATIC LEGEND

N1-A	N1 ARCNET BUS	R	RS232 CABLE
N1-E	N1 ETHERNET BUS	M	MODEM CABLE - RS232
N1-F	N1 FIBER BUS	P	PARALLEL PRINTER CABLE
BAC	BACNET (N30) BUS	XT	XT BUS
N2	N2 BUS	*	N2 BUS END OF LINE
NT	NT BUS	#	LON BUS END OF LINE
N2/NT	N2 AND NT BUS	+	N1 BUS END OF LINE
LON	LON BUS		



NOTE: N2 TRUNK IS SCHEMATIC ONLY. ACTUAL RUN WILL VARY.

REVISION INFORMATION	Drawing Title							
NUMBER	COMMUNICATIONS BUS			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:30 AM		Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME Trunkd.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 2.6	

8TH FLOOR

7TH FLOOR

NAE03 N2-2

NAE03 N2-1

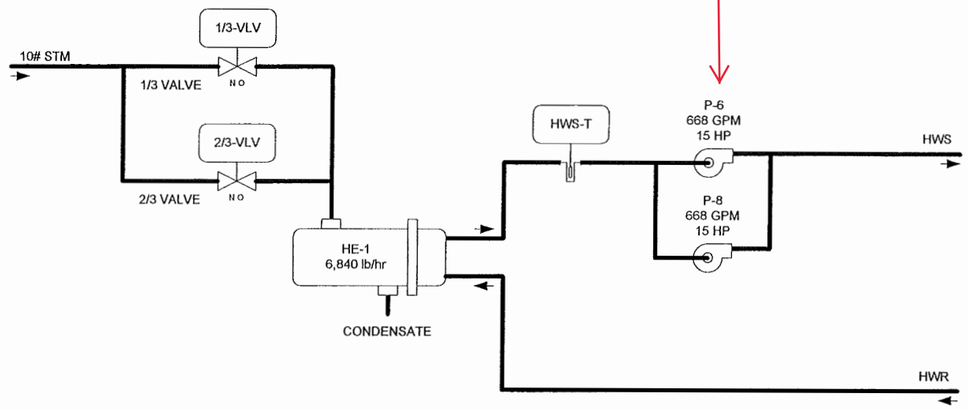
6TH FLOOR

NOTES:

INSTALL REPEATERS EVERY 50 N2 DEVICES.

REVISION INFORMATION	Drawing Title							
NUMBER	COMMUNICATIONS BUS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE				
TIME 08:29 AM	Project Title	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044				
FILE NAME Vavrisrc.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703			DRAWING NUMBER: 2.7				

Add VFD controls for HW-P



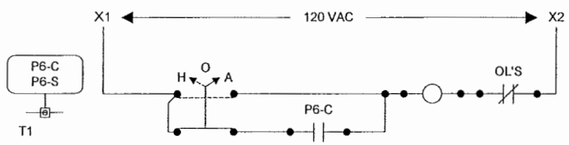
OA-T — LOCATE ON NORTH SIDE OF BUILDING AWAY FROM ANY HEAT SOURCE.

NOTE: ALL ASSOCIATED POINTS ARE WIRED TO PANEL P-1.

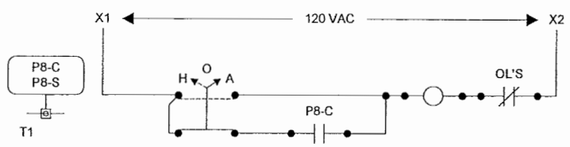
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
1/3-VLV, 2/3-VLV	0	VALVE	SEE VALVE SCHEDULE
HWS-T	1	TE-631AP-1	SENSOR,T-NI,0.1%,F/WZ1000-5 WELL
	1	WZ-1000-5	WELL,BRASS,2-3/8IN,1/2IN NPT+COMPOUND
OA-T	1	TE-6313P-1	SENSOR,T-NI,0.1%,3IN OAT
P6-C, P6-S, P8-C, P8-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY

PUMP P-6 STARTER WIRING



PUMP P-8 STARTER WIRING



REVISION INFORMATION	Drawing Title: HOT WATER SYSTEM FLOW							
NUMBER								
DATE: 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS	
TIME: 09:48 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION		ECN	DATE	BY
		Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN: BY / DATE		APPROVED: BY / DATE		
FILE NAME: Hwsf.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044		
						DRAWING NUMBER: 3.1		

BUILDING HOT WATER HEAT (STEAM TO HOT WATER HEAT EXCHANGER):
General:
Control electronically with dedicated stand-alone Control.

System Off:
Steam valves will be closed.

System Start:
Heat exchanger control will be enabled when proof of water flow has been established.

System Run:
When outside air temperature drops to 60F (adjustable), 13-2/3 capacity steam valves will modulate in sequence to maintain the hot water supply temperature at set point as reset from outdoor air temperature.

Reset schedule will be adjustable, with initial schedule of 180F (adj.) set point at -10F (adj.) outside air temperature to 100F (adj.) set point at 60F (adj.) outside air temperature.

System Stop:
Heat exchanger control will be disabled when water flow is not present. Steam valves will be closed.

Safeties and Alarms:
None.

Failure Modes:
Sensor Failure: Upon the failure of an analog sensor, steam valves will remain at their last position and alarm will be annunciated.

Power Failure: Steam valves will be provided with spring return actuators to fail open to the heat exchanger.

HOT WATER PUMPS:
General:
Totalize runtime of the hot water pumps and alternate lead pump every 168 hours of operation (adj.).

System Off:
The hot water pumps will be off (P-6 and P-8).

System Start:
When the outdoor air temperature falls below the heating system enable set point (60 degrees F, adj.), the lead hot water pump (operator selectable) will start. When the building is occupied, the pump will run.

A pump will operate for a minimum of 15 minutes (adj.).

System Run:
The lead hot water pump will run continuously.

System Stop:
When the outdoor air temperature rises above the heating system enable set point (60 degrees F, adj.) and the building is unoccupied, the hot water pumps will stop.

Safeties and Alarms:
Annunciate off-normal alarm whenever pump status does not equal command.

Failure Modes:
Pump Failure: If a pump fails to operate, the lag pump will be started, the failed pump will be disabled, and alarm will be annunciated.

Speed:
Add VFD control points.

REVISION INFORMATION						
NUMBER						
DATE 04/17/08		1	RECORD DRAWINGS		03/30/08	WCS
TIME 09:48 AM	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
FILE NAME hwss.vsd	Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM / DRAWN BY / DATE / APPROVED BY / DATE					

Drawing Title
SEQUENCE

Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

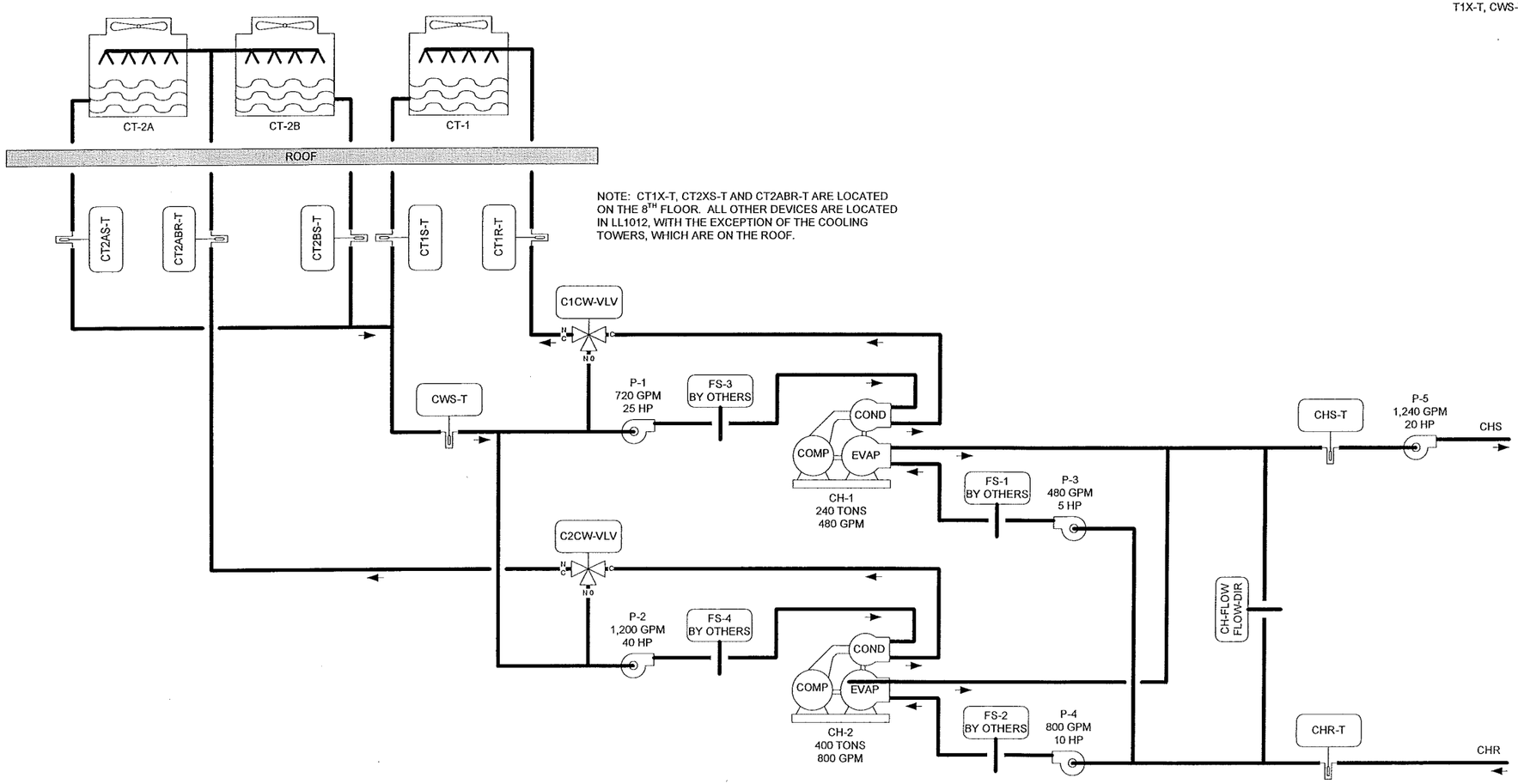
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER
0 3109-0044

DRAWING NUMBER
3.2

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
C1CW-VLV, C2CW-VLV	0	VALVE	SEE VALVE SCHEDULE
CH-FLOW, FLOW-DIR	1	F-STD-INSTL1	INSTALL KIT, STD, WELDED
	1	FB-1211	FLOWMETER, BI-DIR ISO-ANALOG OUT
CT2XS-T, CT2ABR-T, CT1X-T, CWS-T, CHX-T	8	TE-631AP-1	SENSOR,T-NI,0.1%,F/WZ1000-5 WELL
	8	WZ-1000-5	WELL,BRASS,2-3/8IN,1/2IN NPT+COMPOUND

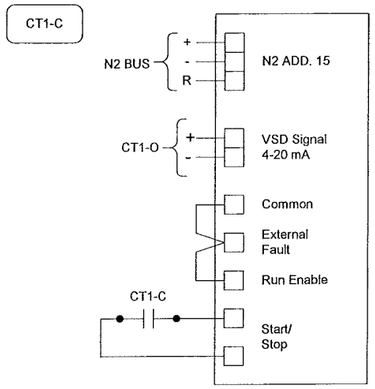


REVISION INFORMATION	Drawing Title: CHILLED WATER SYSTEM FLOW							
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 09:47 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: chsf.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 4.1		

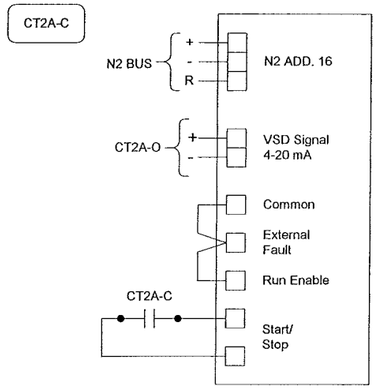
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CTx-C, CHx-E	5	RIBU1S	10AMP SPST-NO+HOA 10-30VAC/DC/120VAC
Px-C, Px-S	5	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY

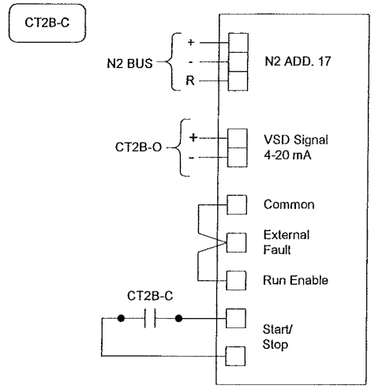
COOLING TOWER CT-1 VSD WIRING



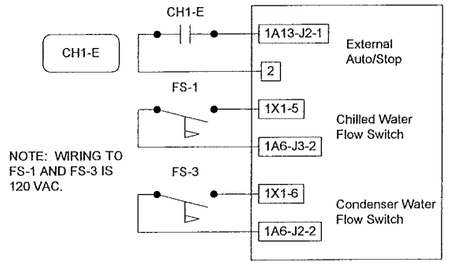
COOLING TOWER CT-2A VSD WIRING



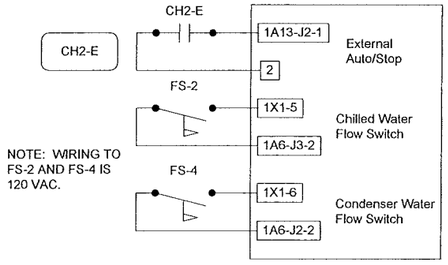
COOLING TOWER CT-2B VSD WIRING



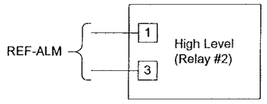
CHILLER CH-1 CONTROL PANEL WIRING



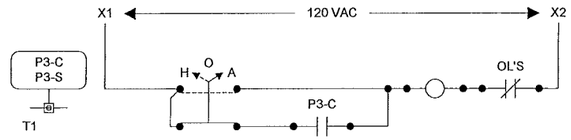
CHILLER CH-2 CONTROL PANEL WIRING



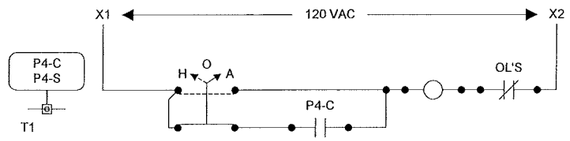
REFRIGERANT LEAK DETECTOR BY OTHERS



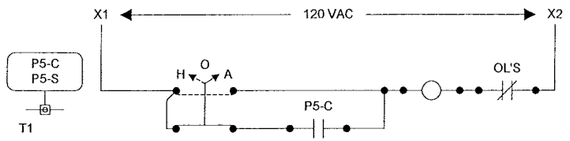
PUMP P-3 STARTER WIRING



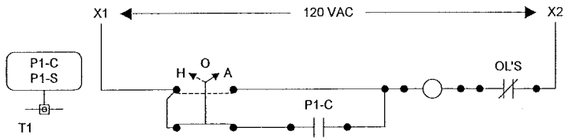
PUMP P-4 STARTER WIRING



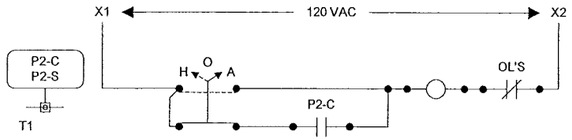
PUMP P-5 STARTER WIRING



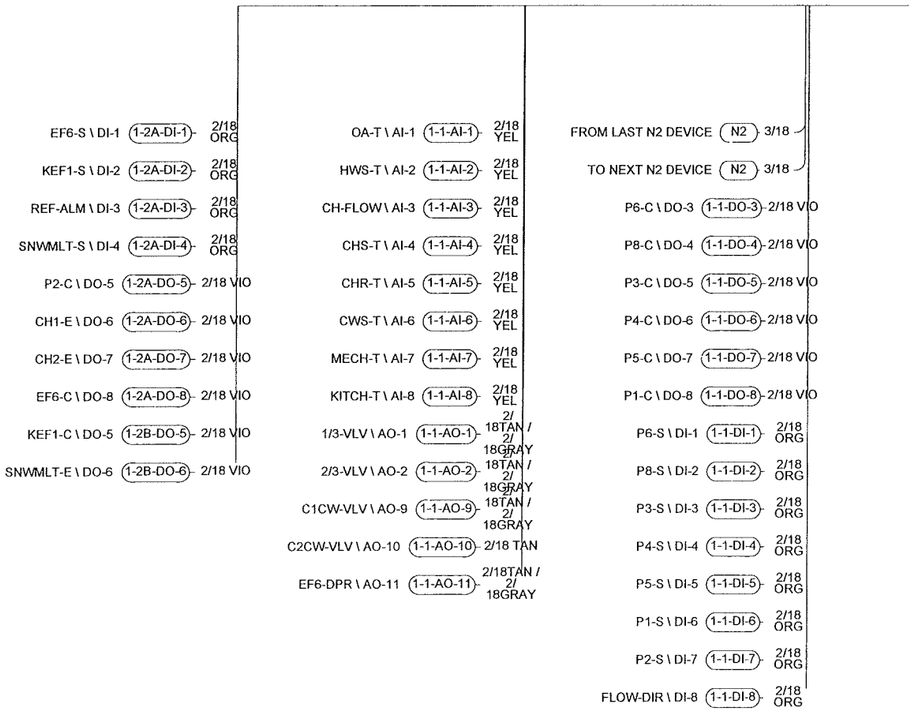
PUMP P-1 STARTER WIRING



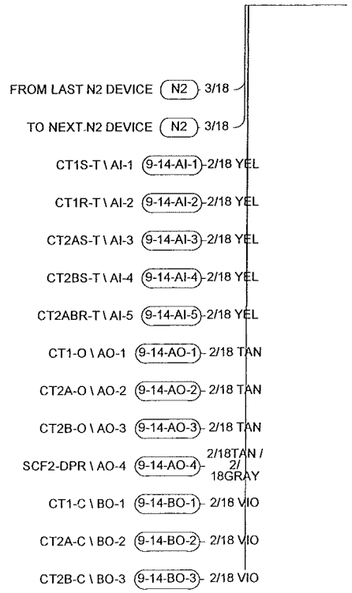
PUMP P-2 STARTER WIRING



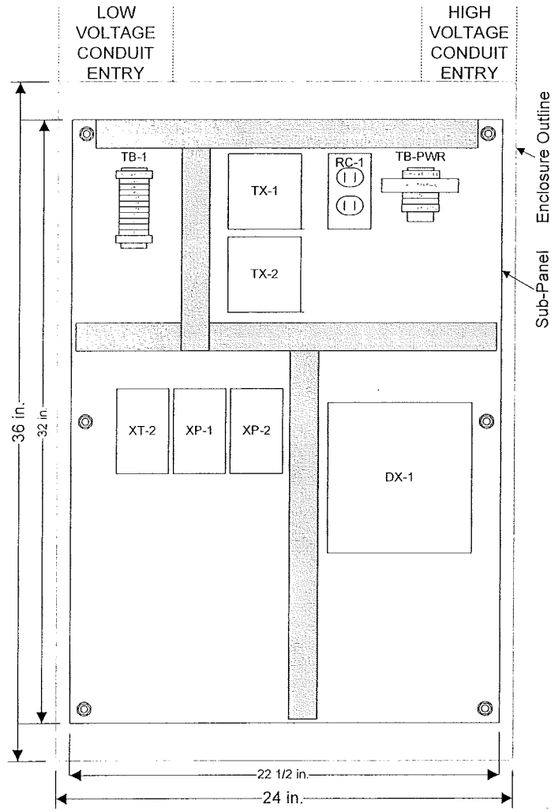
REVISION INFORMATION	Drawing Title: CHILLED WATER SYSTEM FIELD WIRING							
NUMBER								
DATE: 04/17/08				1	RECORD DRAWINGS		03/30/08	WCS
TIME: 09:47 AM		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: Chsfw.vsd		JOHNSON CONTROLS Systems & Services Division			Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	
							DRAWING NUMBER: 4.2	

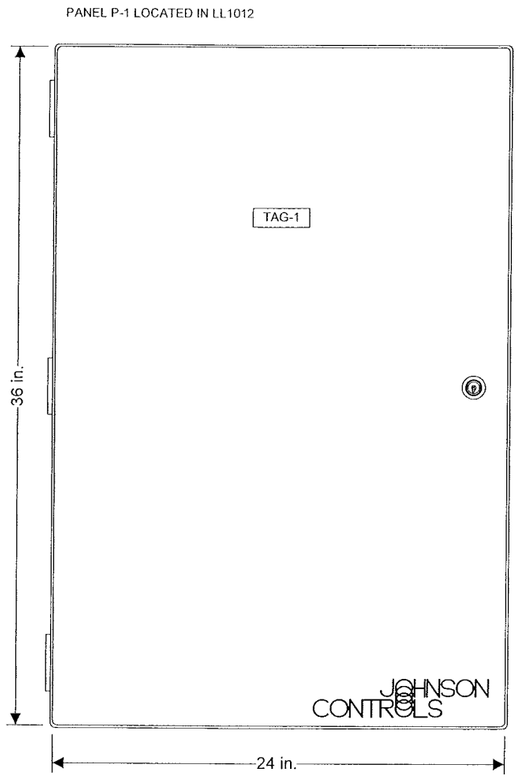


REVISION INFORMATION	Drawing Title						
NUMBER	CHILLED WATER SYSTEM FIELD POINTS						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 09:47 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
FILE NAME chsfp1.vsd	Project Title	Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE			
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 4.3	



REVISION INFORMATION	Drawing Title							
NUMBER	CHILLED WATER SYSTEM FIELD POINTS			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 09:46 AM		Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME chsfp2.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER 0 3109-0044	
							DRAWING NUMBER 4.4	





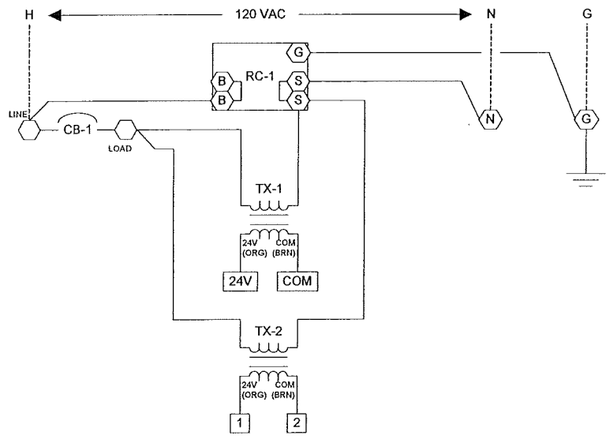
PANEL FACE TAGS:
TAG-1: PANEL P-1
HWS & CHS
JCI 0 3109-0044

BILL OF MATERIALS

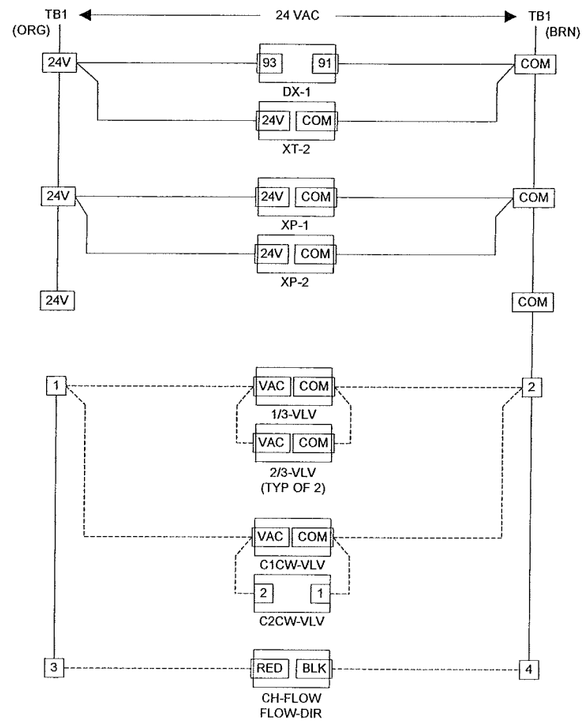
Designation	Qty	Part Number	Description
Panel Devices:			
DX-1	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9120-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-1	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	10	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	2	PD-114-02	XFMR,120/24VAC,96VA
XP-x	2	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-2	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

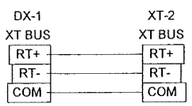
REVISION INFORMATION	Drawing Title							
NUMBER	CHILLED WATER SYSTEM PANEL 1 LOCATED IN LL1012							
			1	RECORD DRAWINGS		03/30/08	CSW	
DATE 04/18/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME 04:17 PM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME chsp1.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 4.5			

LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM





Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION						
NUMBER						
		1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE BY
TIME 09:46 AM	Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME chspw1.vsd						

Drawing Title
CHILLED WATER SYSTEM PANEL 1 WIRING

Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

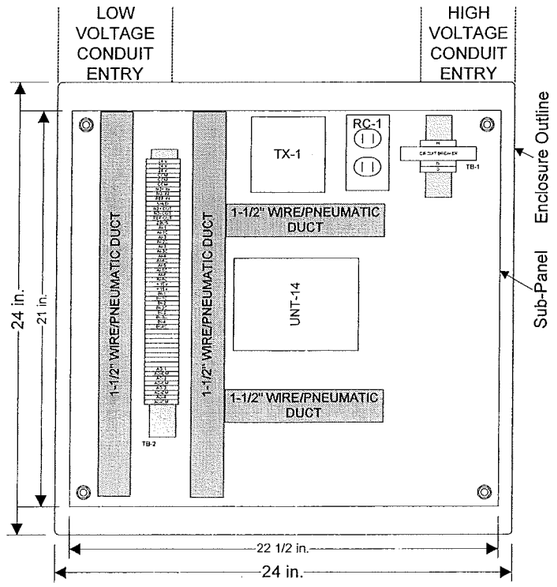
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER
0 3109-0044

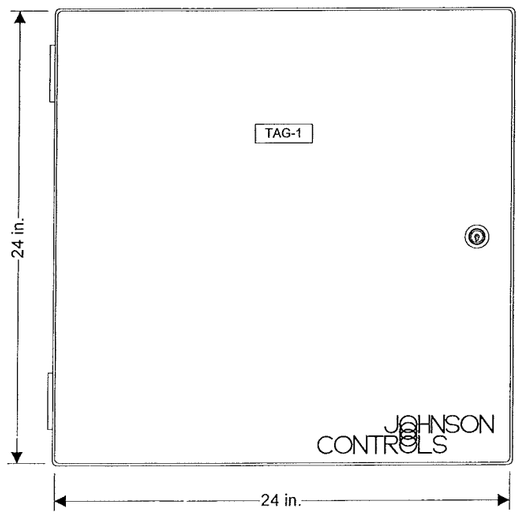
DRAWING NUMBER
4.6

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-9	1	PAU1PE	UNT1144 CONTROLLER PANEL ASSY IN 24X24
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE



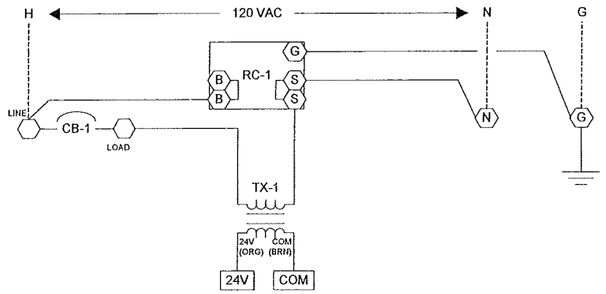
PANEL P-9 LOCATED IN 8045



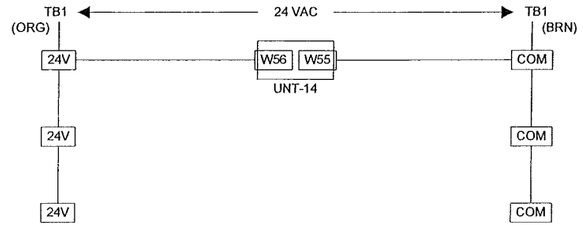
PANEL FACE TAGS:
TAG-1: PANEL P-9
CHS CONDENSER WATER CONTROL
JCI 0 3109-0044

REVISION INFORMATION	Drawing Title							
NUMBER	CHILLED WATER SYSTEM PANEL P-9 LOCATED IN 8045		1	RECORD DRAWINGS		03/30/08	CSW
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 09:46 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
FILE NAME chsp2.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER 0 3109-0044		
					DRAWING NUMBER 4.7		

LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title						
NUMBER	CHILLED WATER SYSTEM PANEL P-9 WIRING		1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 09:45 AM	Project Title	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY / DATE; APPROVED BY / DATE					
FILE NAME chspw2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 4.8	

WATER COOLED CHILLERS (2):
General:
Control electronically with stand-alone HVAC Node (HN).

The chillers will be connected to the JCI system via the LON bus. LON bus communications will provide monitoring of all data available at the drives via the FMS. Install Communications Interfaces furnished by the chiller manufacturer. Provide all necessary wiring between communications interfaces and FMS.

The FMS will monitor the common chilled water and condenser water supply and return temperatures.

System Off:
Chillers and associated chilled water and condenser water pumps will be off.

Cooling towers fan off.

Cooling tower bypass valve closed to tower.

System Start:
The FMS will monitor the position of all control valves. When there is a call for cooling in the building (any cooling coil valve open) the lead chiller (operator selectable) will be indexed to operate:
Associated chilled water and condenser water pumps will start.
Chiller will be enabled to start when proof of flow has been established.
The lead chiller will operate for a minimum of 15 minutes (adj.).

System Run:
The FMS will monitor the direction and amount of flow in the chilled water bypass line.

Lag Chiller Operation:
Lag chiller will be prevented from operating until 30 minutes (adj.) after initial system start-up.
Lag chiller will be indexed to operate when the flow in the bypass line from return to supply is equal to or greater than 80% of the chiller % of load of the lag chiller for 15 minutes (adj.).
Lag chiller will be de-energized when the flow in the bypass line from supply to return is less than 80% of the chiller % of load of the lag chiller for 15 minutes (adj.).
The lead chiller will continue to operate to meet the building cooling load.

System Stop:
When there is no call for cooling and/or all air handling units are de-energized:
Lead chiller will be disabled.
Associated chilled water and condenser water pumps will continue to run for 2 minutes (adj.) after chiller shutdown and then be stopped.
The chilled water pumps are stopped.

Chiller system will remain off for a minimum of 15 minutes (adj.).

Safeties and Alarms:
The chiller microprocessors will annunciate discrete alarm conditions.

When a chiller alarm is initiated, the discrete alarm condition causing the alarm will be annunciated at the operator workstation.

Annunciate off-normal alarm whenever chiller status does not equal command.

Refer also to the Point List.

Failure and Modes:
Chiller Failure: If a chiller fails to operate, the chiller will be disabled and alarm will be annunciated at the operator workstation. Associated pumps will be stopped. The other chiller will be started as described above.

Pump Failure: If a pump fails to operate, its associated chiller will shut down and alarm will be annunciated at the operator workstation. Pumps will be disabled.

Sensor Failure: Upon the failure of an internal analog sensor, the chiller operating controls will shutdown the chiller. Upon the failure of an FMS analog sensor, an alarm will be annunciated at the operator workstation.

COOLING TOWERS (3):
General:
Control electronically with stand-alone HVAC Node (HN).

Totalize runtime of the tower fans and condenser water pumps.

The drives will be connected to the JCI system via the N2 bus. N2 bus communications will provide monitoring of all data available at the drives via the FMS. Install Communications Interfaces furnished by the VFD manufacturer. Provide all necessary wiring between communications interfaces and FMS.

The FMS will monitor the common condenser water supply and return temperatures.

System Off:
Chillers and associated chilled water and condenser water pumps, and the tower fans will be off.

Cooling tower bypass valve closed to towers.

System Start:
When there is a call for cooling in the building, and a chiller is enabled to operate:
The condenser water pump will start.
The cooling tower bypass valve will be controlled by the chiller to maintain the optimum condenser water supply temperature set point by modulating from full closed to the tower to full open to the tower.
When the condenser water supply temperature rises to the maximum condenser water set point (85 degrees F, adj.), the cooling tower fan will be modulated to maintain the set point.

System Run:
The FMS will monitor the chilled water supply temperature.

The tower will continue to operate to maintain the condenser water supply temperature set point.

When the lead tower fan has been modulated to its minimum speed for 15 minutes (adj.) and the condenser water temperature drops to the minimum condenser water supply temperature, the VFD will be de-energized. The cooling tower bypass valve will be modulated to maintain the set point.

System Stop:
When there is no call for cooling and/or all air handling units are de-energized:
Lead chiller will be disabled.
Associated chilled water and condenser water pumps will continue to run for 2 minutes (adj.) after chiller shutdown and then be stopped.
The cooling tower fan will be de-energized.
The cooling tower bypass valve will close to the towers.

Safeties and Alarms:
The VFD microprocessors will annunciate discrete alarm conditions.

Annunciate off-normal alarm whenever VFD status does not equal command.

Refer also to the Point List.

Failure Modes:
Tower Fan Failure: If a tower fan fails to operate an alarm will be annunciated at the operator workstation.

Condenser Water Pump Failure: If an operating pump fails, an alarm will be annunciated at the operator workstation.

Sensor Failure: Upon the failure of an FMS analog sensor, an alarm will be annunciated at the operator workstation.

PRIMARY LOOP CHILLED WATER CONSTANT FLOW - 1 PUMP:
General:
Totalize runtime of the chilled water pump.

System Off:
The chilled water pumps will be off.

System Start:
When the outdoor air temperature rises above the cooling system enable set point (55 degrees F, adj.) and there is a call for mechanical cooling, the chilled water pump P-5 will start.

A pump will operate for a minimum of 30 minutes (adj.).

System Run:
The chilled water pump will run continuously when there is a call for chilled water.

System Stop:
When the outdoor air temperature falls below the cooling system enable set point (55 degrees F, adj.), the chilled water pump will stop.

Safeties and Alarms:
Annunciate off-normal alarm whenever pump status does not equal command.

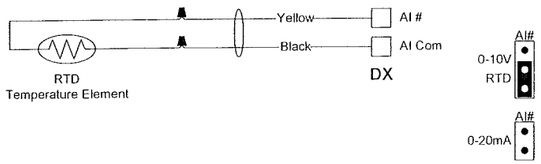
Refer also to Point List.

Failure Mode:
Pump Failure: If a pump fails to operate, an alarm will be annunciated.

REVISION INFORMATION	Drawing Title: SEQUENCE						
NUMBER							
			1	RECORD DRAWINGS		03/30/08	WCS
		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
DATE: 04/17/08		Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
TIME: 08:24 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	
FILE NAME: chss.vsd						DRAWING NUMBER: 4.9	

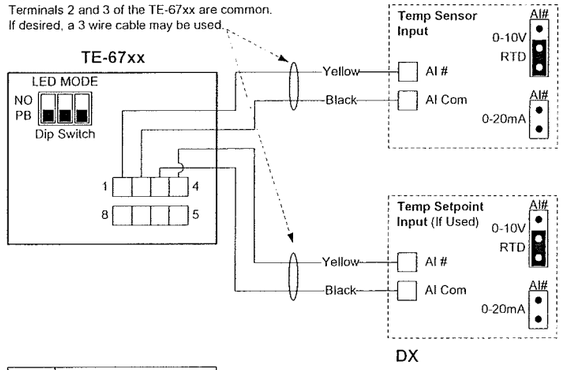
Electrician/Fitter	Point Information				Controller Information							Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment	Template
		HW-SYS			DX 9100																						Power to Controller	
		HW-SYS			DX 9100	N2	1	1						0													N2 Trunk	
	DO-3	HW-SYS	P6-C	HW Pump 6 Cntl	DX 9100	N2	1	1	DO-3					0		-1-DO-3												
	DO-4	HW-SYS	P8-C	HW Pump 8 Cntl	DX 9100	N2	1	1	DO-4					0		-1-DO-4												
	DO-5	HW-SYS	P3-C	CH-1 CH Pump 3 Cntl	DX 9100	N2	1	1	DO-5					0		-1-DO-5												
	DO-6	HW-SYS	P4-C	CH-2 CH Pump 4 Cntl	DX 9100	N2	1	1	DO-6					0		-1-DO-6												
	DO-7	HW-SYS	P5-C	CH Sec Pump 5 Cntl	DX 9100	N2	1	1	DO-7					0		-1-DO-7												
	DO-8	HW-SYS	P1-C	CH-1 CW Pump 1 Cntl	DX 9100	N2	1	1	DO-8					0		-1-DO-8												
	DI-1	HW-SYS	P6-S	HW Pump 6 Sts	DX 9100	N2	1	1	DI-1					0		-1-DI-1												
	DI-2	HW-SYS	P8-S	HW Pump 8 Sts	DX 9100	N2	1	1	DI-2					0		-1-DI-2												
	DI-3	HW-SYS	P3-S	CH-1 CH Pump 3 Sts	DX 9100	N2	1	1	DI-3					0		-1-DI-3												
	DI-4	HW-SYS	P4-S	CH-2 CH Pump 4 Sts	DX 9100	N2	1	1	DI-4					0		-1-DI-4												
	DI-5	HW-SYS	P5-S	CH Sec Pump 5 Sts	DX 9100	N2	1	1	DI-5					0		-1-DI-5												
	DI-6	HW-SYS	P1-S	CH-1 CW Pump 1 Sts	DX 9100	N2	1	1	DI-6					0		-1-DI-6												
	DI-7	HW-SYS	P2-S	CH-2 CW Pump 2 Sts	DX 9100	N2	1	1	DI-7					0		-1-DI-7												
	DI-8	HW-SYS	FLOW-DIR	CH Bypass Flow Direction	DX 9100	N2	1	1	DI-8					0		-1-DI-8												
	AI-1	HW-SYS	OA-T	Outdoor Air Temp	DX 9100	N2	1	1	AI-1					0		-1-AI-1												
	AI-2	HW-SYS	HWS-T	Hot Water Sup Temp	DX 9100	N2	1	1	AI-2					0		-1-AI-2												
	AI-3	HW-SYS	CH-FLOW	Chilled Water Byp Flow	DX 9100	N2	1	1	AI-3					0		-1-AI-3												
	AI-4	HW-SYS	CHS-T	Chilled Water Sup Temp	DX 9100	N2	1	1	AI-4					0		-1-AI-4												
	AI-5	HW-SYS	CHR-T	Chilled Water Ret Temp	DX 9100	N2	1	1	AI-5					0		-1-AI-5												
	AI-6	HW-SYS	CWS-T	Com Cond Water Sup Temp	DX 9100	N2	1	1	AI-6					0		-1-AI-6												
	AI-7	HW-SYS	MECH-T	Mech Rm Temp	DX 9100	N2	1	1	AI-7					0		-1-AI-7												
	AI-8	HW-SYS	KITCH-T	Kitchen Temp	DX 9100	N2	1	1	AI-8					0		-1-AI-8												
	AO-1	HW-SYS	1/3-VLV	HE-1 1/3 Valve	DX 9100	N2	1	1	AO-1					0		-1-AO-1												
	AO-2	HW-SYS	2/3-VLV	HE-1 2/3 Valve	DX 9100	N2	1	1	AO-2					0		-1-AO-2												
	AO-9	HW-SYS	C1CW-VLV	CH-1 Cond Wtr Vlv	DX 9100	N2	1	1	AO-9					0		-1-AO-9												
	AO-10	HW-SYS	C2CW-VLV	CH-2 Cond Wtr Vlv	DX 9100	N2	1	1	AO-10					0		-1-AO-10												
	AO-11	HW-SYS	EF6-DPR	Mech Rm EF Dpr Cmd	DX 9100	N2	1	1	AO-11					0		-1-AO-11												
	AO-12	HW-SYS			DX 9100	N2	1	1	AO-12					0		-1-AO-12												
	AO-13	HW-SYS			DX 9100	N2	1	1	AO-13					0		-1-AO-13												
	AO-14	HW-SYS			DX 9100	N2	1	1	AO-14					0		-1-AO-14												
		HW-SYS			XT (Expansion Module)																						Power to Controller	
		HW-SYS			XT (Expansion Module)	N2	1	2						0													N2 Trunk	
	XT1DI1	HW-SYS	EF6-S	Mech Rm Exh Fan Sts	XP 9104 (4DI, 4DO)	N2	1	2	DI-1					0		-2A-DI-1												
	XT1DI2	HW-SYS	KEF1-S	Kitchen Exh Fan Sts	XP 9104 (4DI, 4DO)	N2	1	2	DI-2					0		-2A-DI-2												
	XT1DI3	HW-SYS	REF-ALM	Refrig Leak Det High Alm	XP 9104 (4DI, 4DO)	N2	1	2	DI-3					0		-2A-DI-3												
	XT1DI4	HW-SYS	SNWMLT-S	Snowmelt System Sts	XP 9104 (4DI, 4DO)	N2	1	2	DI-4					0		-2A-DI-4												
	XT1DO5	HW-SYS	P2-C	CH-2 CW Pump 2 Cntl	XP 9104 (4DI, 4DO)	N2	1	2	DO-5					0		-2A-DO-5												
	XT1DO6	HW-SYS	CH1-E	Chiller 1 Enable	XP 9104 (4DI, 4DO)	N2	1	2	DO-6					0		-2A-DO-6												
	XT1DO7	HW-SYS	CH2-E	Chiller 2 Enable	XP 9104 (4DI, 4DO)	N2	1	2	DO-7					0		-2A-DO-7												
	XT1DO8	HW-SYS	EF6-C	Mech Rm Exh Fan Cntl	XP 9104 (4DI, 4DO)	N2	1	2	DO-8					0		-2A-DO-8												
	XT2DI1	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DI-1					0		-2B-DI-1												
	XT2DI2	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DI-2					0		-2B-DI-2												
	XT2DI3	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DI-3					0		-2B-DI-3												
	XT2DI4	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DI-4					0		-2B-DI-4												
	XT2DO5	HW-SYS	KEF1-C	Kitchen Exh Fan Cntl	XP 9104 (4DI, 4DO)	N2	1	2	DO-5					0		-2B-DO-5												
	XT2DO6	HW-SYS	SNWMLT-E	Snowmelt System Enable	XP 9104 (4DI, 4DO)	N2	1	2	DO-6					0		-2B-DO-6												
	XT2DO7	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DO-7					0		-2B-DO-7												
	XT2DO8	HW-SYS			XP 9104 (4DI, 4DO)	N2	1	2	DO-8					0		-2B-DO-8												
		HW-SYS			XT (Expansion Module)																						Power to Controller	
		HW-SYS			XT (Expansion Module)	N2	1	3						0													N2 Trunk	
	XT3AI1	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-1					0		-3A-AI-1												
	XT3AI2	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-2					0		-3A-AI-2												
	XT3AI3	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-3					0		-3A-AI-3												
	XT3AI4	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-4					0		-3A-AI-4												
	XT3AI5	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-5					0		-3A-AI-5												
	XT3AI6	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AI-6					0		-3A-AI-6												
	XT3AO7	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AO-7					0		-3A-AO-7												
	XT3AO8	HW-SYS			XP 9102 (6AI, 2AO)	N2	1	3	AO-8					0		-3A-AO-8												

DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D137 TE-6700 (Terminal Block) - NO PB

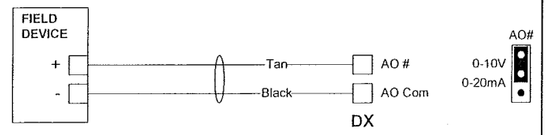
NOTE:
Terminals 2 and 3 of the TE-67xx are common.
If desired, a 3 wire cable may be used.



TERM	FUNCTION
1	SENSOR & OVERRIDE
2	SENSOR COMMON
3	SETPOINT COMMON
4	SETPOINT
5	POWER (24Vac or 15Vdc)
6	POWER/ZBUS COMMON
7	ZONE BUS
8	LED & OVERRIDE

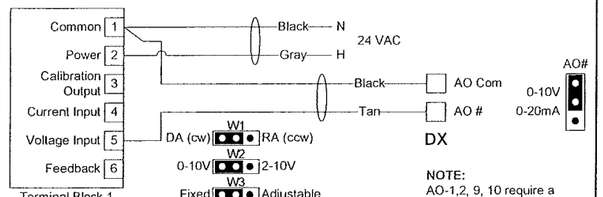
Temperature Jumpers are both set as RTD's, but Setpoint is defined as a 0-10V Active Input, and scaled based upon 0-2V

DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

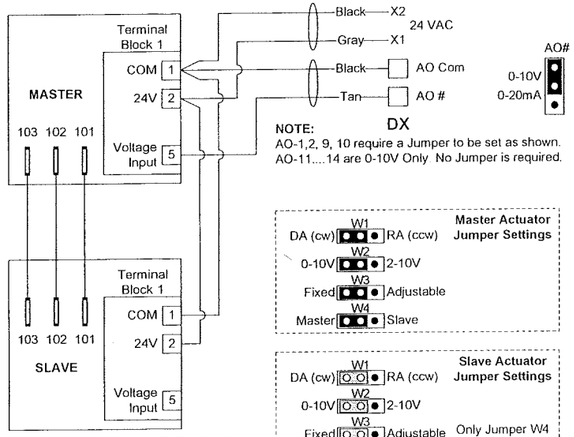
DETAIL D264 0-10VDC OUTPUT to M-9216



To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

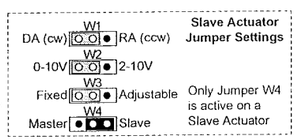
DETAIL D265 0-10VDC OUTPUT to M-9216 (Tandem Actuator)



NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only No Jumper is required.

Master Actuator Jumper Settings

Slave Actuator Jumper Settings

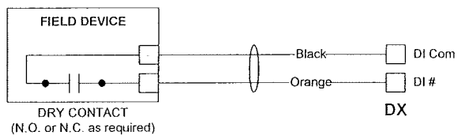


Only Jumper W4 is active on a Slave Actuator

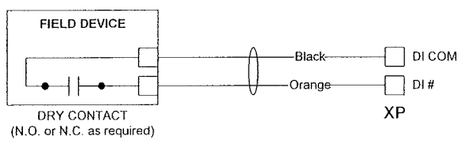
When connecting 2 actuators back to back on the same shaft, the coupler on one actuator must be set to spring return in the opposite direction from the other actuator.

To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

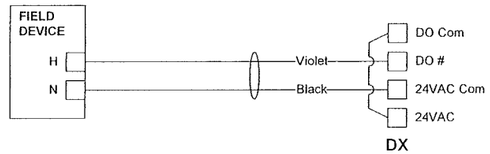
DETAIL D301 BINARY INPUT (DRY CONTACT)



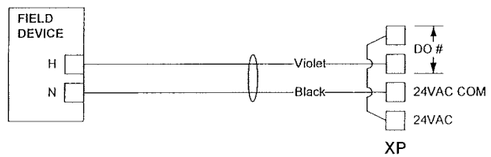
DETAIL XP301 BINARY INPUT (DRY CONTACT)



DETAIL D501 24 VAC BINARY OUTPUT (Switch High)



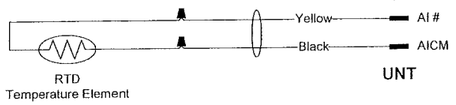
DETAIL XP501 24 VAC BINARY OUTPUT (Switch High)



REVISION INFORMATION	Drawing Title							
NUMBER	POINT SCHEDULE							
DATE 04/18/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 10:06 AM		Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME chsps2.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division			Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782		CONTRACT NUMBER 0 3109-044	DRAWING NUMBER 4.11

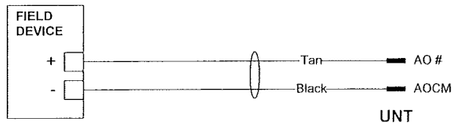
Electrician/Fitter Point Information					Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					UNT1100						P-9	8045									Power to Controller
					UNT1100	2	14				P-9	8045	0								N2 Trunk
	AI-1	CHS	CT1S-T	Clg Twr 1 CW Sup Temp	UNT1100	2	14	AI-1		AI1,AICM	P-9	8045	0		9-14-AI-1	2/18 YEL	2-Wire	TE		UC131	
	AI-2	CHS	CT1R-T	Clg Twr 1 CW Ret Temp	UNT1100	2	14	AI-2		AI2,AICM	P-9	8045	0		9-14-AI-2	2/18 YEL	2-Wire	TE		UC131	
	AI-3	CHS	CT2AS-T	Clg Twr 2A CW Sup Temp	UNT1100	2	14	AI-3		AI3,AICM	P-9	8045	0		9-14-AI-3	2/18 YEL	2-Wire	TE		UC131	
	AI-4	CHS	CT2BS-T	Clg Twr 2B CW Sup Temp	UNT1100	2	14	AI-4		AI4,AICM	P-9	8045	0		9-14-AI-4	2/18 YEL	2-Wire	TE		UC131	
	AI-5	CHS	CT2ABR-T	Clg Twr 2A-B CW Ret Tem	UNT1100	2	14	AI-5		AI5,AICM	P-9	8045	0		9-14-AI-5	2/18 YEL	2-Wire	TE		UC131	
	AI-6				UNT1100	2	14	AI-6			P-9	8045	0		9-14-AI-6						
	BI-1				UNT1100	2	14	BI-1			P-9	8045	0		9-14-BI-1						
	BI-2				UNT1100	2	14	BI-2			P-9	8045	0		9-14-BI-2						
	BI-3				UNT1100	2	14	BI-3			P-9	8045	0		9-14-BI-3						
	BI-4	CHS	TR1-FILL		UNT1100	2	14	BI-4			P-9	8045	0		9-14-BI-4						
	BI-6	CHS	TR2-FILL		UNT1100	2	14	BI-6			P-9	8045	0		9-14-BI-6						
	BI-7				UNT1100	2	14	BI-7			P-9	8045	0		9-14-BI-7						
	AO-1	CHS	CT1-O	Clg Tower 1 VSD Cmd	UNT1100	2	14	AO-1		AO1,AOCM	P-9	8045	0		9-14-AO-1	2/18 TAN	See wiring detail	Output (Voltage)		UC201	
	AO-2	CHS	CT2A-O	Clg Tower 2A VSD Cmd	UNT1100	2	14	AO-2		AO2,AOCM	P-9	8045	0		9-14-AO-2	2/18 TAN	See wiring detail	Output (Voltage)		UC201	
	AO-3	CHS	CT2B-O	Clg Tower 2B VSD Cmd	UNT1100	2	14	AO-3		AO3,AOCM	P-9	8045	0		9-14-AO-3	2/18 TAN	See wiring detail	Output (Voltage)		UC201	
	AO-4	CHS	SCF2-DPR	SCF-2 Inlet Damper Cmd	UNT1100	2	14	AO-4		AO4,AOCM / 24VAC	P-9	8045	0		9-14-AO-4	2/18TAN / 2/18	5, 1/1, 2	M-9216 (Ext Source)		UC264	
	BO-1	CHS	CT1-C	Cooling Tower 1 Cntl	UNT1100	2	14	BO-1		BO1(NO),24V Com	P-9	8045	0		9-14-BO-1	2/18 VIO	See wiring detail	24VAC OUT		UC504	
	BO-2	CHS	CT2A-C	Cooling Tower 2A Cntl	UNT1100	2	14	BO-2		BO2(NO),24V Com	P-9	8045	0		9-14-BO-2	2/18 VIO	See wiring detail	24VAC OUT		UC504	
	BO-3	CHS	CT2B-C	Cooling Tower 2B Cntl	UNT1100	2	14	BO-3		BO3(NO),24V Com	P-9	8045	0		9-14-BO-3	2/18 VIO	See wiring detail	24VAC OUT		UC504	
	BO-4				UNT1100	2	14	BO-4			P-9	8045	0		9-14-BO-4						

DETAIL UC131 TEMPERATURE SENSOR INPUT

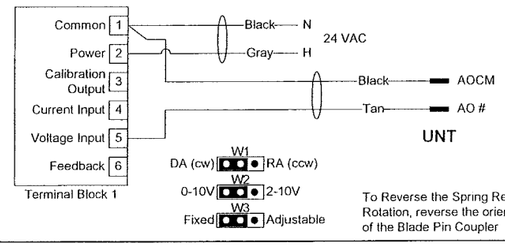


Set SW1 to OFF
and SW2 to ON

DETAIL UC201 ANALOG OUTPUT (VOLTAGE)

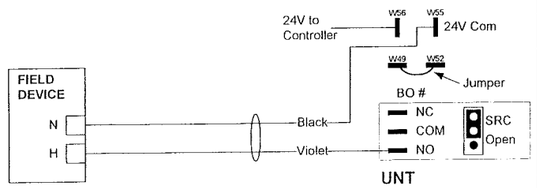


DETAIL UC264 0-10VDC OUTPUT to M-9216



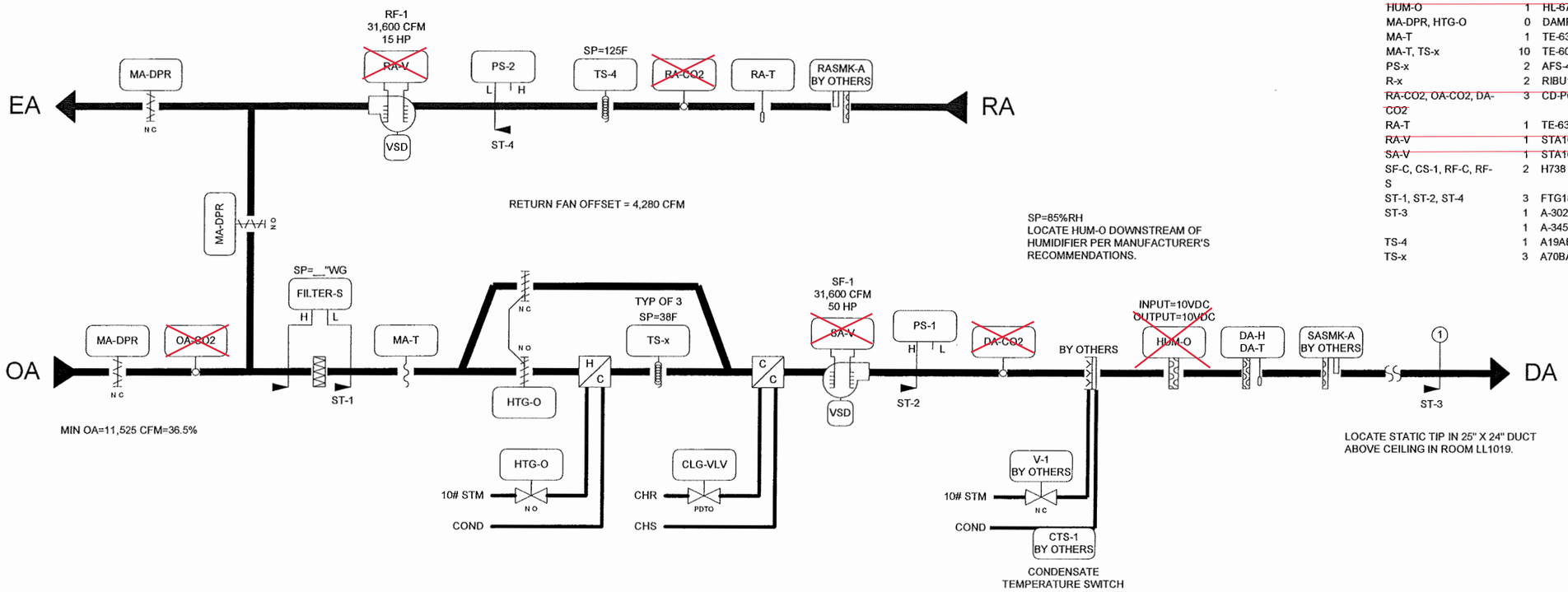
To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

DETAIL UC504 24 VAC BINARY OUTPUT



NOTE: 24V Sourced from Controller Power

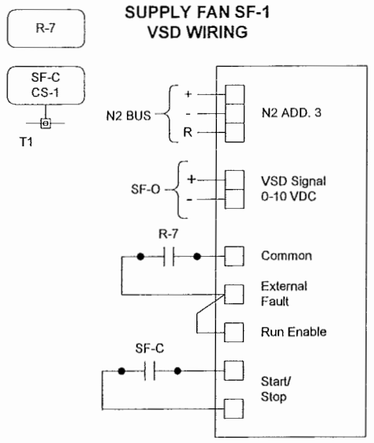
REVISION INFORMATION	Drawing Title							
NUMBER	POINT SCHEDULE							
DATE 04/18/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 04:19 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division	Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782	CONTRACT NUMBER 0 3109-0044	
FILE NAME chsps3.vsd				DRAWING NUMBER 4.12	



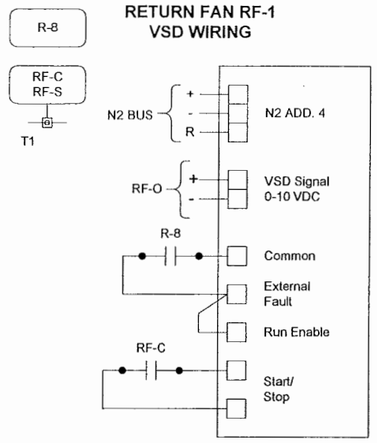
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
DA-H, DA-T	1	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	10	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	~~SENSOR,CO2, 0-2000PPM,DUCT MOUNT~~
RA-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-4	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	3	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-1 VSD WIRING

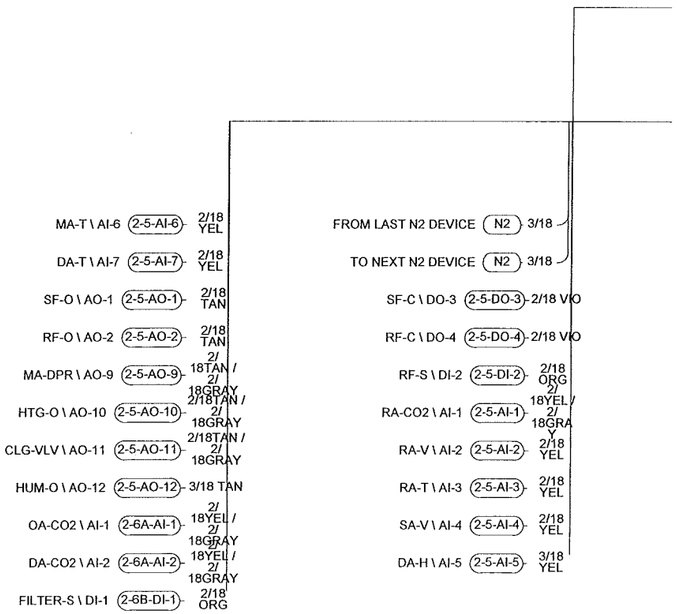


RETURN FAN RF-1 VSD WIRING

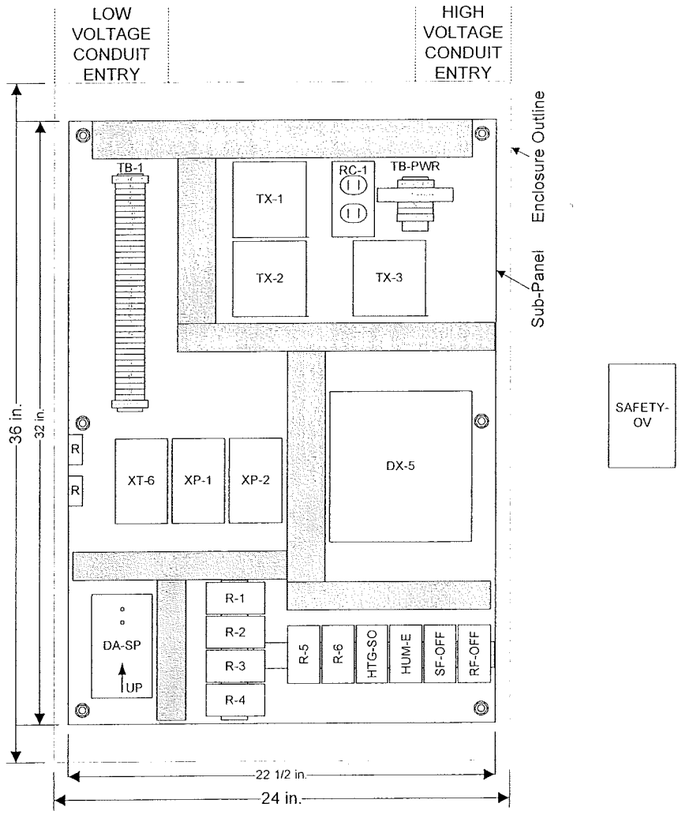


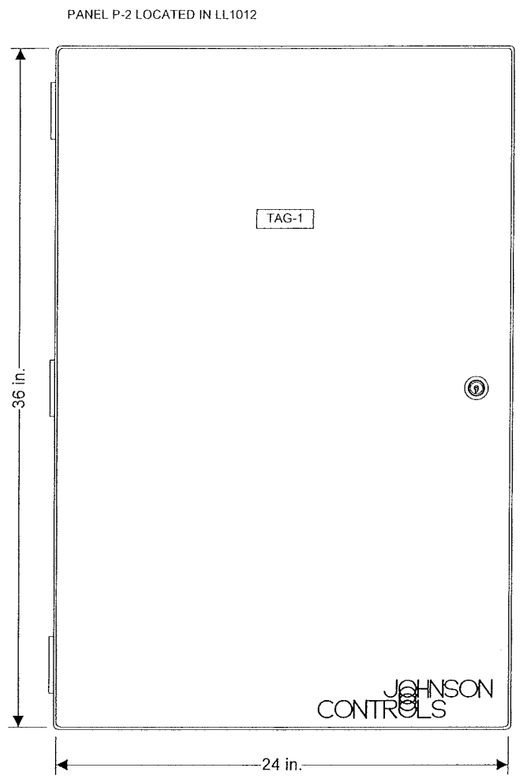
Note: "X" items are no longer in the control sequence.

REVISION INFORMATION	Drawing Title: AHU-1 FLOW					
NUMBER			1	RECORD DRAWINGS	03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN DATE	BY
TIME: 08:24 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE				
FILE NAME: ahu1f.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 5.1



REVISION INFORMATION	Drawing Title						
NUMBER	AHU-1 FIELD POINTS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer / Project Manager / Application Engineer / DRAWN BY DATE / APPROVED BY DATE					
		GLA / SEL / RJM					
TIME 08:23 AM	Project Title			Branch Information		CONTRACT NUMBER	
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044	
FILE NAME ahu1fp.vsd						DRAWING NUMBER 5.2	





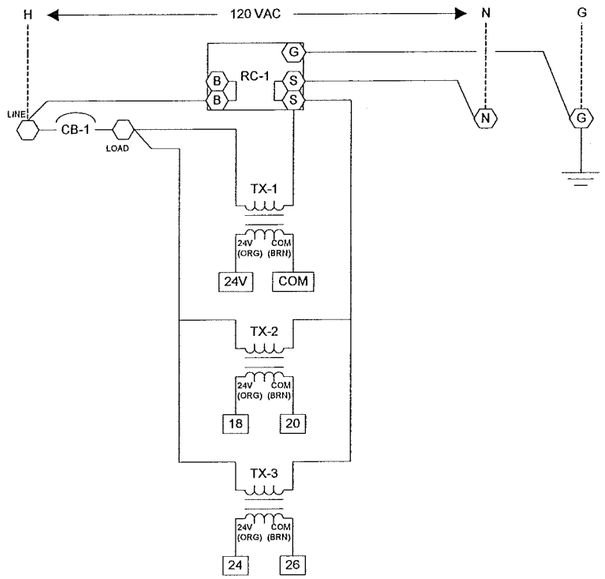
PANEL FACE TAGS:
TAG-1: PANEL P-2
AHU-1 SERVING LL2, LL1 & 1ST FLOORS
JCI 0 3109-0044

BILL OF MATERIALS

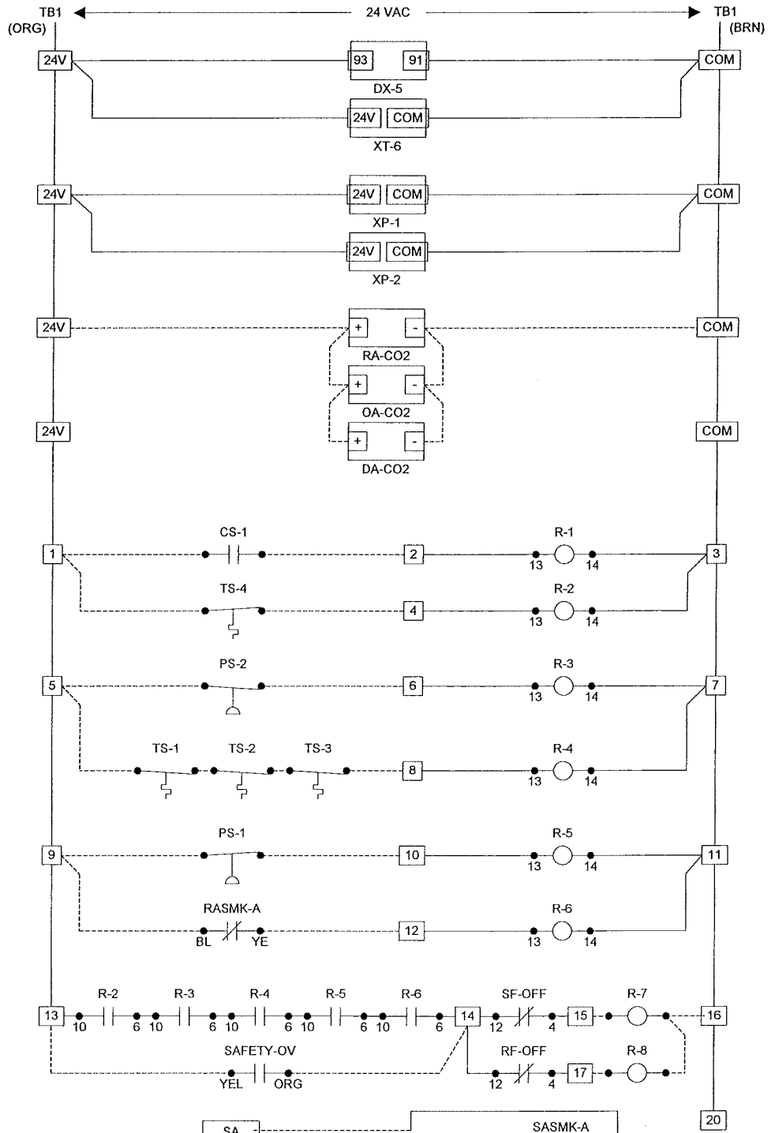
Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-5	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-2	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RASMK-1, SASMK-A	2	PAM-1	MULTI-V RELAY MODULE,FORM C,10A,AIR PROD.
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-6	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

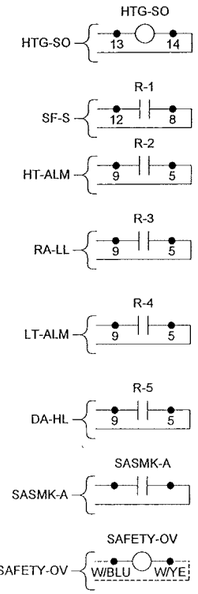
REVISION INFORMATION	Drawing Title							
NUMBER	AHU-1 PANEL LOCATED IN LL1012							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/16/08		REFERENCE DRAWING	NO	REVISION-LOCATION	ECN	DATE	BY	
TIME 01:11 PM		Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME ahu1p.vsd	Project Title DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 5.3			

LINE VOLTAGE WIRING DIAGRAM

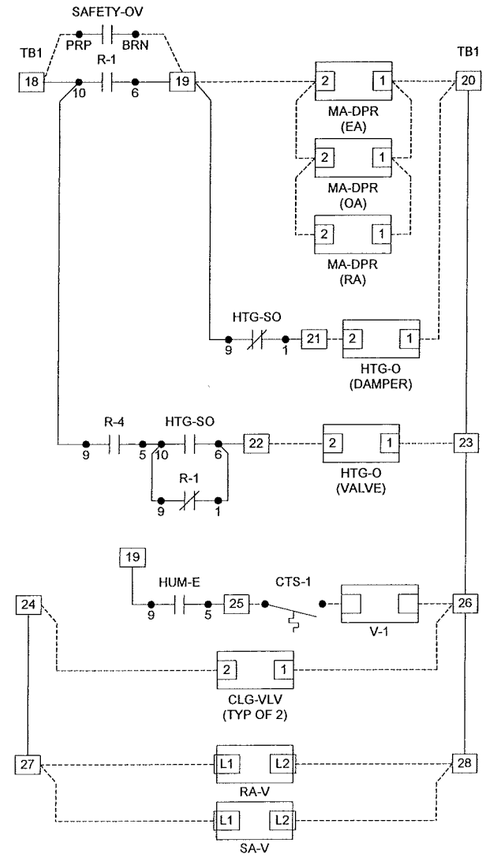


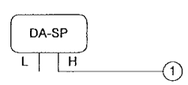
LOW VOLTAGE WIRING DIAGRAM

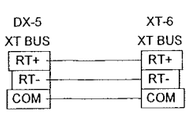




LOW VOLTAGE WIRING DIAGRAM







Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION					
NUMBER					
DATE 04/16/08					
TIME 01:11 PM					
FILE NAME ahu1pw.vsd					
	1	RECORD DRAWINGS		03/30/08	WCS
	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE BY

Drawing Title: **AHU-1 PANEL WIRING**

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title: **DANE COUNTY COURTHOUSE**
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: **0 3109-0044**

DRAWING NUMBER: **5.4**

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. **NOTE:** The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.
Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential (4,280 CFM) between the supply and exhaust (adj.).~~ Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).
Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title: SEQUENCE							
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:15 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE			
FILE NAME: Ahu1s1.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 5.5			

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

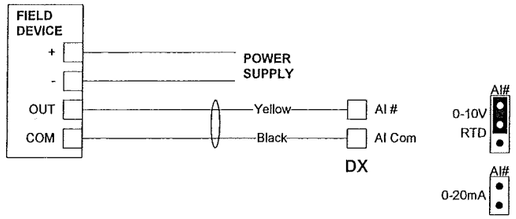
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

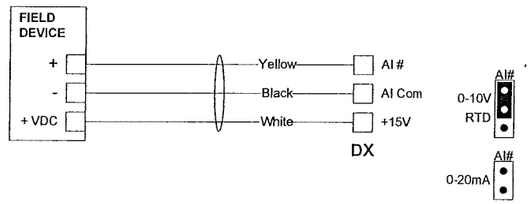
REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:14 AM		Sales Engineer: GLA ·	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME Ahu1s2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 5.6	

Electrician/Fitter	Point Information				Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment	Template
		AHU-1			DX 9100																						Power to Controller	
		AHU-1			DX 9100	N2	1	4						0													N2 Trunk	
	DO-3	AHU-1	SF-C	Supply Fan Cntl	DX 9100	N2	1	4	DO-3					0		-4-DO-3												
	DO-4	AHU-1	RF-C	Return Fan Cntl	DX 9100	N2	1	4	DO-4					0		-4-DO-4												
	DO-5	AHU-1	HTG-SO	Heating F&B/Valve Switch	DX 9100	N2	1	4	DO-5					0		-4-DO-5												
	DO-6	AHU-1	HUM-E	Humidifier Enable	DX 9100	N2	1	4	DO-6					0		-4-DO-6												
	DO-7	AHU-1	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	1	4	DO-7					0		-4-DO-7												
	DO-8	AHU-1	RF-OFF	Return Fan FFCP Override	DX 9100	N2	1	4	DO-8					0		-4-DO-8												
	DI-1	AHU-1	SF-S	Supply Fan Sts	DX 9100	N2	1	4	DI-1					0		-4-DI-1												
	DI-2	AHU-1	RF-S	Return Fan Sts	DX 9100	N2	1	4	DI-2					0		-4-DI-2												
	DI-3	AHU-1	RASMK-A	Return Air Duct Detector	DX 9100	N2	1	4	DI-3					0		-4-DI-3												
	DI-4	AHU-1	SASMK-A	Supply Air Duct Detector	DX 9100	N2	1	4	DI-4					0		-4-DI-4												
	DI-5	AHU-1	PRKFIR-A	Parking Lot Fire Alm	DX 9100	N2	1	4	DI-5					0		-4-DI-5												
	DI-6	AHU-1	BSTFIR-A	Bsmnt Holding Fire Alm	DX 9100	N2	1	4	DI-6					0		-4-DI-6												
	DI-7	AHU-1	RA-LL	Ret Air Low Static Alm	DX 9100	N2	1	4	DI-7					0		-4-DI-7												
	DI-8	AHU-1	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	1	4	DI-8					0		-4-DI-8												
	AI-1	AHU-1	RA-CO2	Return Air CO2 Level	DX 9100	N2	1	4	AI-1					0		-4-AI-1												
	AI-2	AHU-1	RA-FLOW	Return Air Flow	DX 9100	N2	1	4	AI-2					0		-4-AI-2												
	AI-3	AHU-1	RA-T	Return Air Temp	DX 9100	N2	1	4	AI-3					0		-4-AI-3												
	AI-4	AHU-1	SA-FLOW	Supply Air Flow	DX 9100	N2	1	4	AI-4					0		-4-AI-4												
	AI-5	AHU-1	DA-H	Disch Air Humidity	DX 9100	N2	1	4	AI-5					0		-4-AI-5												
	AI-6	AHU-1	MA-T	Mixed Air Temp	DX 9100	N2	1	4	AI-6					0		-4-AI-6												
	AI-7	AHU-1	DA-T	Discharge Air Temp	DX 9100	N2	1	4	AI-7					0		-4-AI-7												
	AI-8	AHU-1	DA-SP	Disch Air Static Press	DX 9100	N2	1	4	AI-8					0		-4-AI-8												
	AO-1	AHU-1	SF-O	Supply Fan VSD Cmd	DX 9100	N2	1	4	AO-1					0		-4-AO-1												
	AO-2	AHU-1	RF-O	Return Fan VSD Cmd	DX 9100	N2	1	4	AO-2					0		-4-AO-2												
	AO-9	AHU-1	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	1	4	AO-9					0		-4-AO-9												
	AO-10	AHU-1	HTG-O	Heating Cmd	DX 9100	N2	1	4	AO-10					0		-4-AO-10												
	AO-11	AHU-1	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	1	4	AO-11					0		-4-AO-11												
	AO-12	AHU-1	HUM-O	Humidifier Cmd	DX 9100	N2	1	4	AO-12					0		-4-AO-12												
	AO-13	AHU-1			DX 9100	N2	1	4	AO-13					0		-4-AO-13												
	AO-14	AHU-1			DX 9100	N2	1	4	AO-14					0		-4-AO-14												
		AHU-1			XT (Expansion Module)																						Power to Controller	
		AHU-1			XT (Expansion Module)	N2	1	5						0													N2 Trunk	
	XT1AI1	AHU-1	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	5	AI-1					0		-5A-AI-1												
	XT1AI2	AHU-1	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	5	AI-2					0		-5A-AI-2												
	XT1AI3	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AI-3					0		-5A-AI-3												
	XT1AI4	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AI-4					0		-5A-AI-4												
	XT1AI5	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AI-5					0		-5A-AI-5												
	XT1AI6	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AI-6					0		-5A-AI-6												
	XT1AO7	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AO-7					0		-5A-AO-7												
	XT1AO8	AHU-1			XP 9102 (6AI, 2AO)	N2	1	5	AO-8					0		-5A-AO-8												
	XT2DI1	AHU-1	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	1	5	DI-1					0		-5B-DI-1												
	XT2DI2	AHU-1	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	1	5	DI-2					0		-5B-DI-2												
	XT2DI3	AHU-1	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	1	5	DI-3					0		-5B-DI-3												
	XT2DI4	AHU-1			XP 9104 (4DI, 4DO)	N2	1	5	DI-4					0		-5B-DI-4												
	XT2DO5	AHU-1	FIRE-OVR	SAFETY OVER-RIDE COMMAND	XP 9104 (4DI, 4DO)	N2	1	5	DO-5					0		-5B-DO-5												
	XT2DO6	AHU-1			XP 9104 (4DI, 4DO)	N2	1	5	DO-6					0		-5B-DO-6												
	XT2DO7	AHU-1			XP 9104 (4DI, 4DO)	N2	1	5	DO-7					0		-5B-DO-7												
	XT2DO8	AHU-1			XP 9104 (4DI, 4DO)	N2	1	5	DO-8					0		-5B-DO-8												

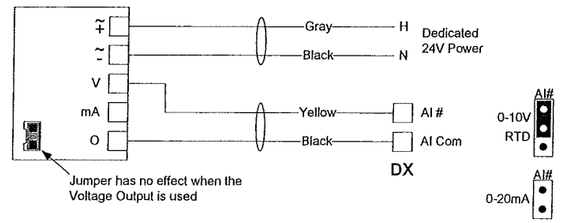
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



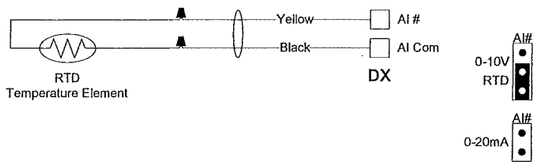
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



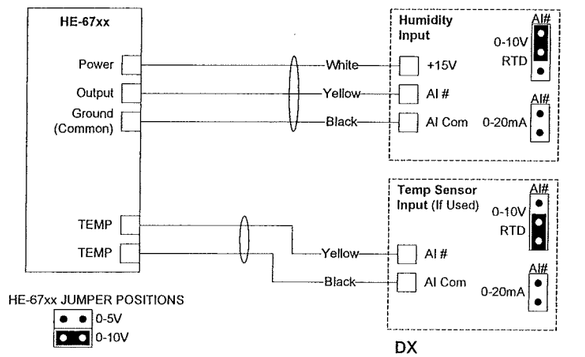
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



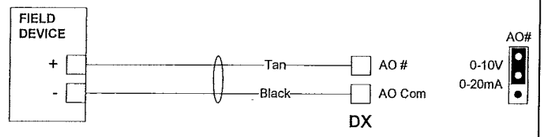
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

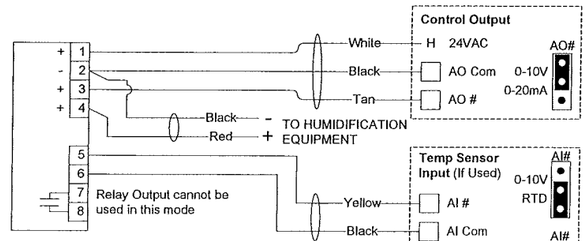


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



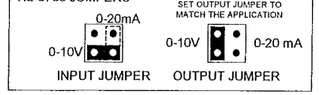
NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

DETAIL D221 0-10VDC OUTPUT to HL-6700 LIMITING CONTROLLER



TERM		POLARITY	SOURCE / DESTINATION
1	POWER	+	SYSTEM CONTROLLER or SEPARATE 24 VAC
2	COM	-	POWER, INPUT, OUTPUT
3	IN	+	0 - 20 mA / 0 - 10 VDC
4	OUT	+	HUMIDIFICATION EQUIP
5	TEMP	n/a	TEMPERATURE SENSOR
6	TEMP	n/a	
7	RELAY	n/a	USED FOR ON / OFF CONTROL OF HUMIDIFICATION EQUIPMENT
8	RELAY	n/a	

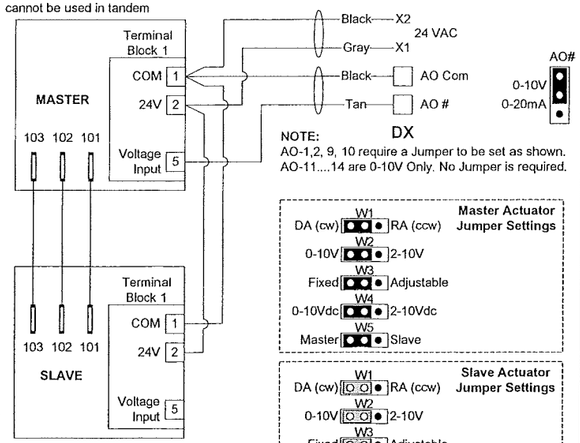
HL-6700 JUMPERS



NOTE:
AO-1, 2, 9, 10 require an Output Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Output Jumper is required.

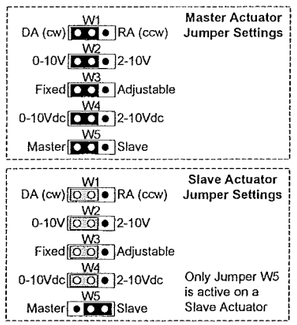
DETAIL D262 0-10VDC OUTPUT to M-9100 Series (Tandem Actuator)

Note that M9108 models cannot be used in tandem

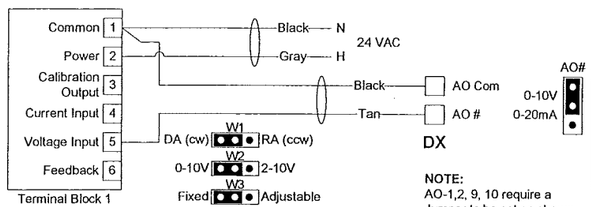


NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

When connecting 2 actuators back to back on the same shaft, the coupler on one actuator must be set to operate in the opposite direction from the other actuator.



DETAIL D264 0-10VDC OUTPUT to M-9216



To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

REVISION INFORMATION	Drawing Title						
NUMBER	POINT SCHEDULE						
DATE 04/17/08				1	RECORD DRAWINGS	03/30/08	WCS
TIME 09:17 AM		REFEREICE DRAWING		NO.	REVISION-LOCATION	ECN DATE	BY
	Project Title	Sales Engineer	Project Manager	Application Engineer	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME ahu1ps2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	GLA	SEL	RJM			

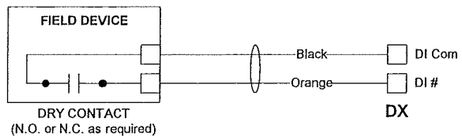
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

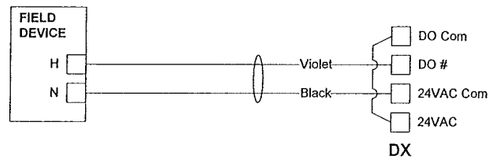
CONTRACT NUMBER 0 3109-0044

DRAWING NUMBER 5.8

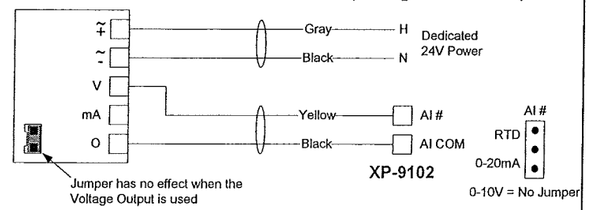
DETAIL D301 BINARY INPUT (DRY CONTACT)



DETAIL D501 24 VAC BINARY OUTPUT (Switch High)

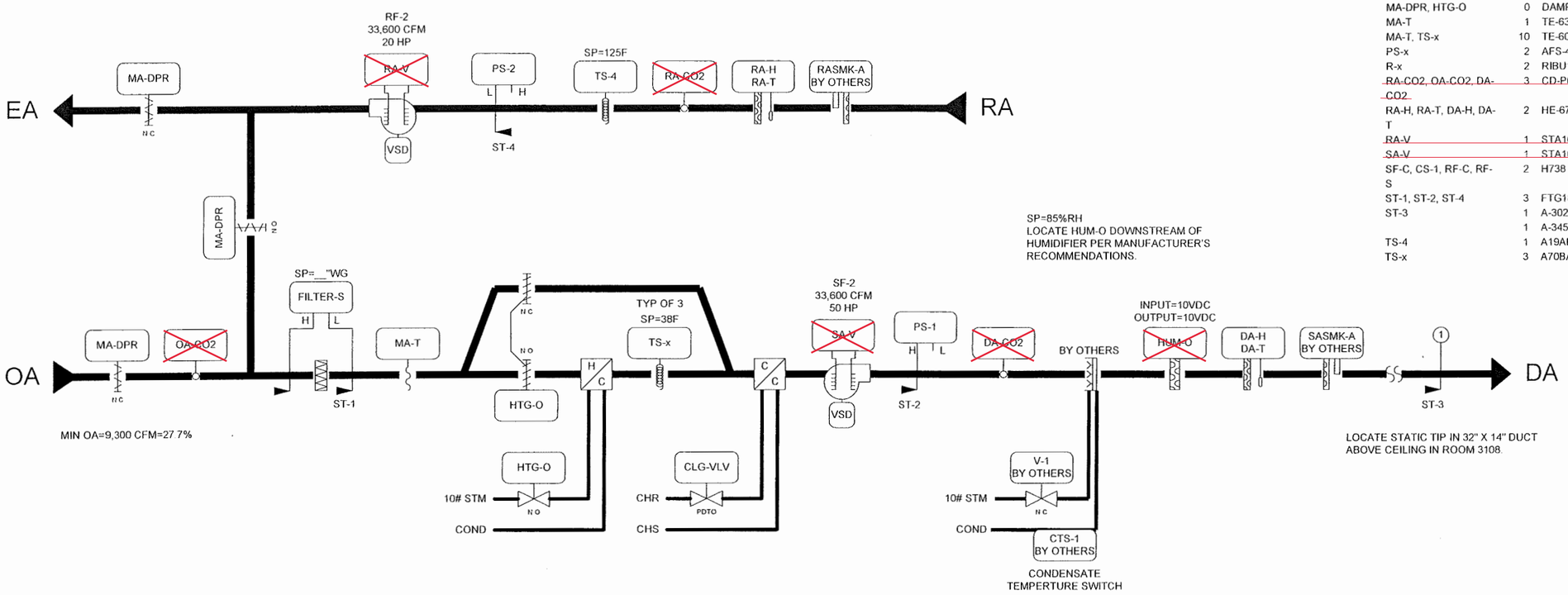


DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



DETAIL XP301 BINARY INPUT (DRY CONTACT)

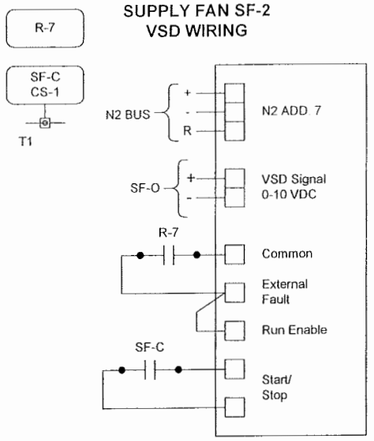
REVISION INFORMATION	Drawing Title						
NUMBER	POINT SCHEDULE						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 09:17 AM	Project Title	Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	Branch Information	CONTRACT NUMBER
FILE NAME ahu1ps3.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division				Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	0 3109-0044 DRAWING NUMBER 5.9



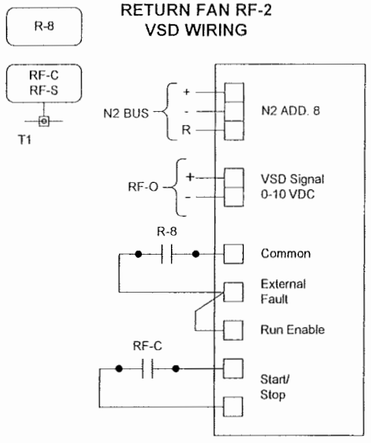
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
HUM-O	1	HL-67N5-8N00P	HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	10	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
RA-CO2, OA-CO2, DA-CO2	3	CD-P00-00-0	SENSOR,CO2, 0-2000PPM,DUCT MOUNT
RA-H, RA-T, DA-H, DA-T	2	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
RA-V	1	STA104-F	EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC
SA-V	1	STA104-F	EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-4	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	3	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-2 VSD WIRING



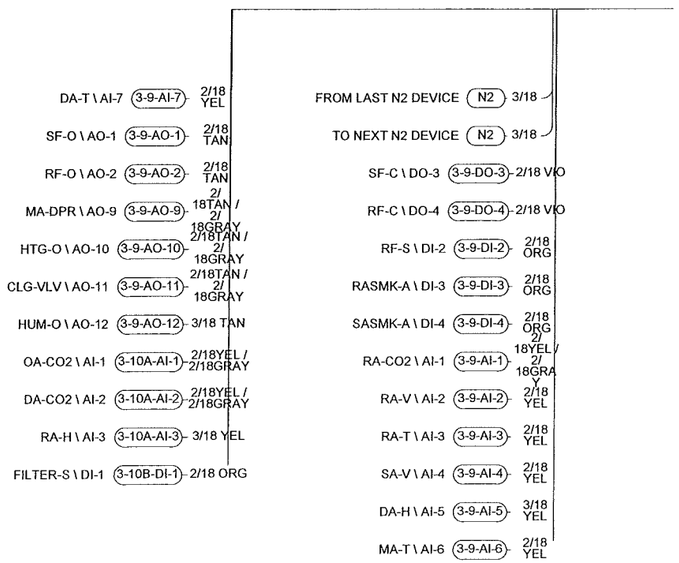
RETURN FAN RF-2 VSD WIRING



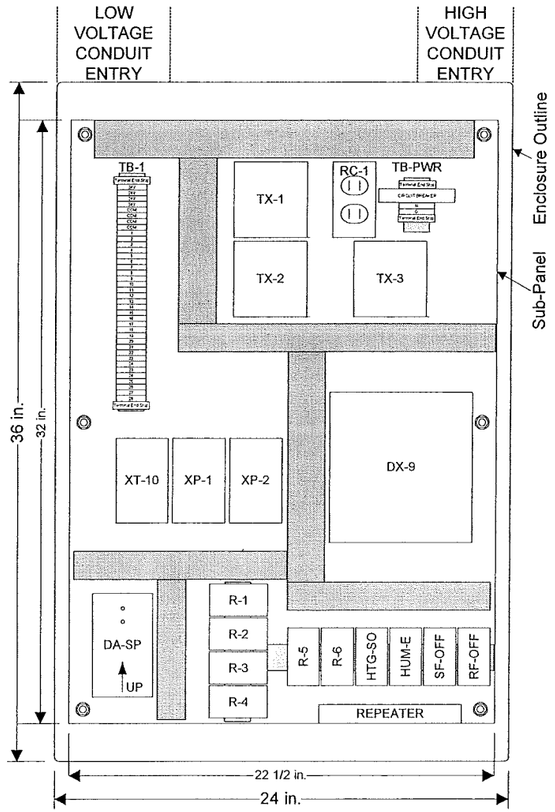
FACM
BY OTHERS
FIRE ALARM
CONTROL MODULE

Note: "X" items are no longer in the control sequence.

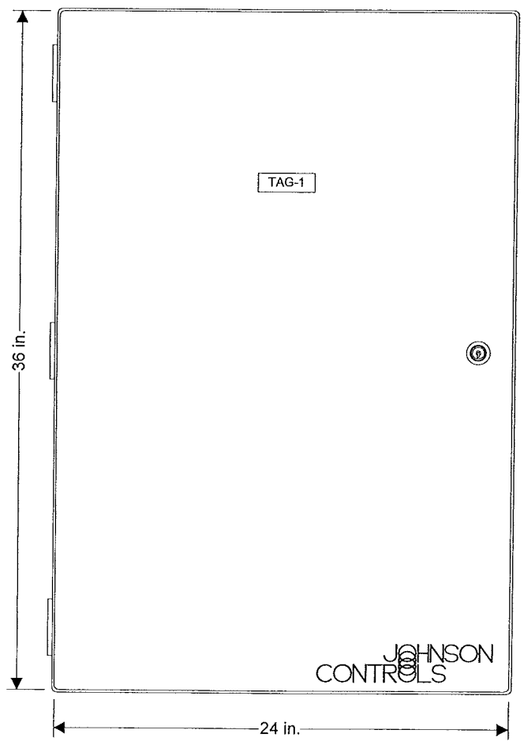
REVISION INFORMATION	Drawing Title: AHU-2 FLOW						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:24 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM	DRAWN: BY / DATE	APPROVED: BY / DATE			
FILE NAME: ahu2f.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 6.1			



REVISION INFORMATION	Drawing Title							
NUMBER	AHU-2 FIELD POINTS							
				1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer	Project Manager	Application Engineer	DRAWN BY / DATE	APPROVED BY / DATE		
TIME 08:14 AM	Project Title	GLA	SEL	RJM				
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044		
FILE NAME ahu2fp.vsd						DRAWING NUMBER 6.2		



PANEL P-3 LOCATED IN 2052



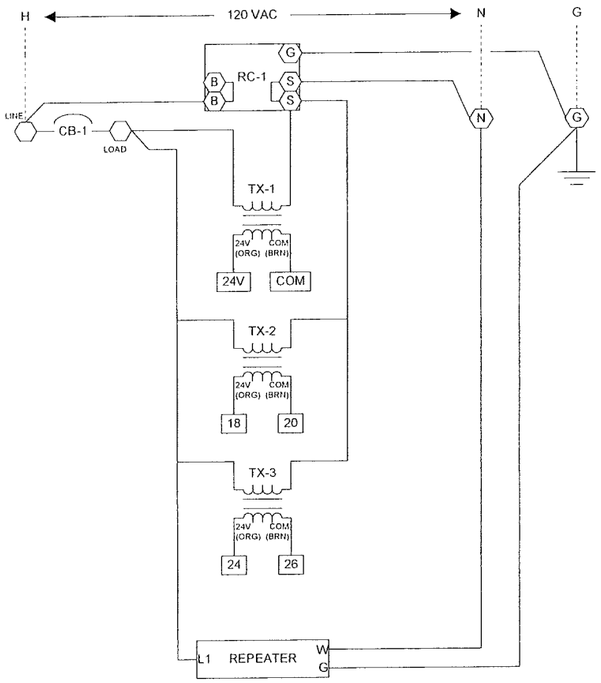
PANEL FACE TAGS:
TAG-1: PANEL P-3
AHU-2 SERVING 2nd & 3rd FLOORS
JCI 0 3109-0044

BILL OF MATERIALS

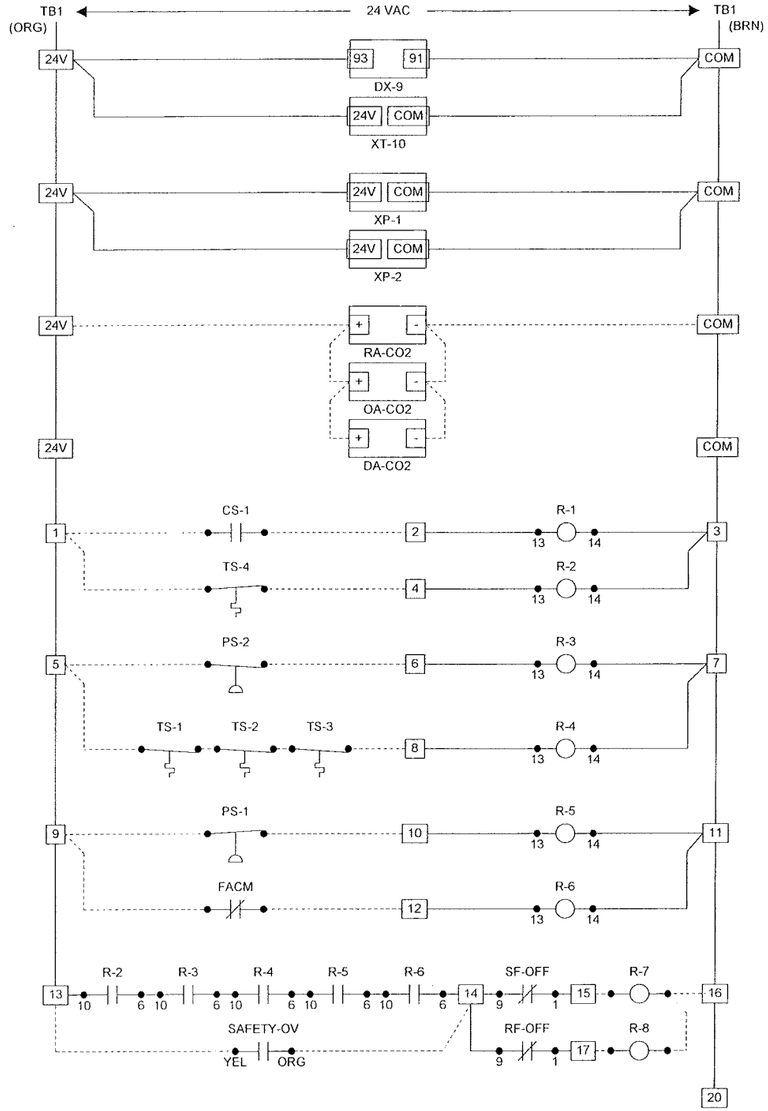
Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-9	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-3	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-10	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

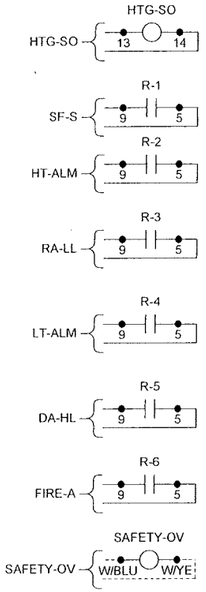
REVISION INFORMATION	Drawing Title						
NUMBER	AHU-2 PANEL LOCATED IN 2052						
DATE 04/16/08		1	RECORD DRAWINGS		03/30/08	WCS	
TIME 01:10 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
FILE NAME ahu2p.vsd	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 6.3		

LINE VOLTAGE WIRING DIAGRAM

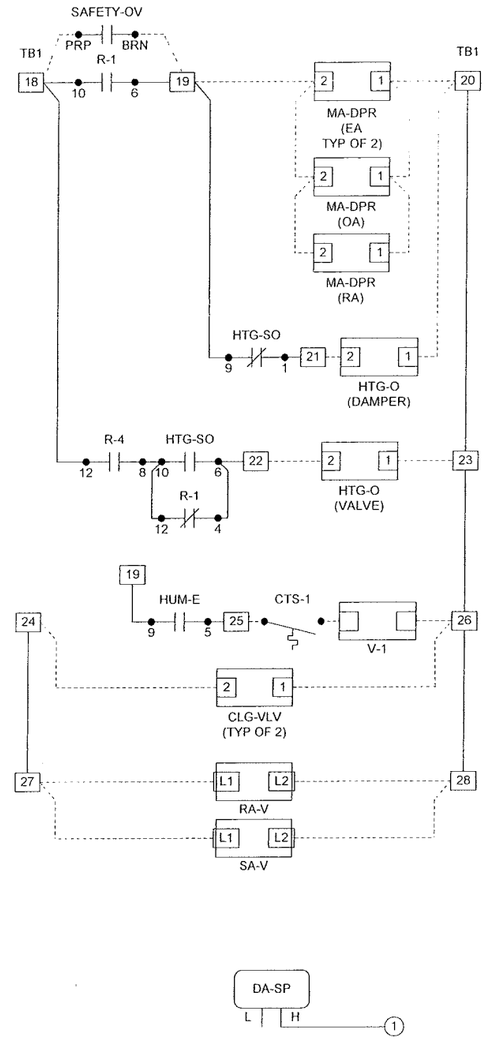


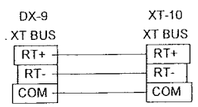
LOW VOLTAGE WIRING DIAGRAM





LOW VOLTAGE WIRING DIAGRAM





Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title						
NUMBER	AHU-2 PANEL WIRING						
DATE 04/16/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:10 PM	Project Title	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME ahu2pw.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 6.4	

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. NOTE: The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.
Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.)~~. Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).
Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE							
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS	
TIME 08:14 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
		Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY: / DATE:		APPROVED BY: / DATE:		
FILE NAME Ahu2s1.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044			
					DRAWING NUMBER: 6.5			

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

REVISION INFORMATION	Drawing Title								
NUMBER	SEQUENCE			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION		ECN	DATE	BY
TIME 09:17 AM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE		
	Project Title	JOHNSON CONTROLS			Branch Information		CONTRACT NUMBER		
FILE NAME Ahu2s2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division			Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
							DRAWING NUMBER 6.6		

Electrician/Fitter	Point Information				Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Rel Detail Shape	Comment	Template
		AHU-2			DX 9100																					Power to Controller	
		AHU-2			DX 9100	N2	2	9						0												N2 Trunk	
	DO-3	AHU-2	SF-C	Supply Fan Cntl	DX 9100	N2	2	9	DO-3					0		-9-DO-3												
	DO-4	AHU-2	RF-C	Return Fan Cntl	DX 9100	N2	2	9	DO-4					0		-9-DO-4												
	DO-5	AHU-2	HTG-SO	Heating F&B/Valve Switch	DX 9100	N2	2	9	DO-5					0		-9-DO-5												
	DO-6	AHU-2	HUM-E	Humidifier Enable	DX 9100	N2	2	9	DO-6					0		-9-DO-6												
	DO-7	AHU-2	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	2	9	DO-7					0		-9-DO-7												
	DO-8	AHU-2	RF-OFF	Return Fan FFCP Override	DX 9100	N2	2	9	DO-8					0		-9-DO-8												
	DI-1	AHU-2	SF-S	Supply Fan Sts	DX 9100	N2	2	9	DI-1					0		-9-DI-1												
	DI-2	AHU-2	RF-S	Return Fan Sts	DX 9100	N2	2	9	DI-2					0		-9-DI-2												
	DI-3	AHU-2	RASMK-A	Return Air Duct Detector	DX 9100	N2	2	9	DI-3					0		-9-DI-3												
	DI-4	AHU-2	SASMK-A	Supply Air Duct Detector	DX 9100	N2	2	9	DI-4					0		-9-DI-4												
	DI-5	AHU-2	FIRE-A	Building Fir Alarm	DX 9100	N2	2	9	DI-5					0		-9-DI-5												
	DI-6	AHU-2			DX 9100	N2	2	9	DI-6					0		-9-DI-6												
	DI-7	AHU-2	RA-LL	Ret Air Low Static Alm	DX 9100	N2	2	9	DI-7					0		-9-DI-7												
	DI-8	AHU-2	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	2	9	DI-8					0		-9-DI-8												
	AI-1	AHU-2	RA-CO2	Return Air CO2 Level	DX 9100	N2	2	9	AI-1					0		-9-AI-1												
	AI-2	AHU-2	RA-FLOW	Return Air Flow	DX 9100	N2	2	9	AI-2					0		-9-AI-2												
	AI-3	AHU-2	RA-T	Return Air Temp	DX 9100	N2	2	9	AI-3					0		-9-AI-3												
	AI-4	AHU-2	SA-FLOW	Supply Air Flow	DX 9100	N2	2	9	AI-4					0		-9-AI-4												
	AI-5	AHU-2	DA-H	Disch Air Humidity	DX 9100	N2	2	9	AI-5					0		-9-AI-5												
	AI-6	AHU-2	MA-T	Mixed Air Temp	DX 9100	N2	2	9	AI-6					0		-9-AI-6												
	AI-7	AHU-2	DA-T	Discharge Air Temp	DX 9100	N2	2	9	AI-7					0		-9-AI-7												
	AI-8	AHU-2	DA-SP	Disch Air Static Press	DX 9100	N2	2	9	AI-8					0		-9-AI-8												
	AO-1	AHU-2	SF-O	Supply Fan VSD Cmd	DX 9100	N2	2	9	AO-1					0		-9-AO-1												
	AO-2	AHU-2	RF-O	Return Fan VSD Cmd	DX 9100	N2	2	9	AO-2					0		-9-AO-2												
	AO-9	AHU-2	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	2	9	AO-9					0		-9-AO-9												
	AO-10	AHU-2	HTG-O	Heating Cmd	DX 9100	N2	2	9	AO-10					0		-9-AO-10												
	AO-11	AHU-2	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	2	9	AO-11					0		-9-AO-11												
	AO-12	AHU-2	HUM-O	Humidifier Cmd	DX 9100	N2	2	9	AO-12					0		-9-AO-12												
	AO-13	AHU-2			DX 9100	N2	2	9	AO-13					0		-9-AO-13												
	AO-14	AHU-2			DX 9100	N2	2	9	AO-14					0		-9-AO-14												
		AHU-2			XT (Expansion Module)																					Power to Controller	
		AHU-2			XT (Expansion Module)	N2	2	10						0												N2 Trunk	
	XT1AI1	AHU-2	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	10	AI-1					0		-10A-AI-1												
	XT1AI2	AHU-2	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	10	AI-2					0		-10A-AI-2												
	XT1AI3	AHU-2	RA-H	Return Air Humidity	XP 9102 (6AI, 2AO)	N2	2	10	AI-3					0		-10A-AI-3												
	XT1AI4	AHU-2			XP 9102 (6AI, 2AO)	N2	2	10	AI-4					0		-10A-AI-4												
	XT1AI5	AHU-2			XP 9102 (6AI, 2AO)	N2	2	10	AI-5					0		-10A-AI-5												
	XT1AI6	AHU-2			XP 9102 (6AI, 2AO)	N2	2	10	AI-6					0		-10A-AI-6												
	XT1AO7	AHU-2			XP 9102 (6AI, 2AO)	N2	2	10	AO-7					0		-10A-AO-7												
	XT1AO8	AHU-2			XP 9102 (6AI, 2AO)	N2	2	10	AO-8					0		-10A-AO-8												
	XT2DI1	AHU-2	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	2	10	DI-1					0		-10B-DI-1												
	XT2DI2	AHU-2	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	2	10	DI-2					0		-10B-DI-2												
	XT2DI3	AHU-2	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	2	10	DI-3					0		-10B-DI-3												
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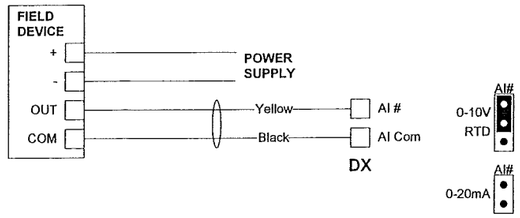
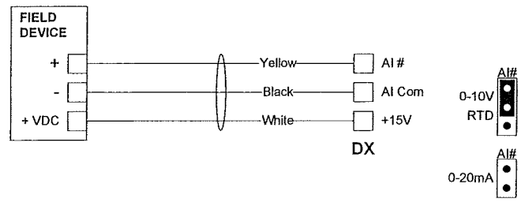
	XT2DO5	AHU-2			XP 9104 (4DI, 4DO)	N2	2	10	DO-5					0		-10B-DO-5												
	XT2DO6	AHU-2			XP 9104 (4DI, 4DO)	N2	2	10	DO-6					0		-10B-DO-6												
	XT2DO7	AHU-2			XP 9104 (4DI, 4DO)	N2	2	10	DO-7					0		-10B-DO-7												
	XT2DO8	AHU-2			XP 9104 (4DI, 4DO)	N2	2	10	DO-8					0		-10B-DO-8												

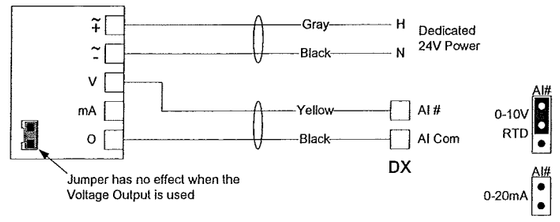
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



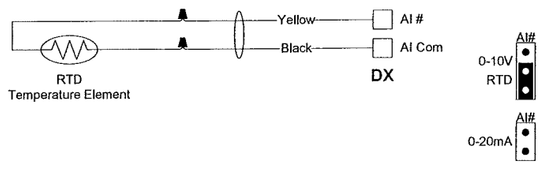
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



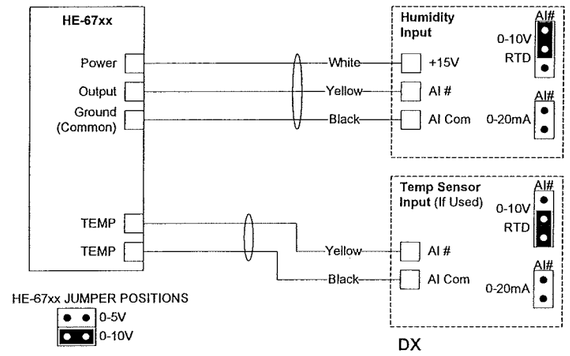
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



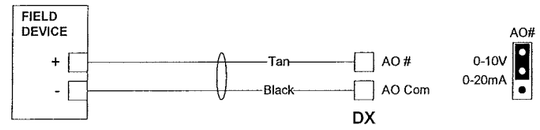
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

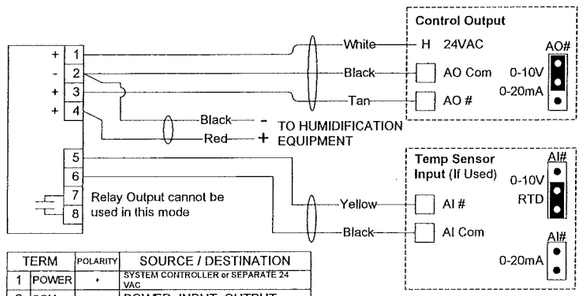


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

DETAIL D221 0-10VDC OUTPUT to HL-6700 LIMITING CONTROLLER



TERM		POLARITY	SOURCE / DESTINATION
1	POWER	+	SYSTEM CONTROLLER or SEPARATE 24 VAC
2	COM	-	POWER, INPUT, OUTPUT
3	IN	+	0 - 20 mA / 0 - 10 VDC
4	OUT	+	HUMIDIFICATION EQUIP
5	TEMP	n/a	TEMPERATURE SENSOR
6	TEMP	n/a	
7	RELAY	n/a	USED FOR ON / OFF CONTROL OF HUMIDIFICATION EQUIPMENT
8	RELAY	n/a	

HL-6700 JUMPERS

SET OUTPUT JUMPER TO MATCH THE APPLICATION

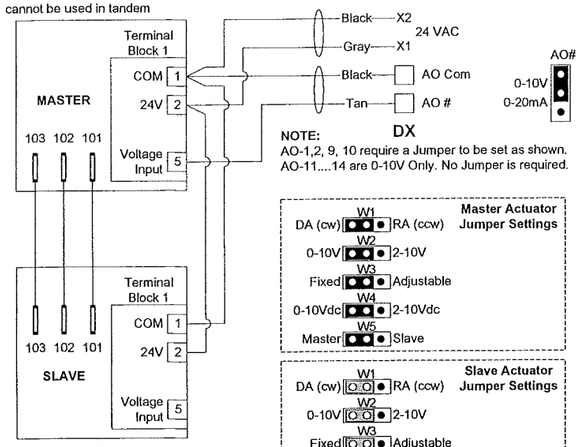
0-20mA / 0-10V — INPUT JUMPER

0-10V / 0-20 mA — OUTPUT JUMPER

NOTE:
AO-1, 2, 9, 10 require an Output Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Output Jumper is required.

DETAIL D262 0-10VDC OUTPUT to M-9100 Series (Tandem Actuator)

Note that M9108 models cannot be used in tandem



NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

Master Actuator Jumper Settings

W1 DA (cw) / RA (ccw)
W2 0-10V / 2-10V
W3 Fixed / Adjustable
W4 0-10Vdc / 2-10Vdc
W5 Master / Slave

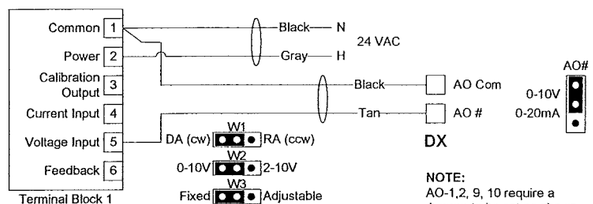
Slave Actuator Jumper Settings

W1 DA (cw) / RA (ccw)
W2 0-10V / 2-10V
W3 Fixed / Adjustable
W4 0-10Vdc / 2-10Vdc
W5 Master / Slave

Only Jumper W5 is active on a Slave Actuator

When connecting 2 actuators back to back on the same shaft, the coupler on one actuator must be set to operate in the opposite direction from the other actuator.

DETAIL D264 0-10VDC OUTPUT to M-9216



To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

REVISION INFORMATION						
NUMBER						
DATE			1	RECORD DRAWINGS	03/30/08	WCS
04/17/08	REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN DATE	BY
TIME	Sales Engineer	Project Manager	Application Engineer	DRAWN BY / DATE	APPROVED BY / DATE	
09:17 AM	GLA	SEL	RJM			
FILE NAME						
ahu2ps2.vsd						

Drawing Title: **POINT SCHEDULE**

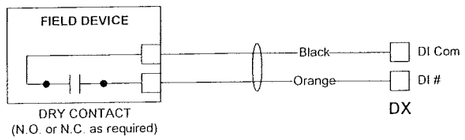
Project Title: **DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703**

JOHNSON CONTROLS
Systems & Services Division
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

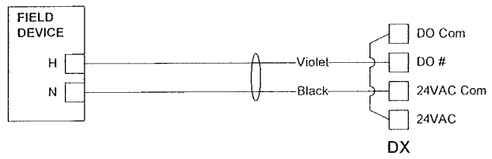
CONTRACT NUMBER: **0 3109-0044**

DRAWING NUMBER: **6.8**

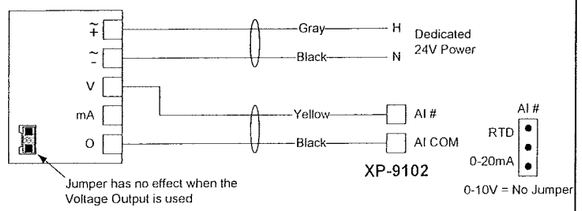
DETAIL D301 BINARY INPUT (DRY CONTACT)



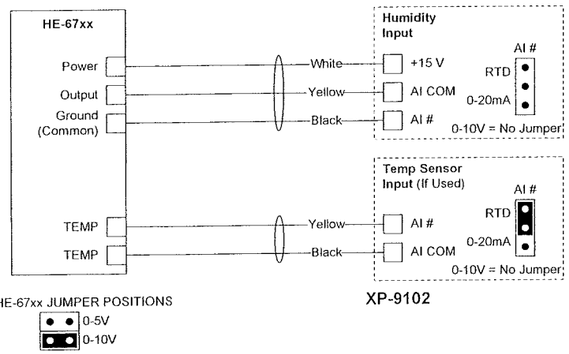
DETAIL D501 24 VAC BINARY OUTPUT (Switch High)



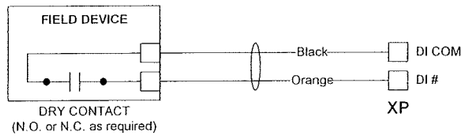
DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



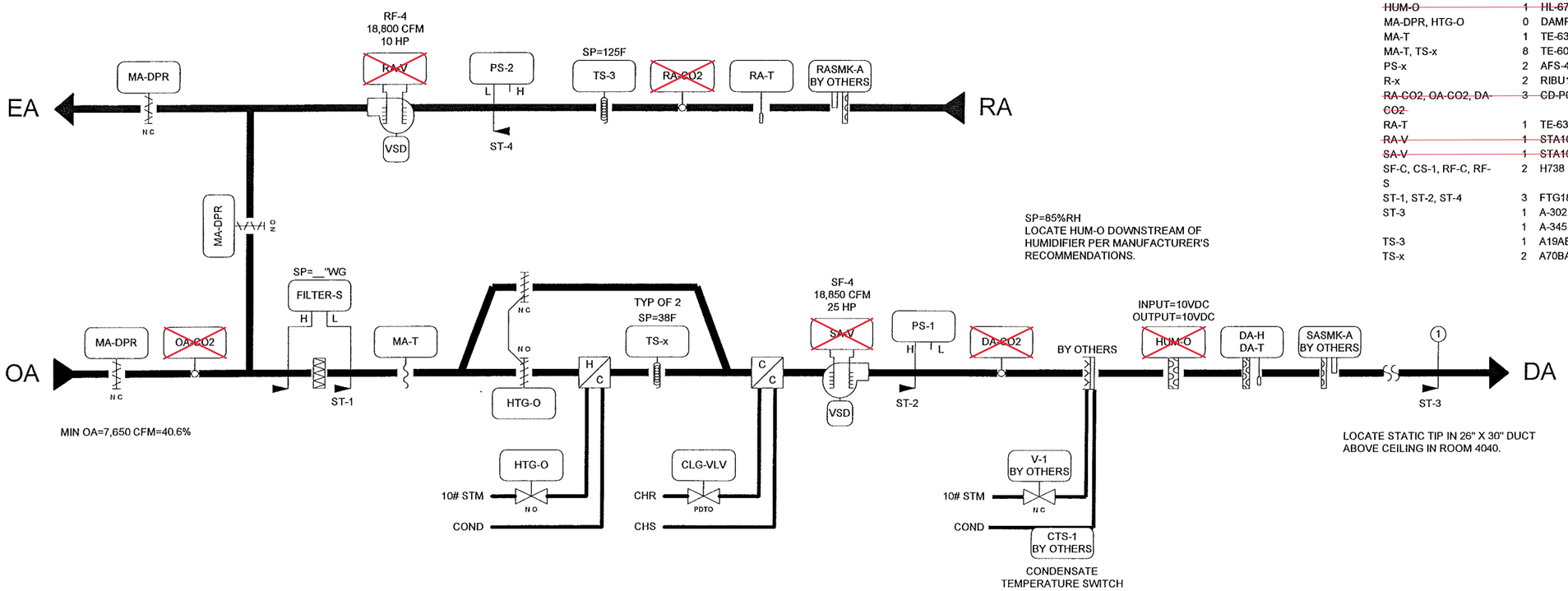
DETAIL XP153 HE-6700 SERIES DUCT HUMIDITY SENSOR



DETAIL XP301 BINARY INPUT (DRY CONTACT)



REVISION INFORMATION	Drawing Title						
NUMBER	POINT SCHEDULE		1	RECORD DRAWINGS		03/30/08	WCS
		REFERENCE DRAWING	NO	REVISION LOCATION	ECN	DATE	BY
DATE 04/17/08		Sales Engineer GLA / Project Manager SEL / Application Engineer RJM		DRAWN BY / DATE		APPROVED BY / DATE	
TIME 09:16 AM	Project Title	JOHNSON CONTROLS Systems & Services Division		Branch Information		CONTRACT NUMBER	
FILE NAME ahu2ps3.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703			Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044	
						DRAWING NUMBER 6.9	

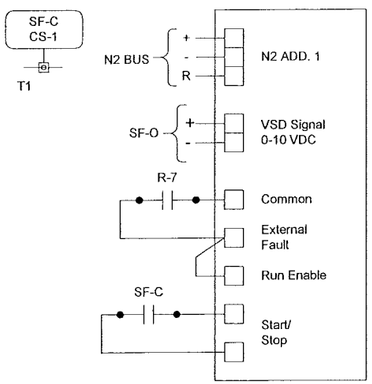


BILL OF MATERIALS

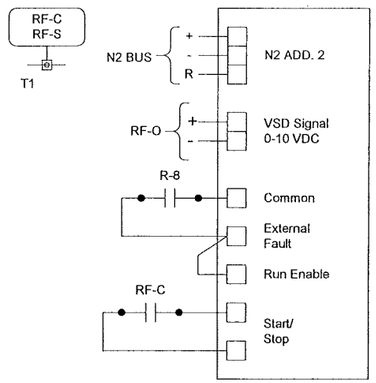
Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
DA-H, DA-T	1	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	8	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	~~SENSOR,CO2, 0-2000PPM,DUCT MOUNT~~
RA-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-3	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	2	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

Note: "X" items are no longer in the control sequence.

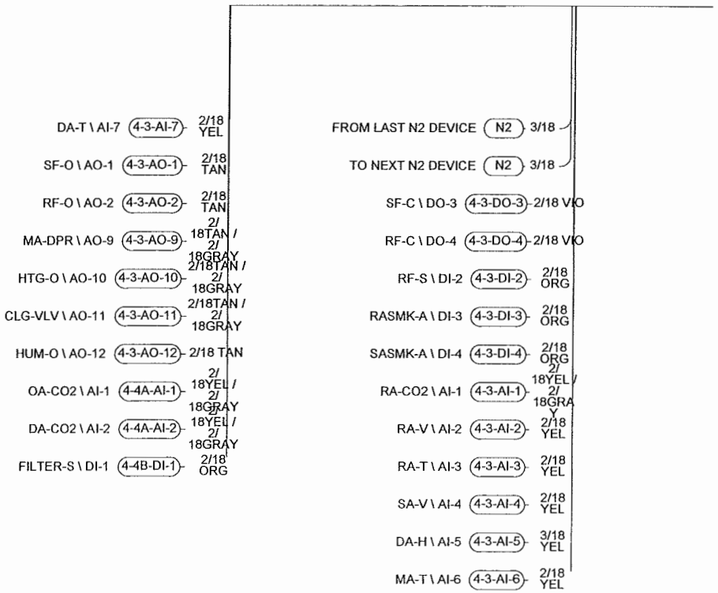
SUPPLY FAN SF-4 VSD WIRING



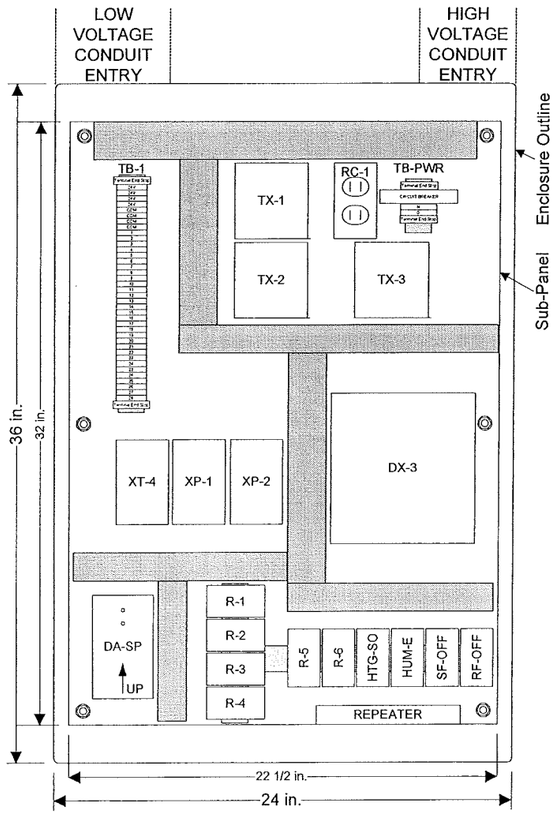
RETURN FAN RF-4 VSD WIRING



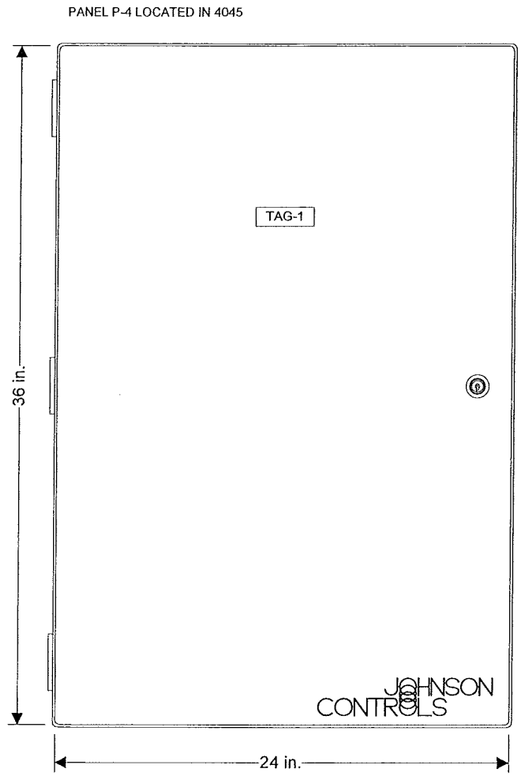
REVISION INFORMATION	Drawing Title: AHU-4 FLOW						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 09:16 AM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY	DRAWN DATE	APPROVED BY / DATE
FILE NAME: ahu4f.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 7.1		



REVISION INFORMATION	Drawing Title							
NUMBER	AHU-4 FIELD POINTS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
04/17/08		Sales Engineer / Project Manager / Application Engineer		DRAWN / APPROVED				
TIME		GLA / SEL / RJM		BY / DATE / BY / DATE				
09:16 AM	Project Title			Branch Information		CONTRACT NUMBER		
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
FILE NAME						DRAWING NUMBER		
ahu4fp.vsd						7.2		



SAFETY-OV



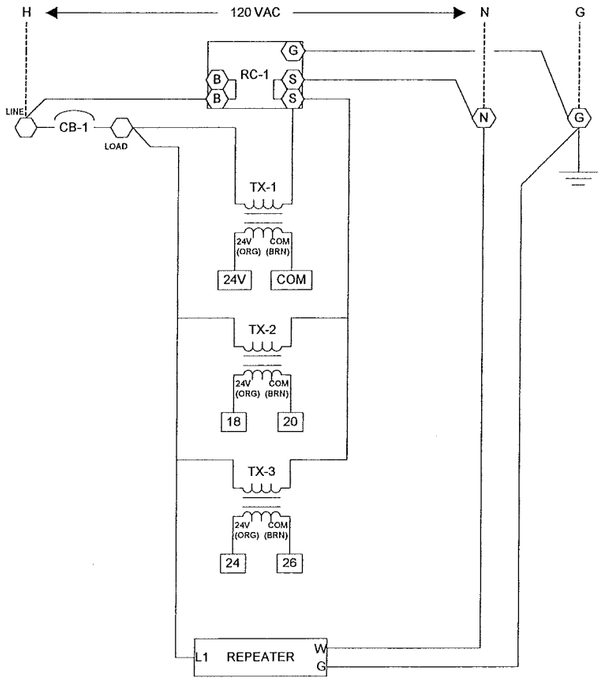
PANEL FACE TAGS:
TAG-1: PANEL P-4
AHU-4 SERVING 4TH FLOOR
JCI 0 3109-0044

BILL OF MATERIALS

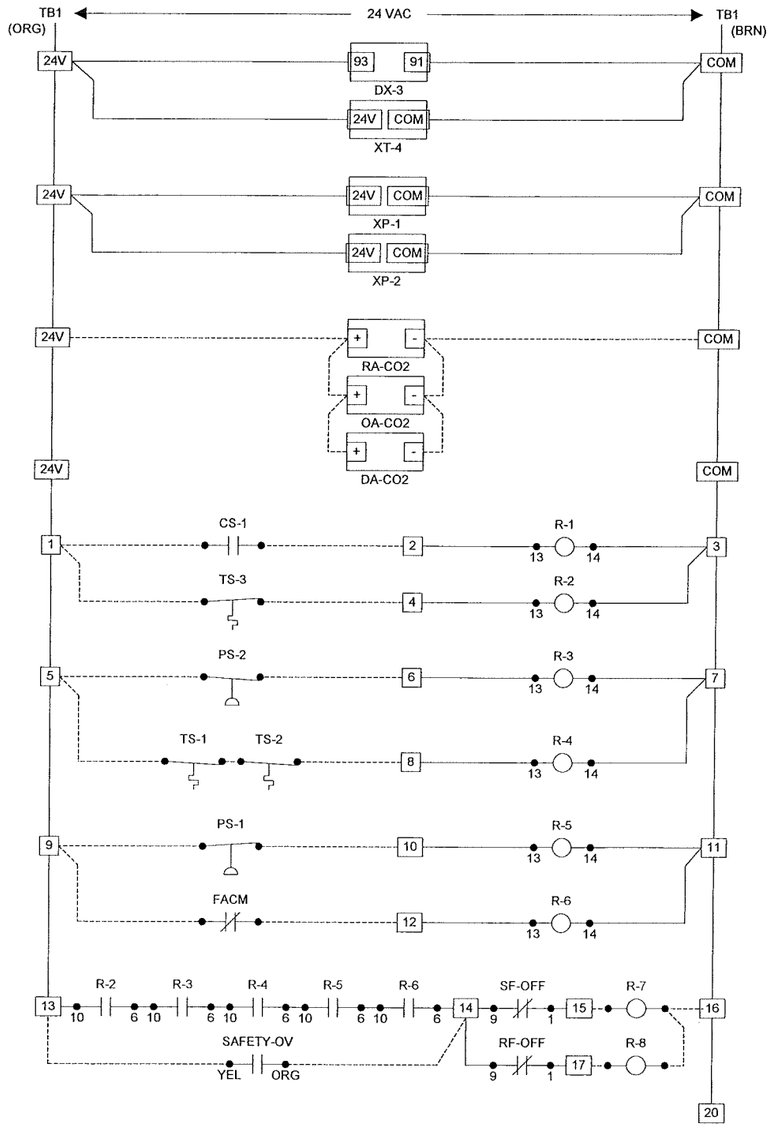
Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-3	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-4	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-4	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

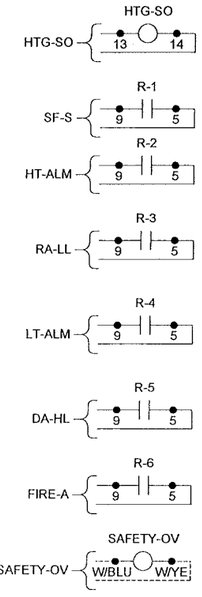
REVISION INFORMATION	Drawing Title					
NUMBER	AHU-4 PANEL LOCATED IN 4045					
DATE 04/16/08		1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:10 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
FILE NAME ahu4p.vsd		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 7.3		

LINE VOLTAGE WIRING DIAGRAM

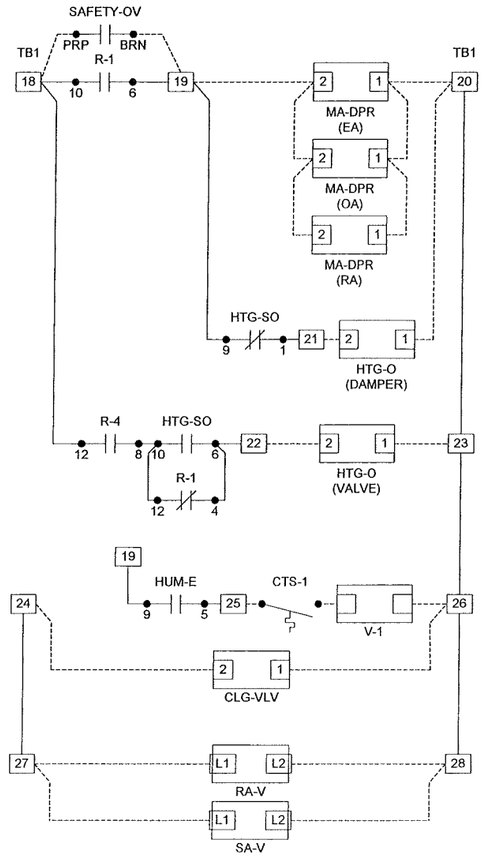


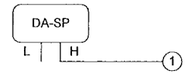
LOW VOLTAGE WIRING DIAGRAM

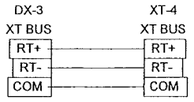




LOW VOLTAGE WIRING DIAGRAM







Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	
NUMBER	
DATE	04/16/08
TIME	01:09 PM
FILE NAME	ahu4pw.vsd

Drawing Title

AHU-4 PANEL WIRING

NO.	REVISION-LOCATION	ECN	DATE	BY
1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED	
GLA	SEL	RJM	BY	DATE	BY	DATE

Project Title

DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER **0 3109-0044**

DRAWING NUMBER **7.4**

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:
General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. **NOTE:** The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.
Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.).~~ Add setpoint for manual offset for return fan speed
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).
Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE							
			1	RECORD DRAWINGS		03/30/08	WCS	
		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
DATE 04/17/08		Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE		
TIME 08:14 AM	Project Title			Branch Information		CONTRACT NUMBER		
FILENAME Ahu4s1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608.222-9100 Fax: 608-222-9490		0 3109-0044		
						DRAWING NUMBER 7.5		

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

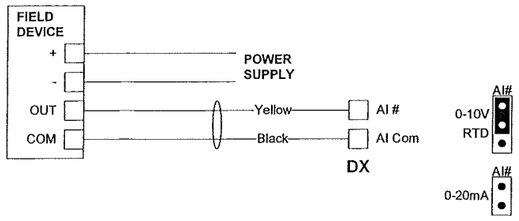
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

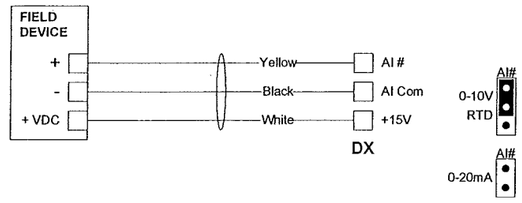
REVISION INFORMATION	Drawing Title						
NUMBER	SEQUENCE						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:14 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME Ahu4s2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 7.6		

Electrician/Fitter	Point Information				Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Rel Detail Shape	Comment	Template
		AHU-4			DX 9100																							
		AHU-4			DX 9100	N2	1	3						0													Power to Controller	
	DO-3	AHU-4	SF-C	Supply Fan Cntl	DX 9100	N2	1	3	DO-3					0		-3-DO-3											N2 Trunk	
	DO-4	AHU-4	RF-C	Return Fan Cntl	DX 9100	N2	1	3	DO-4					0		-3-DO-4												
	DO-5	AHU-4	HTG-SO	Heating F&B/Valve Switch	DX 9100	N2	1	3	DO-5					0		-3-DO-5												
	DO-6	AHU-4	HUM-E	Humidifier Enable	DX 9100	N2	1	3	DO-6					0		-3-DO-6												
	DO-7	AHU-4	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	1	3	DO-7					0		-3-DO-7												
	DO-8	AHU-4	RF-OFF	Return Fan FFCP Override	DX 9100	N2	1	3	DO-8					0		-3-DO-8												
	DI-1	AHU-4	SF-S	Supply Fan Sts	DX 9100	N2	1	3	DI-1					0		-3-DI-1												
	DI-2	AHU-4	RF-S	Return Fan Sts	DX 9100	N2	1	3	DI-2					0		-3-DI-2												
	DI-3	AHU-4	RASMK-A	Return Air Duct Detector	DX 9100	N2	1	3	DI-3					0		-3-DI-3												
	DI-4	AHU-4	SASMK-A	Supply Air Duct Detector	DX 9100	N2	1	3	DI-4					0		-3-DI-4												
	DI-5	AHU-4	FIRE-A	Building Fir Alarm	DX 9100	N2	1	3	DI-5					0		-3-DI-5												
	DI-6	AHU-4			DX 9100	N2	1	3	DI-6					0		-3-DI-6												
	DI-7	AHU-4	RA-LL	Ret Air Low Static Alm	DX 9100	N2	1	3	DI-7					0		-3-DI-7												
	DI-8	AHU-4	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	1	3	DI-8					0		-3-DI-8												
	AI-1	AHU-4	RA-CO2	Return Air CO2 Level	DX 9100	N2	1	3	AI-1					0		-3-AI-1												
	AI-2	AHU-4	RA-FLOW	Return Air Flow	DX 9100	N2	1	3	AI-2					0		-3-AI-2												
	AI-3	AHU-4	RA-T	Return Air Temp	DX 9100	N2	1	3	AI-3					0		-3-AI-3												
	AI-4	AHU-4	SA-FLOW	Supply Air Flow	DX 9100	N2	1	3	AI-4					0		-3-AI-4												
	AI-5	AHU-4	DA-H	Disch Air Humidity	DX 9100	N2	1	3	AI-5					0		-3-AI-5												
	AI-6	AHU-4	MA-T	Mixed Air Temp	DX 9100	N2	1	3	AI-6					0		-3-AI-6												
	AI-7	AHU-4	DA-T	Discharge Air Temp	DX 9100	N2	1	3	AI-7					0		-3-AI-7												
	AI-8	AHU-4	DA-SP	Disch Air Static Press	DX 9100	N2	1	3	AI-8					0		-3-AI-8												
	AO-1	AHU-4	SF-O	Supply Fan VSD Cmd	DX 9100	N2	1	3	AO-1					0		-3-AO-1												
	AO-2	AHU-4	RF-O	Return Fan VSD Cmd	DX 9100	N2	1	3	AO-2					0		-3-AO-2												
	AO-9	AHU-4	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	1	3	AO-9					0		-3-AO-9												
	AO-10	AHU-4	HTG-O	Heating Cmd	DX 9100	N2	1	3	AO-10					0		-3-AO-10												
	AO-11	AHU-4	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	1	3	AO-11					0		-3-AO-11												
	AO-12	AHU-4	HUM-O	Humidifier Cmd	DX 9100	N2	1	3	AO-12					0		-3-AO-12												
	AO-13	AHU-4			DX 9100	N2	1	3	AO-13					0		-3-AO-13												
	AO-14	AHU-4			DX 9100	N2	1	3	AO-14					0		-3-AO-14												
		AHU-4			XT (Expansion Module)																							
		AHU-4			XT (Expansion Module)	N2	1	4						0													Power to Controller	
	XT1AI1	AHU-4	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	4	AI-1					0		-4A-AI-1											N2 Trunk	
	XT1AI2	AHU-4	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	4	AI-2					0		-4A-AI-2												
	XT1AI3	AHU-4	RA-H	Return Air Humidity	XP 9102 (6AI, 2AO)	N2	1	4	AI-3					0		-4A-AI-3												
	XT1AI4	AHU-4			XP 9102 (6AI, 2AO)	N2	1	4	AI-4					0		-4A-AI-4												
	XT1AI5	AHU-4			XP 9102 (6AI, 2AO)	N2	1	4	AI-5					0		-4A-AI-5												
	XT1AI6	AHU-4			XP 9102 (6AI, 2AO)	N2	1	4	AI-6					0		-4A-AI-6												
	XT1AO7	AHU-4			XP 9102 (6AI, 2AO)	N2	1	4	AO-7					0		-4A-AO-7												
	XT1AO8	AHU-4			XP 9102 (6AI, 2AO)	N2	1	4	AO-8					0		-4A-AO-8												
	XT2DI1	AHU-4	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	1	4	DI-1					0		-4B-DI-1												
	XT2DI2	AHU-4	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	1	4	DI-2					0		-4B-DI-2												
	XT2DI3	AHU-4	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	1	4	DI-3					0		-4B-DI-3												
	XT2DI4	AHU-4			XP 9104 (4DI, 4DO)	N2	1	4	DI-4					0		-4B-DI-4												
	XT2DO5	AHU-4			XP 9104 (4DI, 4DO)	N2	1	4	DO-5					0		-4B-DO-5												
	XT2DO6	AHU-4			XP 9104 (4DI, 4DO)	N2	1	4	DO-6					0		-4B-DO-6												
	XT2DO7	AHU-4			XP 9104 (4DI, 4DO)	N2	1	4	DO-7					0		-4B-DO-7												
	XT2DO8	AHU-4			XP 9104 (4DI, 4DO)	N2	1	4	DO-8					0		-4B-DO-8												

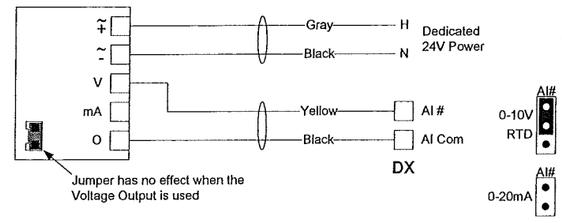
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



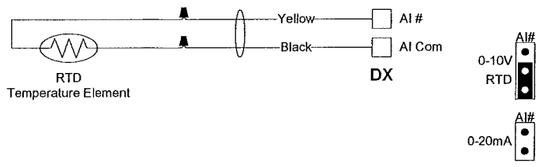
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



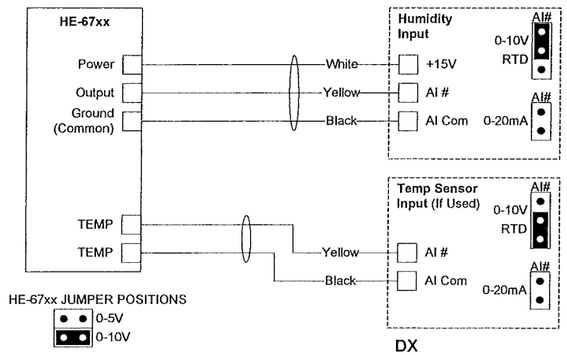
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



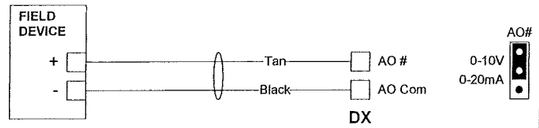
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

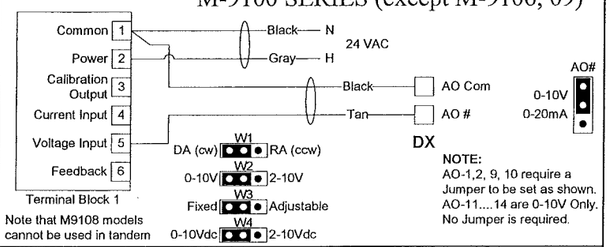


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

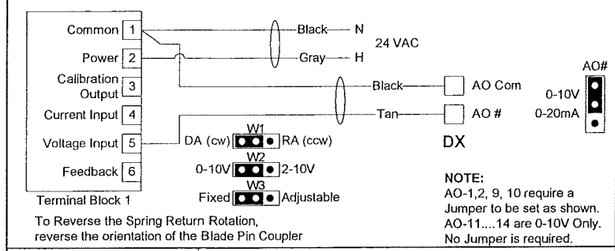
DETAIL D261 0-10VDC OUTPUT to M-9100 SERIES (except M-9106, 09)



Note that M9108 models cannot be used in tandem

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

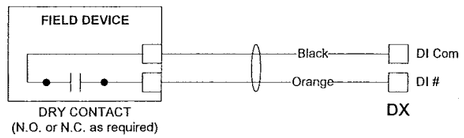
DETAIL D264 0-10VDC OUTPUT to M-9216



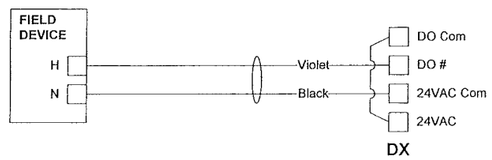
To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

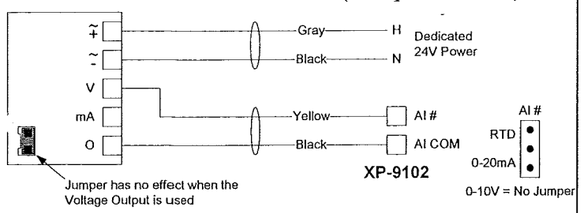
DETAIL D301 BINARY INPUT (DRY CONTACT)



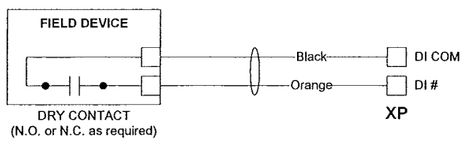
DETAIL D501 24 VAC BINARY OUTPUT (Switch High)



DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



DETAIL XP301 BINARY INPUT (DRY CONTACT)



REVISION INFORMATION					
NUMBER					
DATE 04/17/08					
TIME 08:13 AM					
FILE NAME ahu4ps2.vsd		1	RECORD DRAWINGS	03/30/08	WCS
	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Drawing Title
POINT SCHEDULE

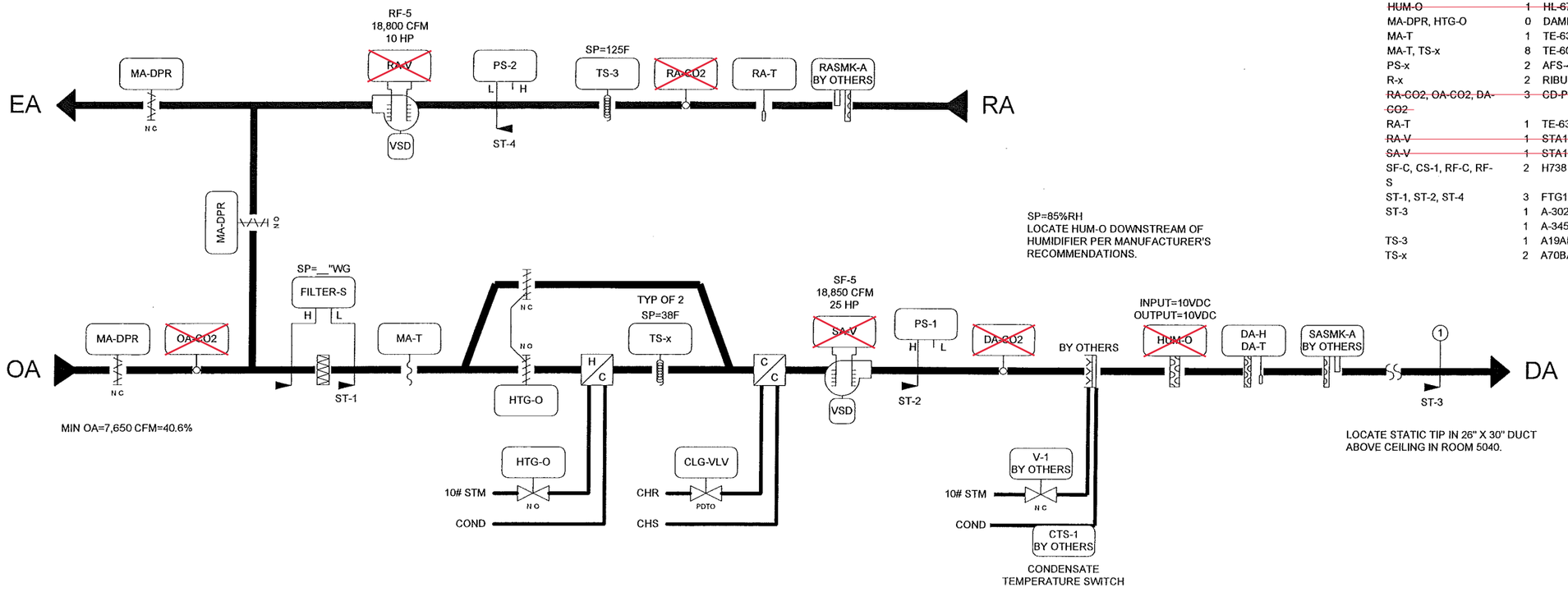
Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER
0 3109-0044

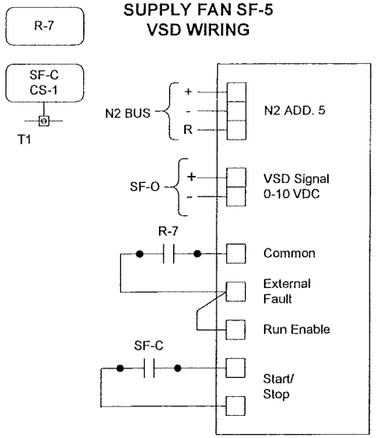
DRAWING NUMBER
7.8



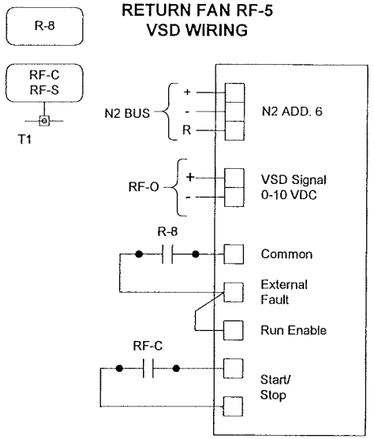
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
DA-H, DA-T	1	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	8	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	~~SENSOR,CO2, 0-2000PPM,DUCT MOUNT~~
RA-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-3	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	2	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-5 VSD WIRING



RETURN FAN RF-5 VSD WIRING

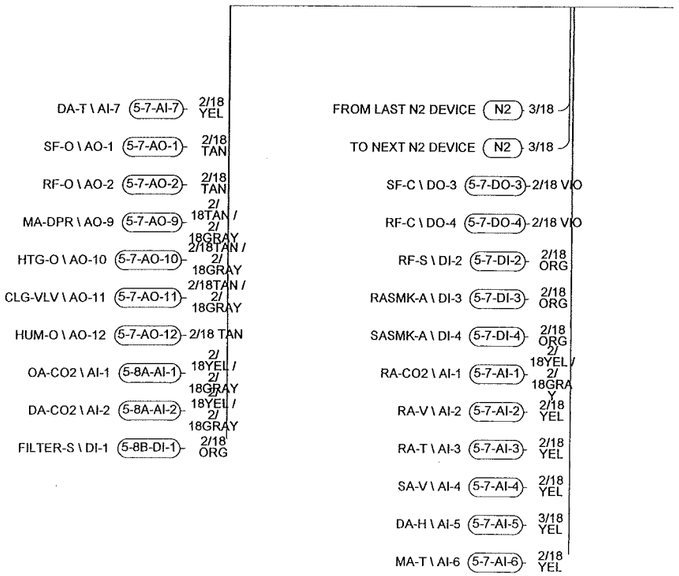


FACM
BY OTHERS

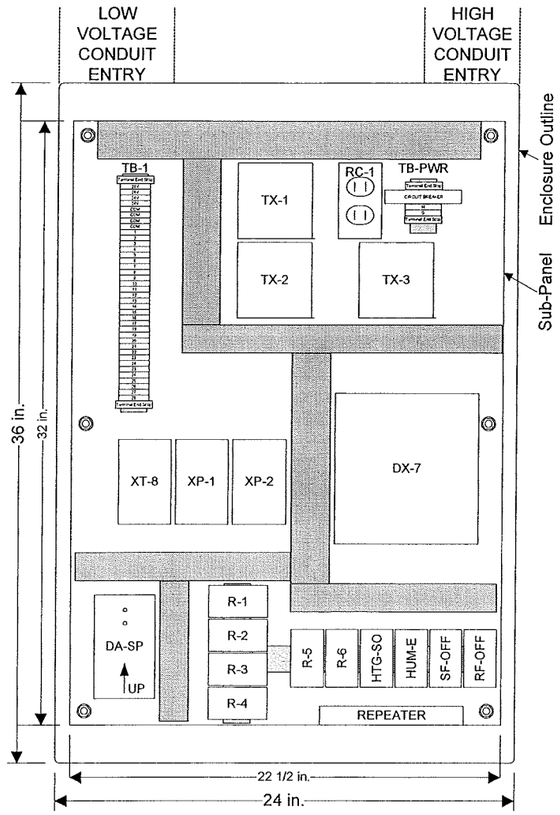
FIRE ALARM
CONTROL MODULE

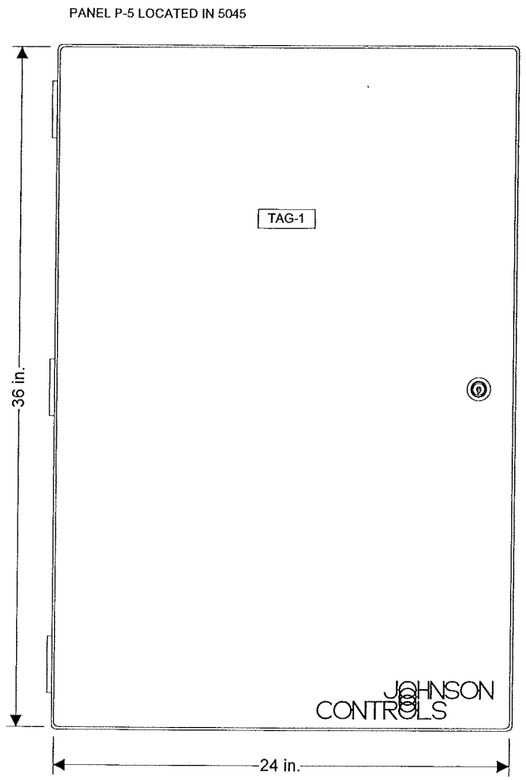
Note: "X" items are no longer in the control sequence.

REVISION INFORMATION	Drawing Title: AHU-5 FLOW						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08	REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 09:16 AM	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY:	DRAWN DATE:	APPROVED BY:	APPROVED DATE:
FILE NAME: ahu5f.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 8.1		



REVISION INFORMATION	Drawing Title: AHU-5 FIELD POINTS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 09:14 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
FILE NAME: ahu5fp.vsd					DRAWING NUMBER: 8.2		





PANEL FACE TAGS:
TAG-1: PANEL P-5
AHU-5 SERVING 5TH FLOOR
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-7	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-5	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-8	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

REVISION INFORMATION							
NUMBER							
DATE 04/16/08							
TIME 01:08 PM		1	RECORD DRAWINGS		03/30/08	WCS	
FILE NAME ahu5p.vsd	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	

Drawing Title: **AHU-5 PANEL LOCATED IN 5045**

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title: **DANE COUNTY COURTHOUSE**
215 SOUTH HAMILTON ST.
MADISON, WI 53703

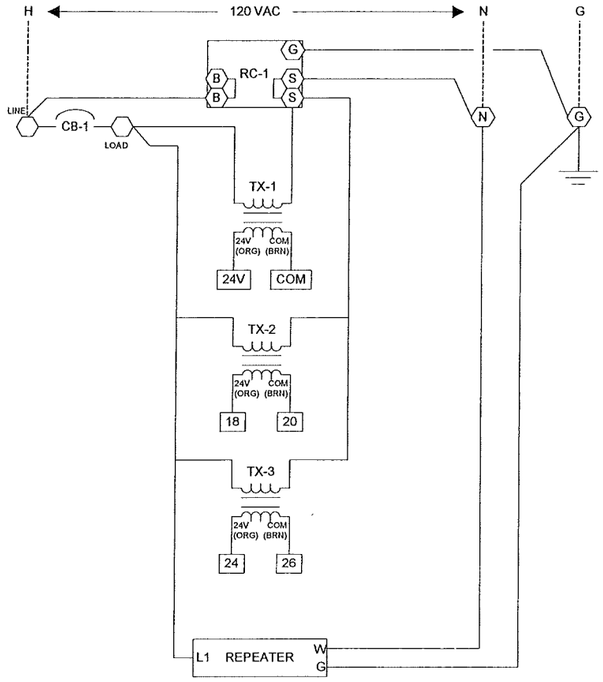
JOHNSON CONTROLS
Systems & Services Division

Branch Information:
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

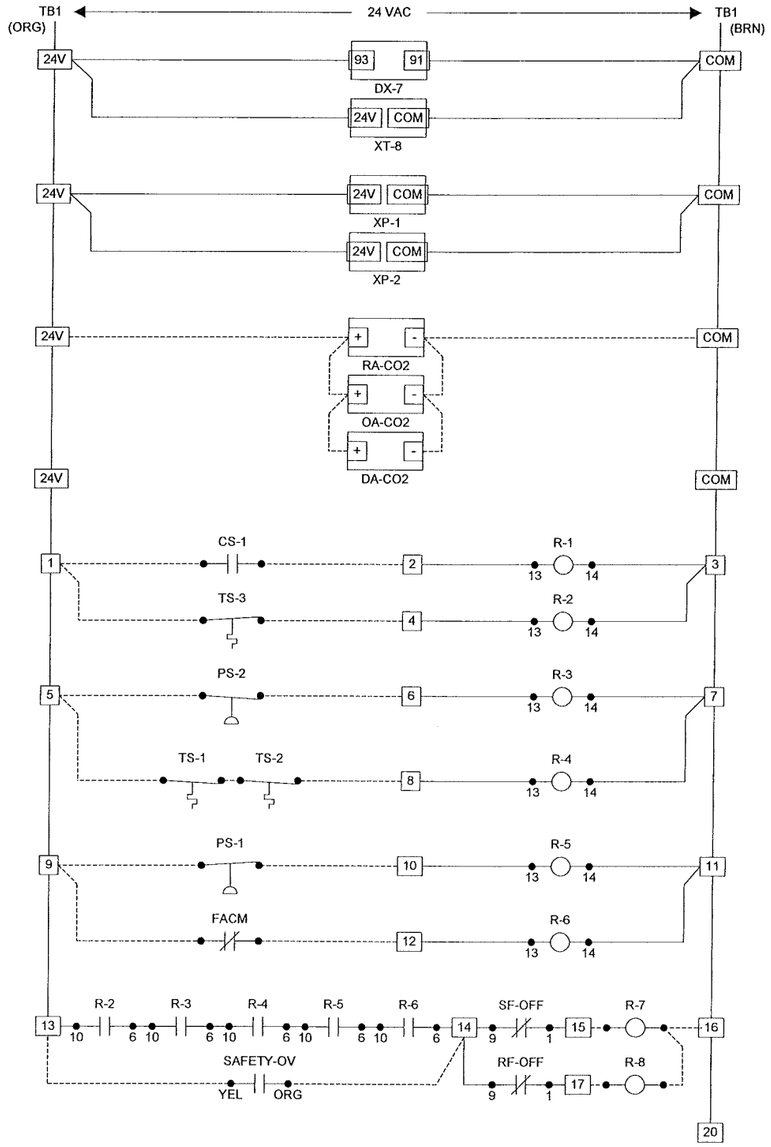
CONTRACT NUMBER: **0 3109-0044**

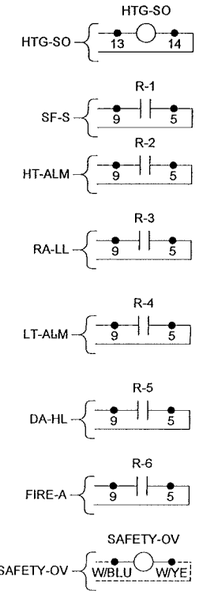
DRAWING NUMBER: **8.3**

LINE VOLTAGE WIRING DIAGRAM

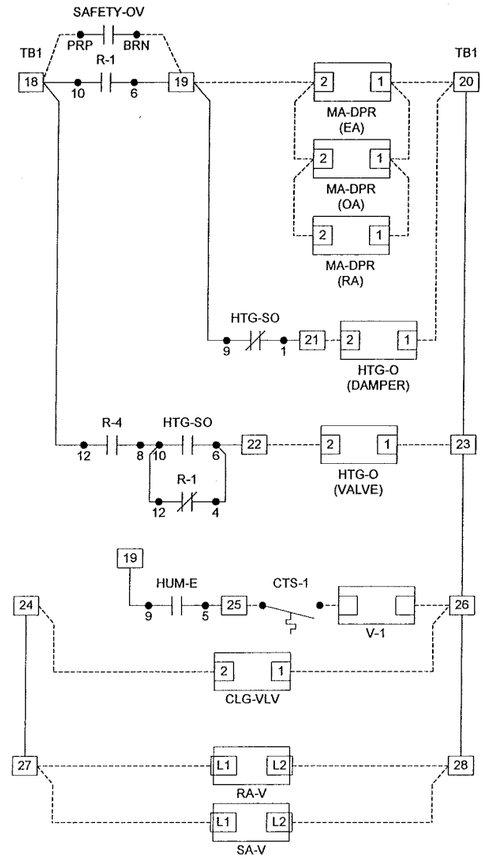


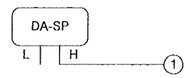
LOW VOLTAGE WIRING DIAGRAM

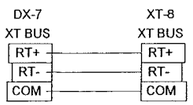




LOW VOLTAGE WIRING DIAGRAM







Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title					
NUMBER	AHU-5 PANEL WIRING					
		1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE / BY
TIME 01:09 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN: BY / DATE	APPROVED: BY / DATE
FILE NAME ahu5pw.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 8.4	

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. **NOTE:** The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.
Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.)~~. Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).
Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.
Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title							
NUMBER	**SEQUENCE**							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
04/17/08		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
TIME **08:13 AM**	Project Title				Branch Information		CONTRACT NUMBER	
	DANE COUNTY COURTHOUSE **215 SOUTH HAMILTON ST.** **MADISON, WI 53703**	JOHNSON CONTROLS Systems & Services Division			Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-2229490		**0 3109-0044**	
FILE NAME **Ahu5s1.vsd**							DRAWING NUMBER **8.5**	

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off' conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

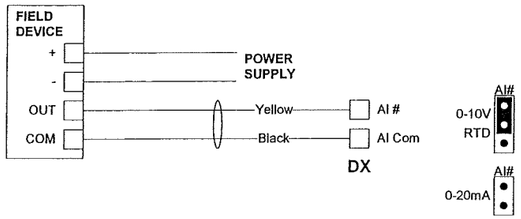
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off' positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

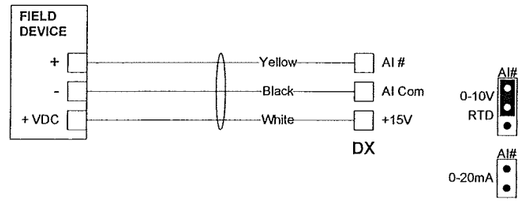
REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
04/17/08		Sales Engineer / Project Manager	Application Engineer	DRAWN		APPROVED		
TIME		GLA / SEL	RJM	BY / DATE		BY / DATE		
09:14 AM	Project Title			Branch Information		CONTRACT NUMBER		
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
FILE NAME						DRAWING NUMBER		
Ahu5s2.vsd						8.6		

Electrician/Fitter	Point Information				Controller Information							Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment	Template
		AHU-5			DX 9100																						Power to Controller	
		AHU-5			DX 9100	N2	2	7						0													N2 Trunk	
	DO-3	AHU-5	SF-C	Supply Fan Cntl	DX 9100	N2	2	7	DO-3					0		-7-DO-3												
	DO-4	AHU-5	RF-C	Return Fan Cntl	DX 9100	N2	2	7	DO-4					0		-7-DO-4												
	DO-5	AHU-5	HTG-SO	Heating F&B/Valve Switch	DX 9100	N2	2	7	DO-5					0		-7-DO-5												
	DO-6	AHU-5	HUM-E	Humidifier Enable	DX 9100	N2	2	7	DO-6					0		-7-DO-6												
	DO-7	AHU-5	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	2	7	DO-7					0		-7-DO-7												
	DO-8	AHU-5	RF-OFF	Return Fan FFCP Override	DX 9100	N2	2	7	DO-8					0		-7-DO-8												
	DI-1	AHU-5	SF-S	Supply Fan Sts	DX 9100	N2	2	7	DI-1					0		-7-DI-1												
	DI-2	AHU-5	RF-S	Return Fan Sts	DX 9100	N2	2	7	DI-2					0		-7-DI-2												
	DI-3	AHU-5	RASMK-A	Return Air Duct Detector	DX 9100	N2	2	7	DI-3					0		-7-DI-3												
	DI-4	AHU-5	SASMK-A	Supply Air Duct Detector	DX 9100	N2	2	7	DI-4					0		-7-DI-4												
	DI-5	AHU-5	FIRE-A	Building Fir Alarm	DX 9100	N2	2	7	DI-5					0		-7-DI-5												
	DI-6	AHU-5			DX 9100	N2	2	7	DI-6					0		-7-DI-6												
	DI-7	AHU-5	RA-LL	Ret Air Low Static Alm	DX 9100	N2	2	7	DI-7					0		-7-DI-7												
	DI-8	AHU-5	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	2	7	DI-8					0		-7-DI-8												
	AI-1	AHU-5	RA-CO2	Return Air CO2 Level	DX 9100	N2	2	7	AI-1					0		-7-AI-1												
	AI-2	AHU-5	RA-FLOW	Return Air Flow	DX 9100	N2	2	7	AI-2					0		-7-AI-2												
	AI-3	AHU-5	RA-T	Return Air Temp	DX 9100	N2	2	7	AI-3					0		-7-AI-3												
	AI-4	AHU-5	SA-FLOW	Supply Air Flow	DX 9100	N2	2	7	AI-4					0		-7-AI-4												
	AI-5	AHU-5	DA-H	Disch Air Humidity	DX 9100	N2	2	7	AI-5					0		-7-AI-5												
	AI-6	AHU-5	MA-T	Mixed Air Temp	DX 9100	N2	2	7	AI-6					0		-7-AI-6												
	AI-7	AHU-5	DA-T	Discharge Air Temp	DX 9100	N2	2	7	AI-7					0		-7-AI-7												
	AI-8	AHU-5	DA-SP	Disch Air Static Press	DX 9100	N2	2	7	AI-8					0		-7-AI-8												
	AO-1	AHU-5	SF-O	Supply Fan VSD Cmd	DX 9100	N2	2	7	AO-1					0		-7-AO-1												
	AO-2	AHU-5	RF-O	Return Fan VSD Cmd	DX 9100	N2	2	7	AO-2					0		-7-AO-2												
	AO-9	AHU-5	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	2	7	AO-9					0		-7-AO-9												
	AO-10	AHU-5	HTG-O	Heating Cmd	DX 9100	N2	2	7	AO-10					0		-7-AO-10												
	AO-11	AHU-5	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	2	7	AO-11					0		-7-AO-11												
	AO-12	AHU-5	HUM-O	Humidifier Cmd	DX 9100	N2	2	7	AO-12					0		-7-AO-12												
	AO-13	AHU-5			DX 9100	N2	2	7	AO-13					0		-7-AO-13												
	AO-14	AHU-5			DX 9100	N2	2	7	AO-14					0		-7-AO-14												
		AHU-5			XT (Expansion Module)																						Power to Controller	
		AHU-5			XT (Expansion Module)	N2	2	8						0													N2 Trunk	
	XT1AI1	AHU-5	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	8	AI-1					0		-8A-AI-1												
	XT1AI2	AHU-5	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	8	AI-2					0		-8A-AI-2												
	XT1AI3	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AI-3					0		-8A-AI-3												
	XT1AI4	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AI-4					0		-8A-AI-4												
	XT1AI5	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AI-5					0		-8A-AI-5												
	XT1AI6	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AI-6					0		-8A-AI-6												
	XT1AO7	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AO-7					0		-8A-AO-7												
	XT1AO8	AHU-5			XP 9102 (6AI, 2AO)	N2	2	8	AO-8					0		-8A-AO-8												
	XT2DI1	AHU-5	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	2	8	DI-1					0		-8B-DI-1												
	XT2DI2	AHU-5	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	2	8	DI-2					0		-8B-DI-2												
	XT2DI3	AHU-5	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	2	8	DI-3					0		-8B-DI-3												
	XT2DI4	AHU-5			XP 9104 (4DI, 4DO)	N2	2	8	DI-4					0		-8B-DI-4												
	XT2DO5	AHU-5			XP 9104 (4DI, 4DO)	N2	2	8	DO-5					0		-8B-DO-5												
	XT2DO6	AHU-5			XP 9104 (4DI, 4DO)	N2	2	8	DO-6					0		-8B-DO-6												
	XT2DO7	AHU-5			XP 9104 (4DI, 4DO)	N2	2	8	DO-7					0		-8B-DO-7												
	XT2DO8	AHU-5			XP 9104 (4DI, 4DO)	N2	2	8	DO-8					0		-8B-DO-8												

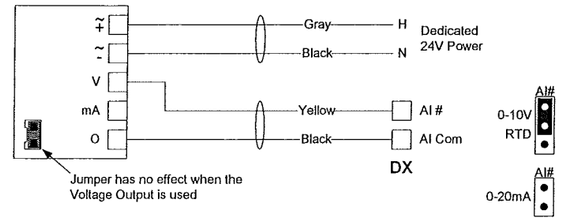
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



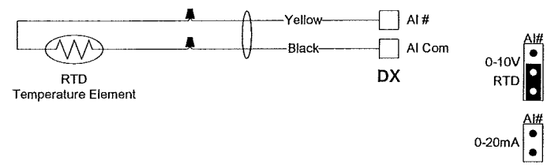
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



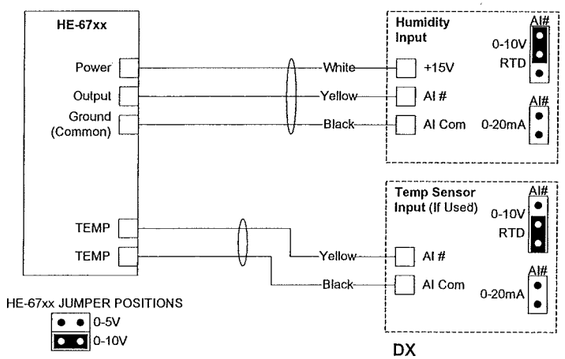
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



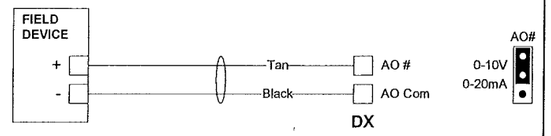
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

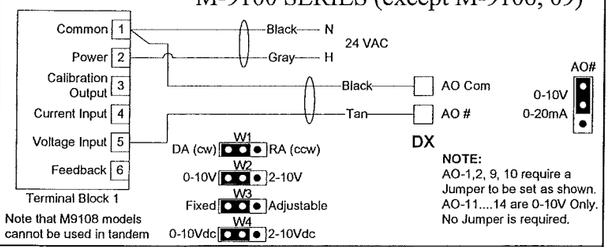


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

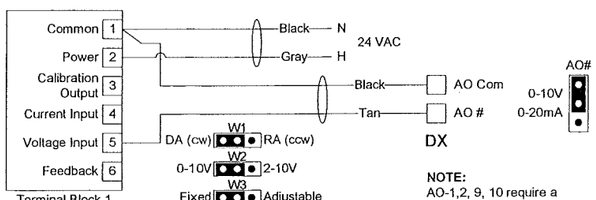
DETAIL D261 0-10VDC OUTPUT to M-9100 SERIES (except M-9106, 09)



Note that M9108 models cannot be used in tandem

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

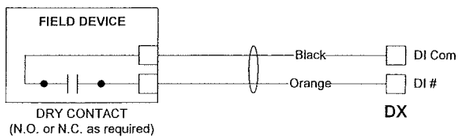
DETAIL D264 0-10VDC OUTPUT to M-9216



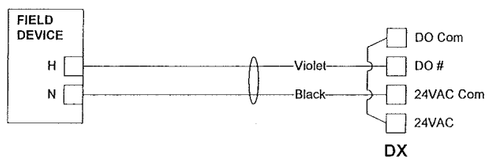
To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

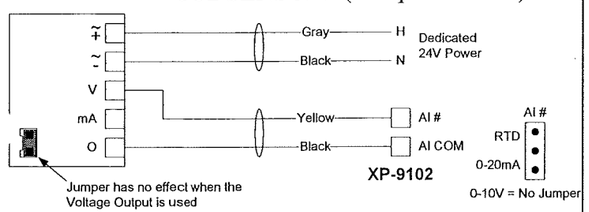
DETAIL D301 BINARY INPUT (DRY CONTACT)



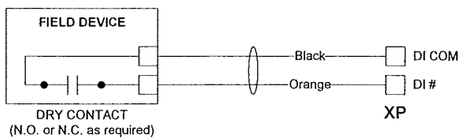
DETAIL D501 24 VAC BINARY OUTPUT (Switch High)



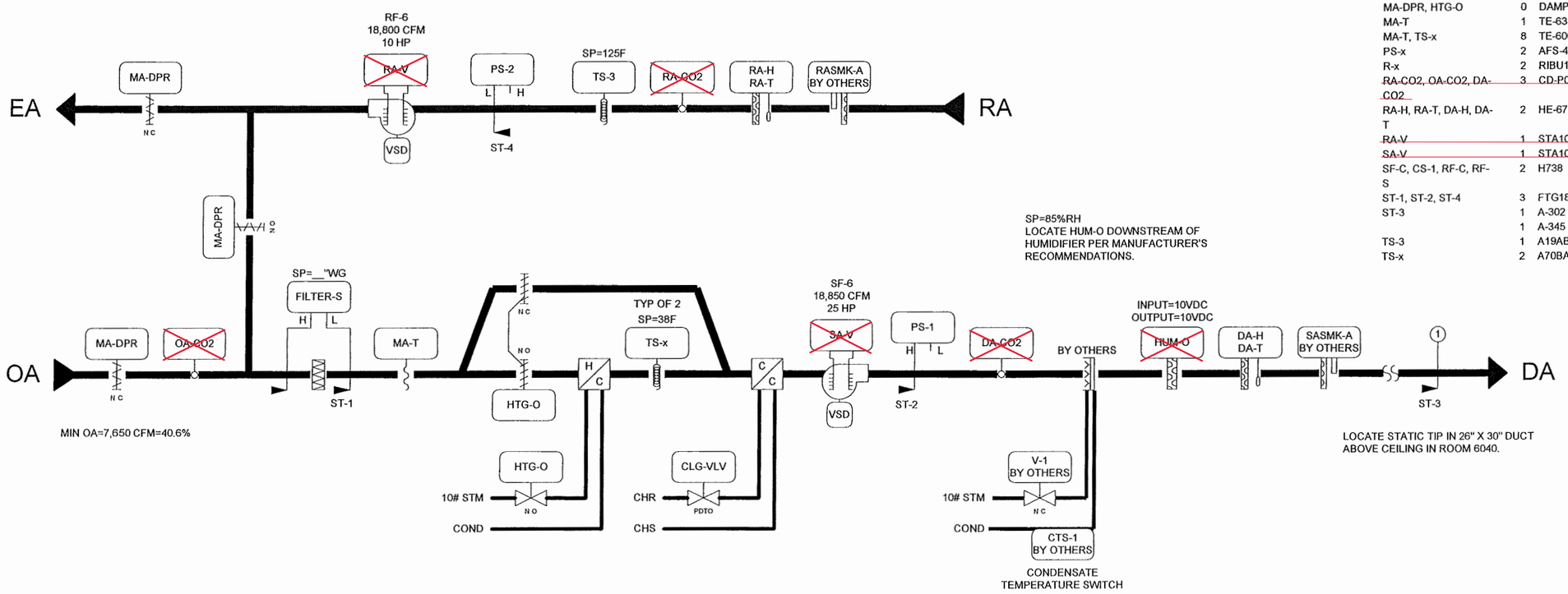
DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



DETAIL XP301 BINARY INPUT (DRY CONTACT)



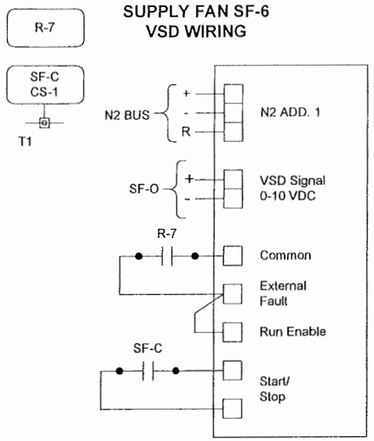
REVISION INFORMATION	Drawing Title							
NUMBER	POINT SCHEDULE							
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 09:13 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN: BY / DATE		APPROVED: BY / DATE	
FILE NAME ahu5ps2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	
						DRAWING NUMBER: 8.8	



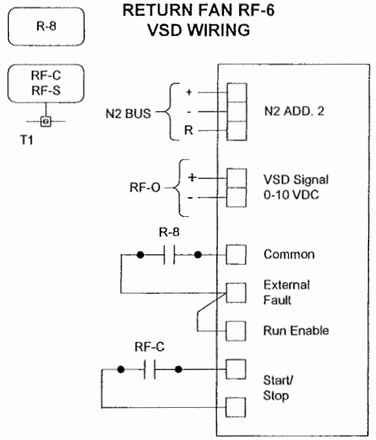
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	8	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	~~SENSOR,CO2, 0-2000PPM,DUCT MOUNT~~
RA-H, RA-T, DA-H, DA-T	2	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-3	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	2	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-6 VSD WIRING



RETURN FAN RF-6 VSD WIRING

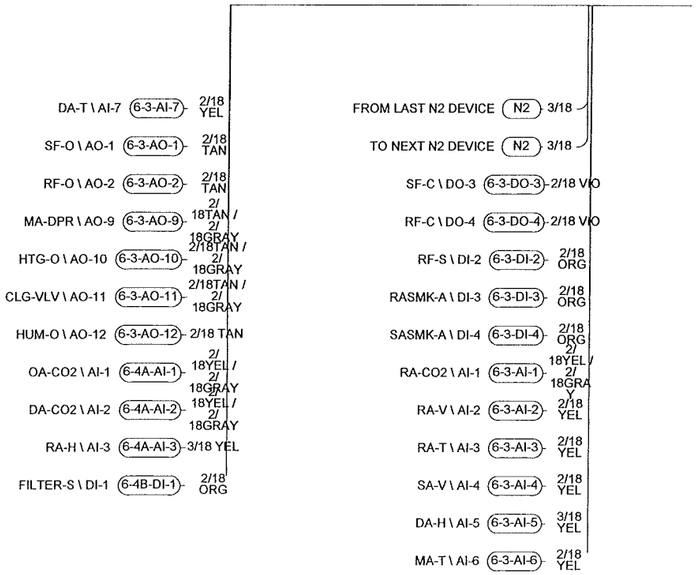


FACM
BY OTHERS

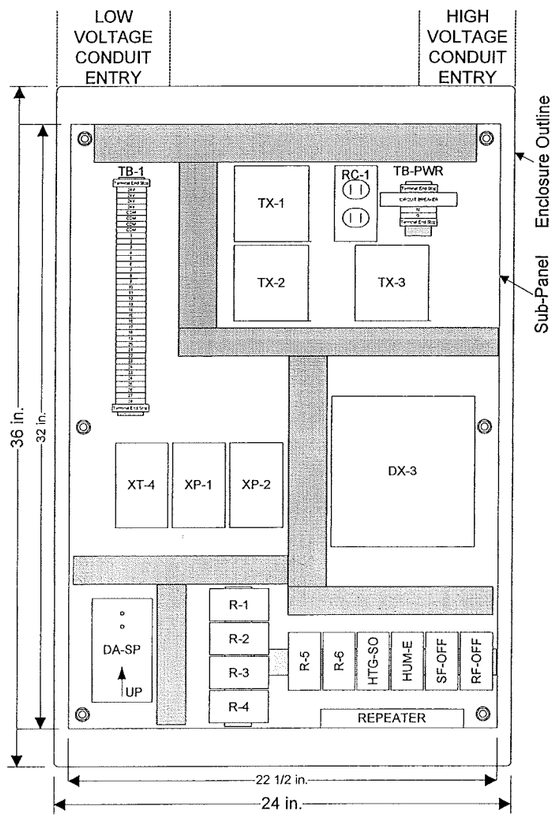
FIRE ALARM
CONTROL MODULE

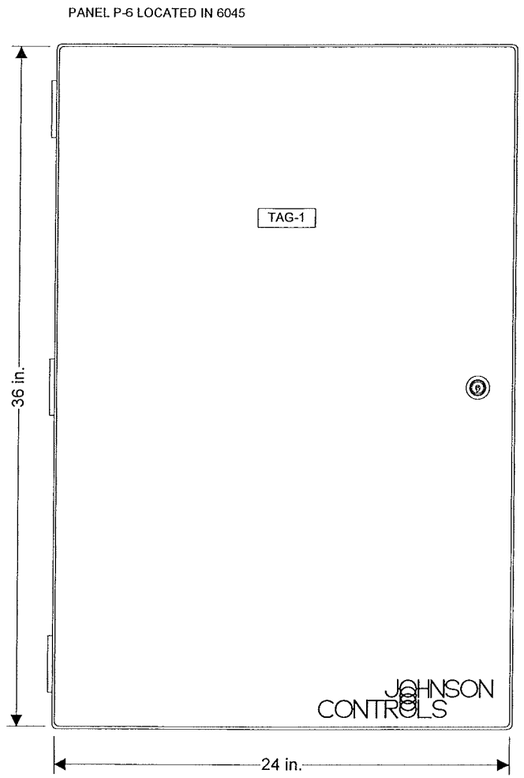
Note: "X" items are no longer in the control sequence.

REVISION INFORMATION	Drawing Title							
NUMBER	AHU-6 FLOW							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME 08:31 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE						
FILE NAME ahu6f.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 9.1			



REVISION INFORMATION	Drawing Title						
NUMBER	AHU-6 FIELD POINTS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:31 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM		DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME ahu6fp.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 9.2	





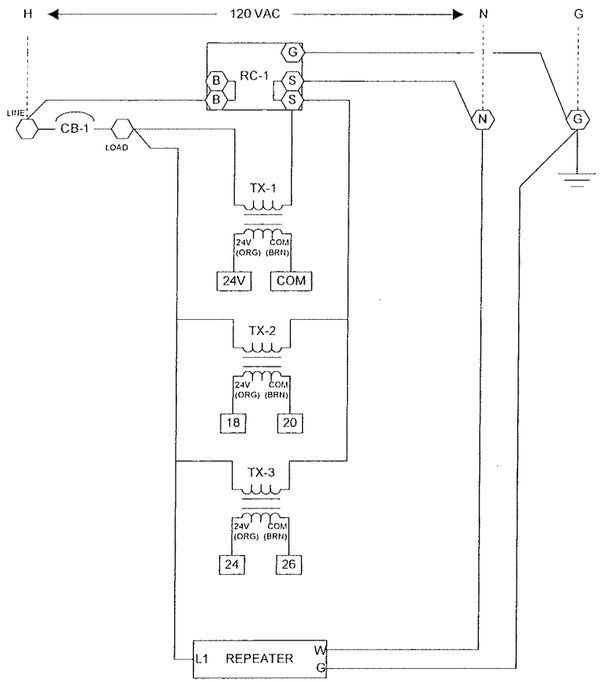
PANEL FACE TAGS:
TAG-1: PANEL P-6
AHU-6 SERVING 6TH FLOOR
JCI 0 3109-0044

BILL OF MATERIALS

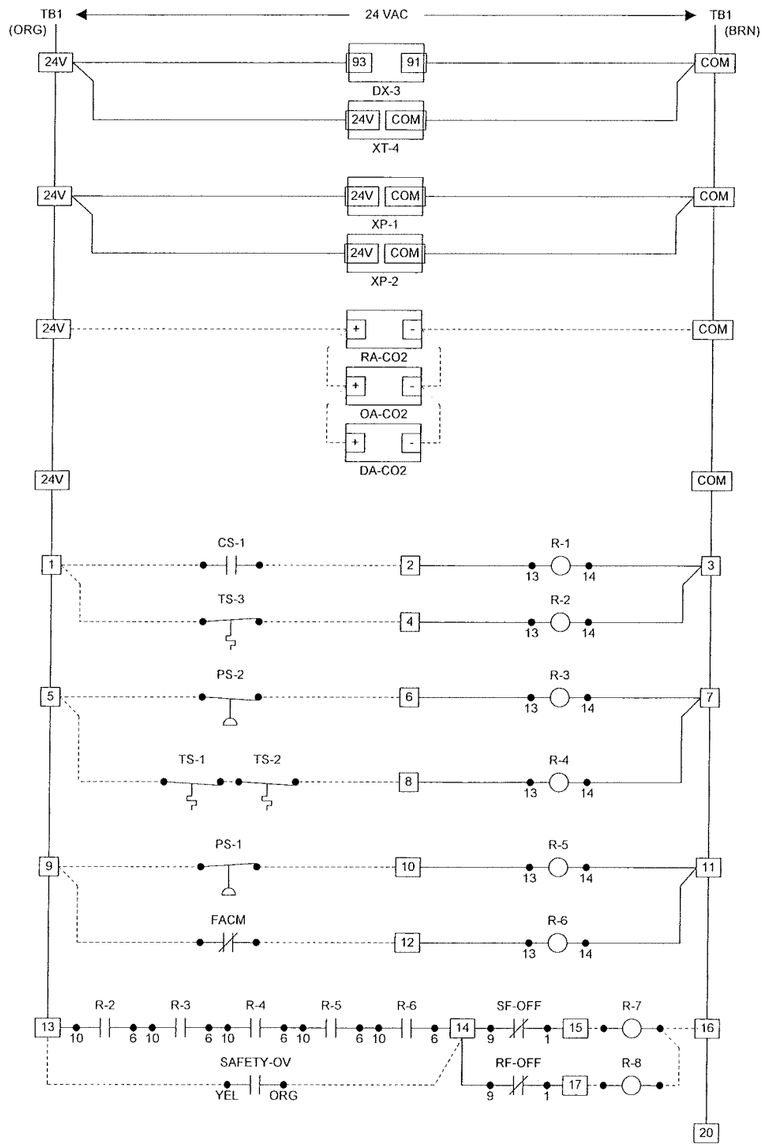
Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-3	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-6	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-4	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

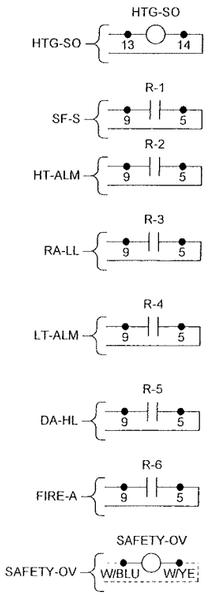
REVISION INFORMATION	Drawing Title						
NUMBER	AHU-6 PANEL LOCATED IN 6045						
DATE 04/16/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:08 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECH	DATE	BY
FILE NAME ahu6p.vsd	Project Title	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
					DRAWING NUMBER: 9.3		

LINE VOLTAGE WIRING DIAGRAM

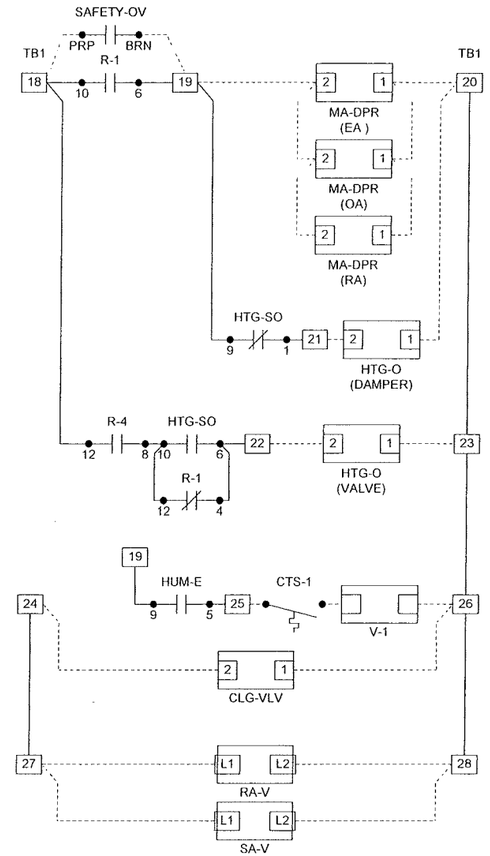


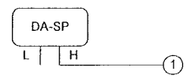
LOW VOLTAGE WIRING DIAGRAM

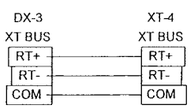




LOW VOLTAGE WIRING DIAGRAM







Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	
NUMBER	
DATE	04/16/08
TIME	01:07 PM
FILE NAME	ahu6pw.vsd

Drawing Title: AHU-6 PANEL WIRING

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 9.4

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. **NOTE:** The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
- Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.

Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.)~~. Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
- Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).

Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title						
NUMBER	SEQUENCE						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:13 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	Project Title	Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME Ahu6s1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608222-9100 Fax: 608222-9490		CONTRACT NUMBER 0 3109-0044 DRAWING NUMBER 9.5	

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

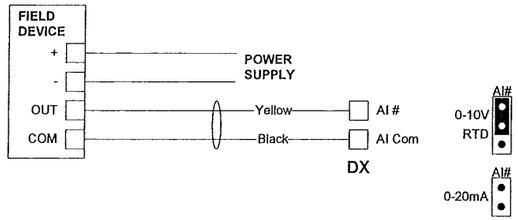
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

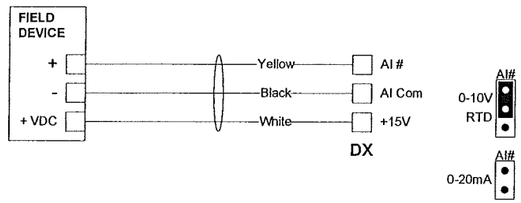
REVISION INFORMATION	Drawing Title						
NUMBER	SEQUENCE						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:13 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer / Project Manager / Application Engineer: GLA / SEL / RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME Ahu6s2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 9.6

Electrician/Fitter	Point Information				Controller Information							Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Ref Detail Sheet	Comment	Template
		AHU-6			DX 9100																						Power to Controller	
		AHU-6			DX 9100	N2	1	3						0													N2 Trunk	
	DO-3	AHU-6			DX 9100	N2	1	3	DO-3					0		-3-DO-3												
	DO-4	AHU-6			DX 9100	N2	1	3	DO-4					0		-3-DO-4												
	DO-5	AHU-6			DX 9100	N2	1	3	DO-5					0		-3-DO-5												
	DO-6	AHU-6			DX 9100	N2	1	3	DO-6					0		-3-DO-6												
	DO-7	AHU-6			DX 9100	N2	1	3	DO-7					0		-3-DO-7												
	DO-8	AHU-6			DX 9100	N2	1	3	DO-8					0		-3-DO-8												
	DI-1	AHU-6			DX 9100	N2	1	3	DI-1					0		-3-DI-1												
	DI-2	AHU-6			DX 9100	N2	1	3	DI-2					0		-3-DI-2												
	DI-3	AHU-6			DX 9100	N2	1	3	DI-3					0		-3-DI-3												
	DI-4	AHU-6			DX 9100	N2	1	3	DI-4					0		-3-DI-4												
	DI-5	AHU-6			DX 9100	N2	1	3	DI-5					0		-3-DI-5												
	DI-6	AHU-6			DX 9100	N2	1	3	DI-6					0		-3-DI-6												
	DI-7	AHU-6			DX 9100	N2	1	3	DI-7					0		-3-DI-7												
	DI-8	AHU-6			DX 9100	N2	1	3	DI-8					0		-3-DI-8												
	AI-1	AHU-6			DX 9100	N2	1	3	AI-1					0		-3-AI-1												
	AI-2	AHU-6			DX 9100	N2	1	3	AI-2					0		-3-AI-2												
	AI-3	AHU-6			DX 9100	N2	1	3	AI-3					0		-3-AI-3												
	AI-4	AHU-6			DX 9100	N2	1	3	AI-4					0		-3-AI-4												
	AI-5	AHU-6			DX 9100	N2	1	3	AI-5					0		-3-AI-5												
	AI-6	AHU-6			DX 9100	N2	1	3	AI-6					0		-3-AI-6												
	AI-7	AHU-6			DX 9100	N2	1	3	AI-7					0		-3-AI-7												
	AI-8	AHU-6			DX 9100	N2	1	3	AI-8					0		-3-AI-8												
	AO-1	AHU-6			DX 9100	N2	1	3	AO-1					0		-3-AO-1												
	AO-2	AHU-6			DX 9100	N2	1	3	AO-2					0		-3-AO-2												
	AO-9	AHU-6			DX 9100	N2	1	3	AO-9					0		-3-AO-9												
	AO-10	AHU-6			DX 9100	N2	1	3	AO-10					0		-3-AO-10												
	AO-11	AHU-6			DX 9100	N2	1	3	AO-11					0		-3-AO-11												
	AO-12	AHU-6			DX 9100	N2	1	3	AO-12					0		-3-AO-12												
	AO-13	AHU-6			DX 9100	N2	1	3	AO-13					0		-3-AO-13												
	AO-14	AHU-6			DX 9100	N2	1	3	AO-14					0		-3-AO-14												
		AHU-6			XT (Expansion Module)																						Power to Controller	
		AHU-6			XT (Expansion Module)	N2	1	4						0													N2 Trunk	
	XT1AI1	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-1					0		-4A-AI-1												
	XT1AI2	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-2					0		-4A-AI-2												
	XT1AI3	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-3					0		-4A-AI-3												
	XT1AI4	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-4					0		-4A-AI-4												
	XT1AI5	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-5					0		-4A-AI-5												
	XT1AI6	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AI-6					0		-4A-AI-6												
	XT1AO7	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AO-7					0		-4A-AO-7												
	XT1AO8	AHU-6			XP 9102 (6AI, 2AO)	N2	1	4	AO-8					0		-4A-AO-8												
	XT2DI1	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DI-1					0		-4B-DI-1												
	XT2DI2	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DI-2					0		-4B-DI-2												
	XT2DI3	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DI-3					0		-4B-DI-3												
	XT2DI4	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DI-4					0		-4B-DI-4												
	XT2DO5	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DO-5					0		-4B-DO-5												
	XT2DO6	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DO-6					0		-4B-DO-6												
	XT2DO7	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DO-7					0		-4B-DO-7												
	XT2DO8	AHU-6			XP 9104 (4DI, 4DO)	N2	1	4	DO-8					0		-4B-DO-8												

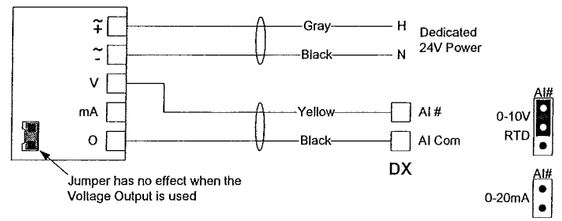
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



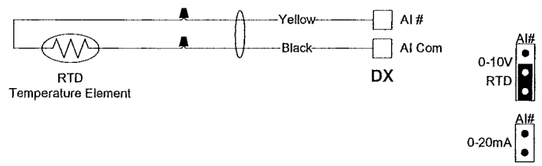
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



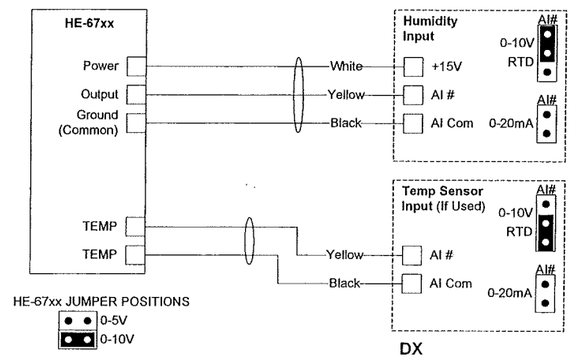
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



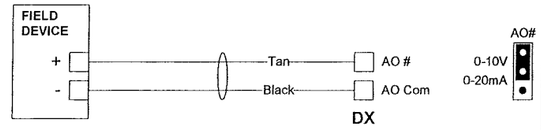
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

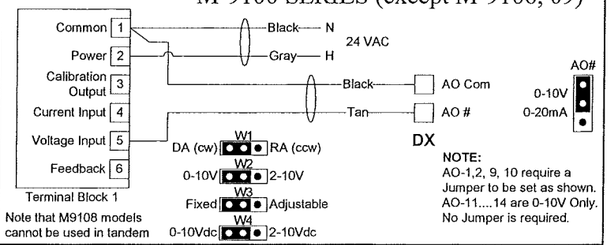


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

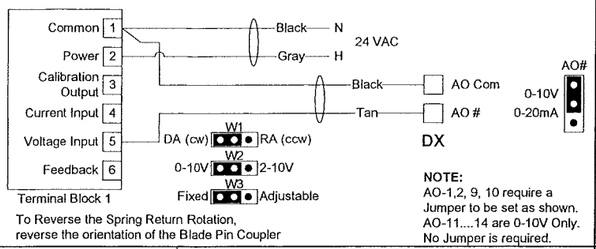
DETAIL D261 0-10VDC OUTPUT to M-9100 SERIES (except M-9106, 09)



Note that M9108 models cannot be used in tandem

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

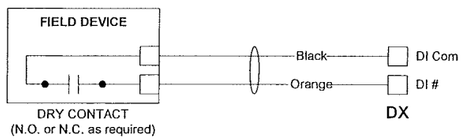
DETAIL D264 0-10VDC OUTPUT to M-9216



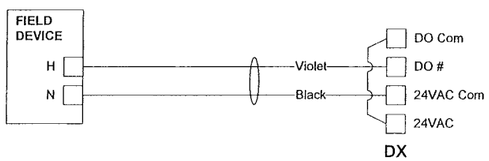
To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

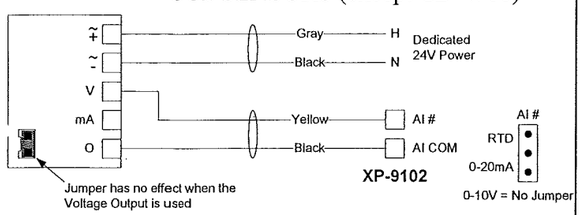
DETAIL D301 BINARY INPUT (DRY CONTACT)



DETAIL D501 24 VAC BINARY OUTPUT (Switch High)

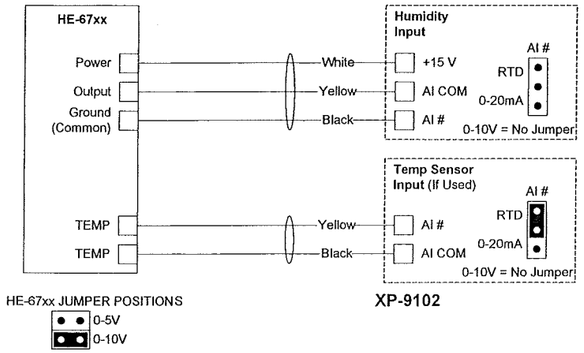


DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)

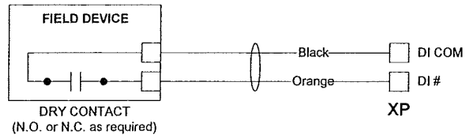


REVISION INFORMATION	Drawing Title: POINT SCHEDULE					
NUMBER			1	RECORD DRAWINGS	03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN / DATE / BY	
TIME: 08:13 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: ahu6ps2.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 9.8	

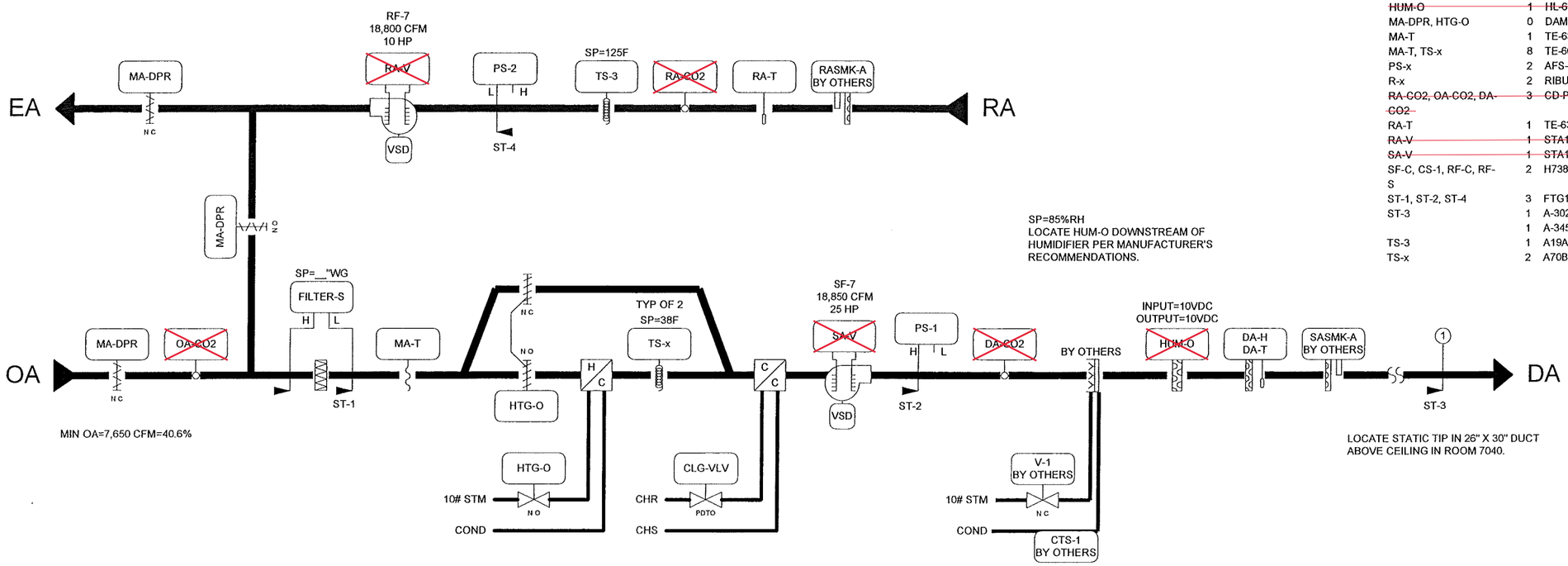
DETAIL XP153 — HE-6700 SERIES DUCT HUMIDITY SENSOR



DETAIL XP301 — BINARY INPUT (DRY CONTACT)



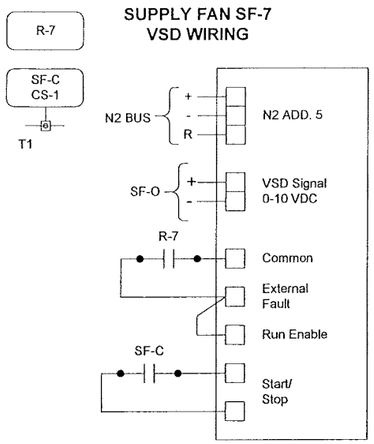
REVISION INFORMATION	Drawing Title							
NUMBER	POINT SCHEDULE							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME 08:12 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY / DATE; APPROVED BY / DATE						
FILE NAME ahu6ps3.vsd	Project Title: DANE COUNTY COURTHOUSE, 215 SOUTH HAMILTON ST., MADISON, WI 53703	JOHNSON CONTROLS, Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 9.9			



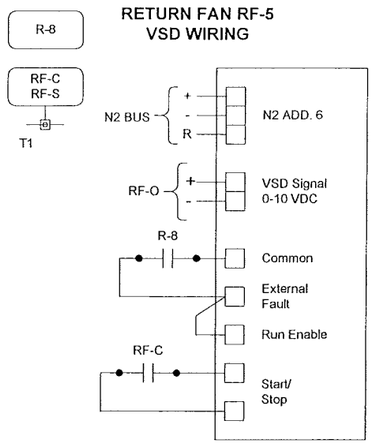
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
DA-H, DA-T	1	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	8	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	~~SENSOR,CO2, 0-2000PPM,DUCT MOUNT~~
RA-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-3	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	2	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-7 VSD WIRING



RETURN FAN RF-5 VSD WIRING



FACM
BY OTHERS

FIRE ALARM
CONTROL MODULE

Note: "X" items are no longer in the control sequence.

		1	RECORD DRAWINGS		03/30/08	WCS
		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE / BY

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

REVISION INFORMATION
NUMBER
DATE: 04/17/08
TIME: 08:12 AM
FILE NAME: ahu7f.vsd

Drawing Title: AHU-7 FLOW

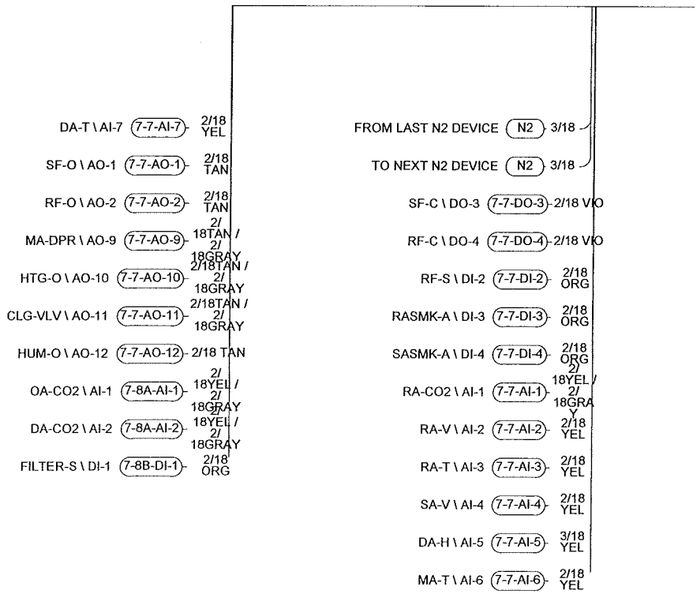
Project Title:
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

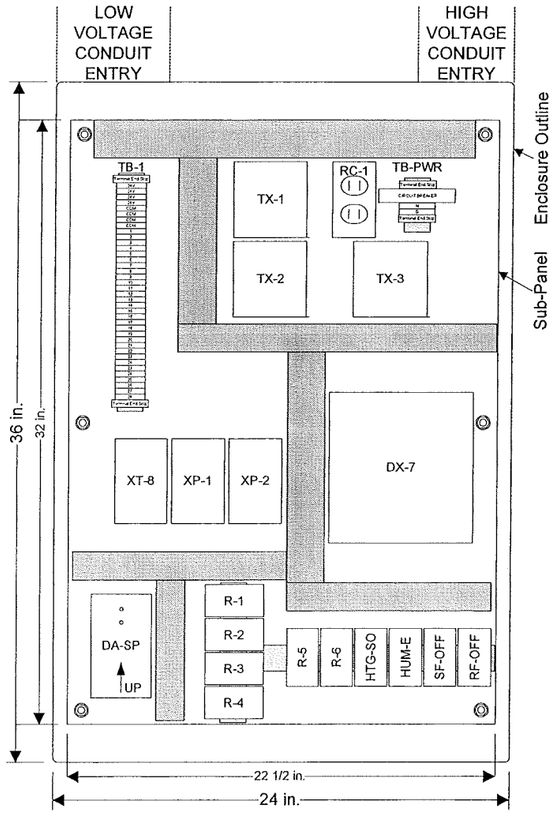
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044

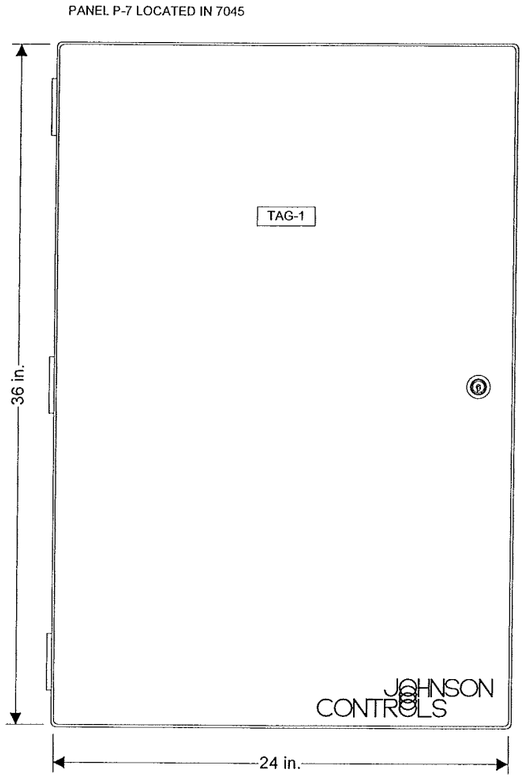
DRAWING NUMBER: 10.1



REVISION INFORMATION	Drawing Title: AHU-7 FIELD POINTS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:12 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN BY / DRAWN DATE		APPROVED BY / APPROVED DATE	
FILE NAME: ahu7fp.vsd		JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	
						DRAWING NUMBER: 10.2	



SAFETY-OV



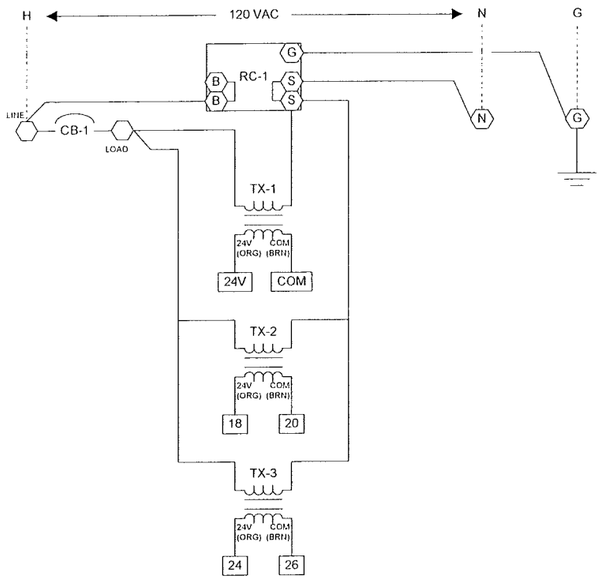
PANEL FACE TAGS:
TAG-1: PANEL P-7
AHU-7 SERVING 7TH FLOOR
JCI 0 3109-0044

BILL OF MATERIALS

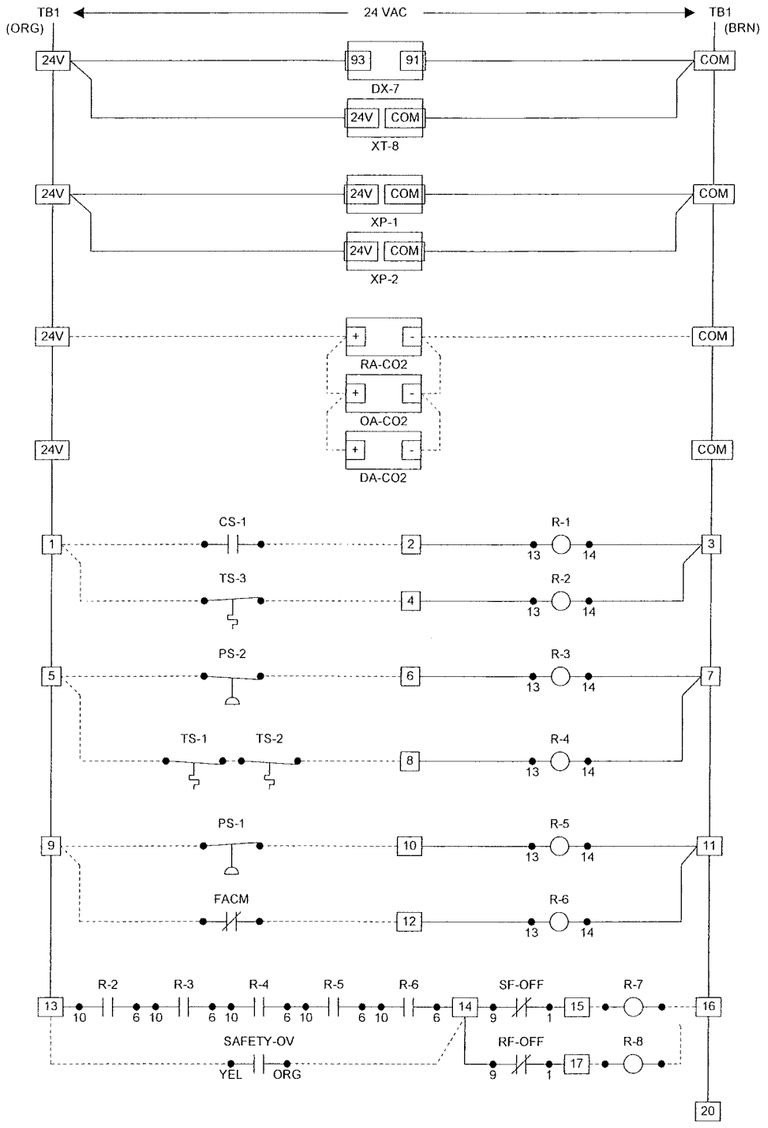
Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-7	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-7	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	36	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-8	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

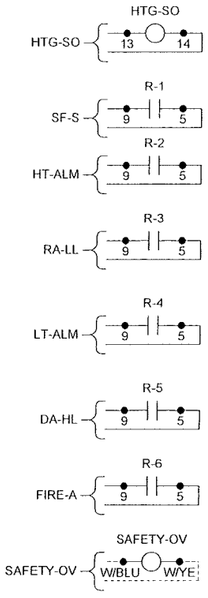
REVISION INFORMATION	Drawing Title						
NUMBER	AHU-7 PANEL LOCATED IN 7045						
DATE 04/16/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:07 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
FILE NAME ahu7p.vsd		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 10.3		

LINE VOLTAGE WIRING DIAGRAM

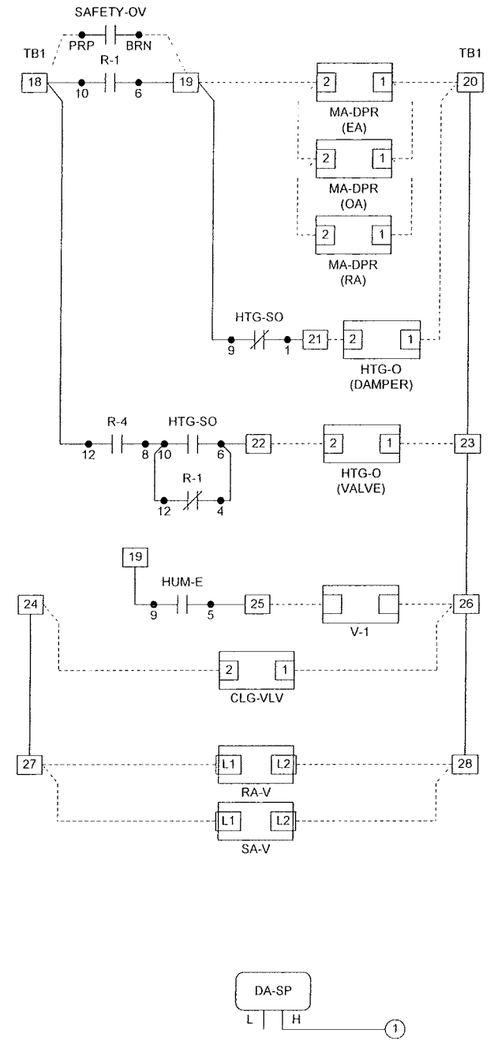


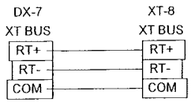
LOW VOLTAGE WIRING DIAGRAM





LOW VOLTAGE WIRING DIAGRAM





Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION						
NUMBER						
DATE 04/16/08		1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:05 PM		REFERENCE DRAWING	NO	REVISION-LOCATION	ECN	DATE	BY
FILE NAME ahu7pw.vsd		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	

Drawing Title: **AHU-7 PANEL WIRING**

Project Title: **DANE COUNTY COURTHOUSE**
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: **0 3109-0044**

DRAWING NUMBER: **10.4**

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. **NOTE:** The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
- Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.

Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.)~~. Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
- Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).

Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM~~ HUMIDIFIER:
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title: **SEQUENCE**							
NUMBER								
				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:11 AM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: Ahu7s1.vsd	Project Title: **DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703**	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608.222-9100 Fax: 608-222-9490		CONTRACT NUMBER: **0 3109-0044**		
						DRAWING NUMBER: **10.5**		

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

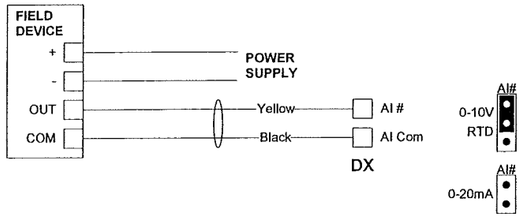
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

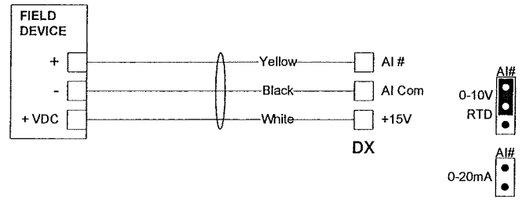
REVISION INFORMATION	Drawing Title						
NUMBER	SEQUENCE						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:11 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME Ahu7s2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 10.6	

Electrician/Fitter	Point Information				Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Rel Detail Shape	Comment	Template
		AHU-7			DX 9100																						
		AHU-7			DX 9100	N2	1	7																		Power to Controller	
	DO-3	AHU-7	SF-C	Supply Fan Cntl	DX 9100	N2	1	7	DO-3					0		-7-DO-3										N2 Trunk	
	DO-4	AHU-7	RF-C	Return Fan Cntl	DX 9100	N2	1	7	DO-4					0		-7-DO-4											
	DO-5	AHU-7	HTG-SO	Heating FAB/Valve Switch	DX 9100	N2	1	7	DO-5					0		-7-DO-5											
	DO-6	AHU-7	HUM-E	Humidifier Enable	DX 9100	N2	1	7	DO-6					0		-7-DO-6											
	DO-7	AHU-7	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	1	7	DO-7					0		-7-DO-7											
	DO-8	AHU-7	RF-OFF	Return Fan FFCP Override	DX 9100	N2	1	7	DO-8					0		-7-DO-8											
	DI-1	AHU-7	SF-S	Supply Fan Sts	DX 9100	N2	1	7	DI-1					0		-7-DI-1											
	DI-2	AHU-7	RF-S	Return Fan Sts	DX 9100	N2	1	7	DI-2					0		-7-DI-2											
	DI-3	AHU-7	RASMK-A	Return Air Duct Detector	DX 9100	N2	1	7	DI-3					0		-7-DI-3											
	DI-4	AHU-7	SASMK-A	Supply Air Duct Detector	DX 9100	N2	1	7	DI-4					0		-7-DI-4											
	DI-5	AHU-7	FIRE-A	Building Fir Alarm	DX 9100	N2	1	7	DI-5					0		-7-DI-5											
	DI-6	AHU-7			DX 9100	N2	1	7	DI-6					0		-7-DI-6											
	DI-7	AHU-7	RA-LL	Ret Air Low Static Alm	DX 9100	N2	1	7	DI-7					0		-7-DI-7											
	DI-8	AHU-7	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	1	7	DI-8					0		-7-DI-8											
	AI-1	AHU-7	RA-CO2	Return Air CO2 Level	DX 9100	N2	1	7	AI-1					0		-7-AI-1											
	AI-2	AHU-7	RA-FLOW	Return Air Flow	DX 9100	N2	1	7	AI-2					0		-7-AI-2											
	AI-3	AHU-7	RA-T	Return Air Temp	DX 9100	N2	1	7	AI-3					0		-7-AI-3											
	AI-4	AHU-7	SA-FLOW	Supply Air Flow	DX 9100	N2	1	7	AI-4					0		-7-AI-4											
	AI-5	AHU-7	DA-H	Disch Air Humidity	DX 9100	N2	1	7	AI-5					0		-7-AI-5											
	AI-6	AHU-7	MA-T	Mixed Air Temp	DX 9100	N2	1	7	AI-6					0		-7-AI-6											
	AI-7	AHU-7	DA-T	Discharge Air Temp	DX 9100	N2	1	7	AI-7					0		-7-AI-7											
	AI-8	AHU-7	DA-SP	Disch Air Static Press	DX 9100	N2	1	7	AI-8					0		-7-AI-8											
	AO-1	AHU-7	SF-O	Supply Fan VSD Cmd	DX 9100	N2	1	7	AO-1					0		-7-AO-1											
	AO-2	AHU-7	RF-O	Return Fan VSD Cmd	DX 9100	N2	1	7	AO-2					0		-7-AO-2											
	AO-9	AHU-7	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	1	7	AO-9					0		-7-AO-9											
	AO-10	AHU-7	HTG-O	Heating Cmd	DX 9100	N2	1	7	AO-10					0		-7-AO-10											
	AO-11	AHU-7	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	1	7	AO-11					0		-7-AO-11											
	AO-12	AHU-7	HUM-O	Humidifier Cmd	DX 9100	N2	1	7	AO-12					0		-7-AO-12											
	AO-13	AHU-7			DX 9100	N2	1	7	AO-13					0		-7-AO-13											
	AO-14	AHU-7			DX 9100	N2	1	7	AO-14					0		-7-AO-14											
		AHU-7			XT (Expansion Module)																					Power to Controller	
		AHU-7			XT (Expansion Module)	N2	1	8						0												N2 Trunk	
	XT1AI1	AHU-7	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	8	AI-1					0		-8A-AI-1											
	XT1AI2	AHU-7	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	1	8	AI-2					0		-8A-AI-2											
	XT1AI3	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AI-3					0		-8A-AI-3											
	XT1AI4	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AI-4					0		-8A-AI-4											
	XT1AI5	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AI-5					0		-8A-AI-5											
	XT1AI6	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AI-6					0		-8A-AI-6											
	XT1AO7	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AO-7					0		-8A-AO-7											
	XT1AO8	AHU-7			XP 9102 (6AI, 2AO)	N2	1	8	AO-8					0		-8A-AO-8											
	XT2DI1	AHU-7	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	1	8	DI-1					0		-8B-DI-1											
	XT2DI2	AHU-7	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	1	8	DI-2					0		-8B-DI-2											
	XT2DI3	AHU-7	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	1	8	DI-3					0		-8B-DI-3											
	XT2DI4	AHU-7			XP 9104 (4DI, 4DO)	N2	1	8	DI-4					0		-8B-DI-4											
	XT2DO5	AHU-7			XP 9104 (4DI, 4DO)	N2	1	8	DO-5					0		-8B-DO-5											
	XT2DO6	AHU-7			XP 9104 (4DI, 4DO)	N2	1	8	DO-6					0		-8B-DO-6											
	XT2DO7	AHU-7			XP 9104 (4DI, 4DO)	N2	1	8	DO-7					0		-8B-DO-7											
	XT2DO8	AHU-7			XP 9104 (4DI, 4DO)	N2	1	8	DO-8					0		-8B-DO-8											

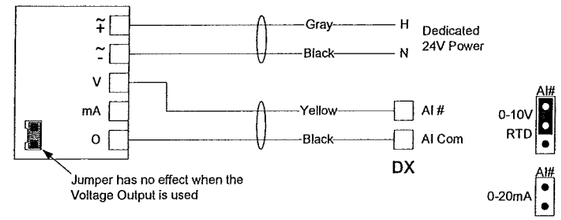
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



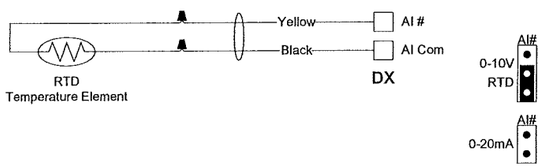
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



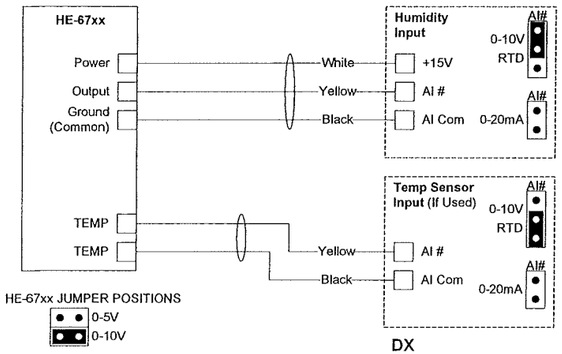
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



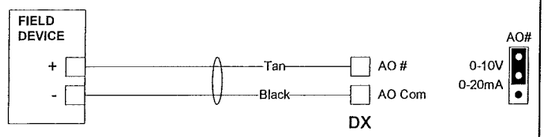
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR

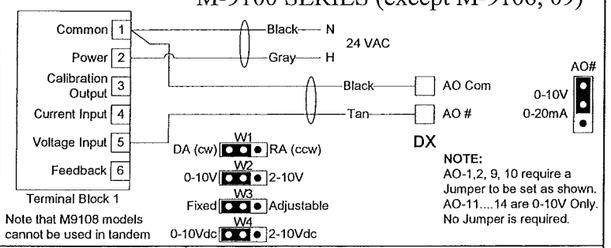


DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

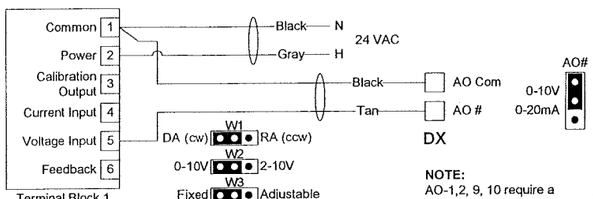
DETAIL D261 0-10VDC OUTPUT to M-9100 SERIES (except M-9106, 09)



Note that M9108 models cannot be used in tandem

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

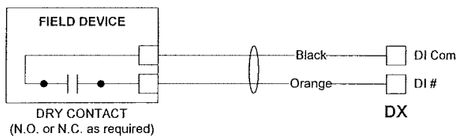
DETAIL D264 0-10VDC OUTPUT to M-9216



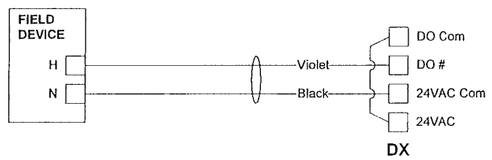
To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only.
No Jumper is required.

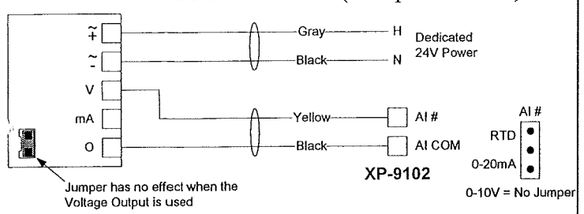
DETAIL D301 BINARY INPUT (DRY CONTACT)



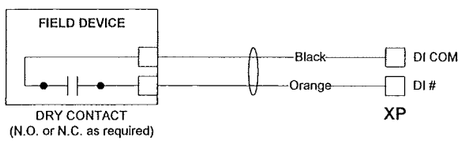
DETAIL D501 24 VAC BINARY OUTPUT (Switch High)



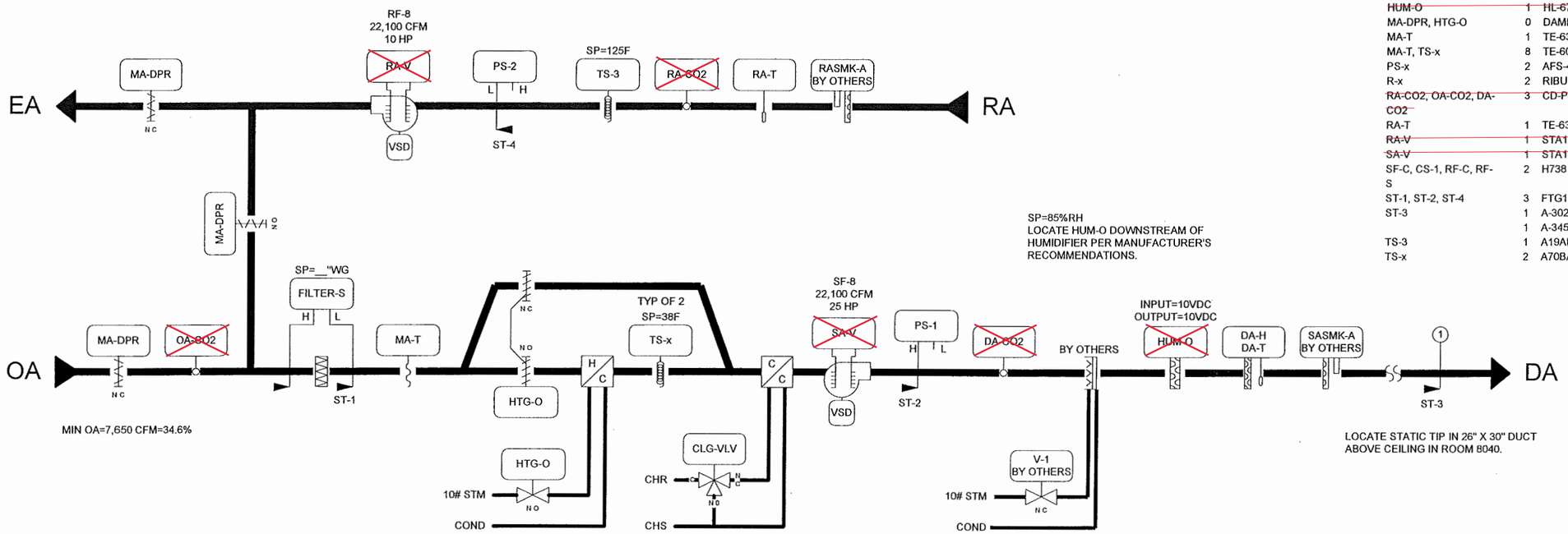
DETAIL XP121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



DETAIL XP301 BINARY INPUT (DRY CONTACT)



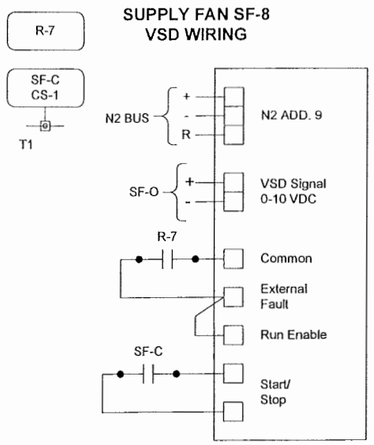
REVISION INFORMATION	Drawing Title					
NUMBER	POINT SCHEDULE					
DATE 04/17/08			1	RECORD DRAWINGS	03/30/08	WCS
TIME 08:11 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN DATE	BY
		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE
FILE NAME ahu7ps2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 10.8



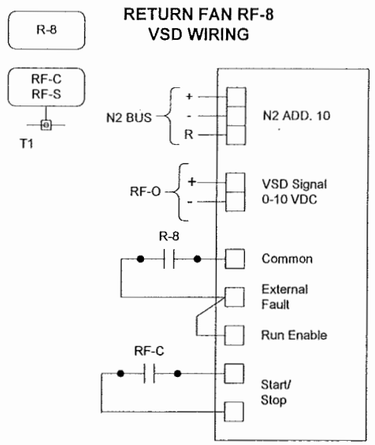
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
CLG-VLV, HTG-O	0	VALVE	SEE VALVE SCHEDULE
DA-H, DA-T	1	HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,DUCT-PROBE
FILTER-S	1	P32AC-2C	PRESS SW,DP,SPDT,5IN WC,U-BRKT
~~HUM-O~~	~~1~~	~~HL-67N5-8N00P~~	~~HI-LIMIT,5%RH & 1K NI TMP,WHT,DUCT-PROBE~~
MA-DPR, HTG-O	0	DAMPER	SEE DAMPER SCHEDULE
MA-T	1	TE-6316P-1	SENSOR,T-NI,0.1%,17FT AVG
MA-T, TS-x	8	TE-6001-8	CLIP F/AVG ELEMENT,10-PACK
PS-x	2	AFS-460	AIR FLOW SW,SPST,NC RESET 0.05-12IN
R-x	2	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
~~RA-CO2, OA-CO2, DA-CO2~~	~~3~~	~~CD-P00-00-0~~	SENSOR,CO2, 0-2000PPM,DUCT MOUNT
RA-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT
~~RA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
~~SA-V~~	~~1~~	~~STA104-F~~	~~EBTRON-FAN INLET AIR FLOW MEASURING STN-JMB ASSOC.~~
SF-C, CS-1, RF-C, RF-S	2	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
ST-1, ST-2, ST-4	3	FTG18A-600R	SENSING TUBE KIT, F/P32
ST-3	1	A-302	DWYER-STATIC PRESSURE TIP, 1/4" BARB-KELE
	1	A-345	DWYER-FLANGE MOUNTING KIT FOR A-302-KELE
TS-3	1	A19ABB-2C	STAT,CROP DRY,SPST,-30/50F,BULB,OPEN LO
TS-x	2	A70BA-18C	STAT,LL,20FT ELEMENT,MANUAL,15/55F

SUPPLY FAN SF-8 VSD WIRING



RETURN FAN RF-8 VSD WIRING

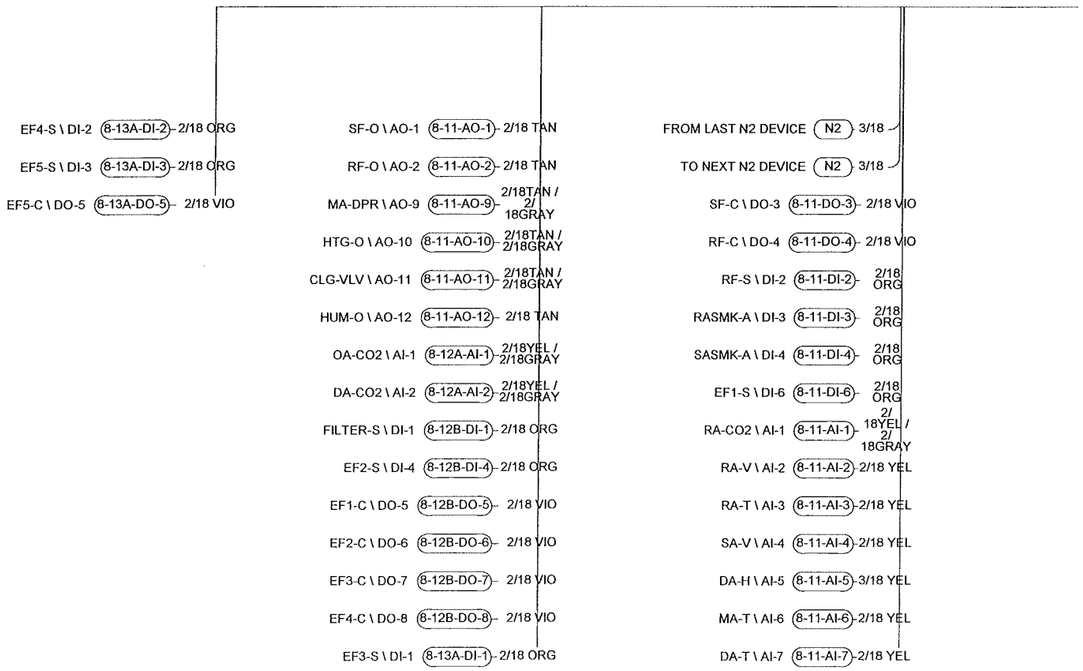


FACM
BY OTHERS

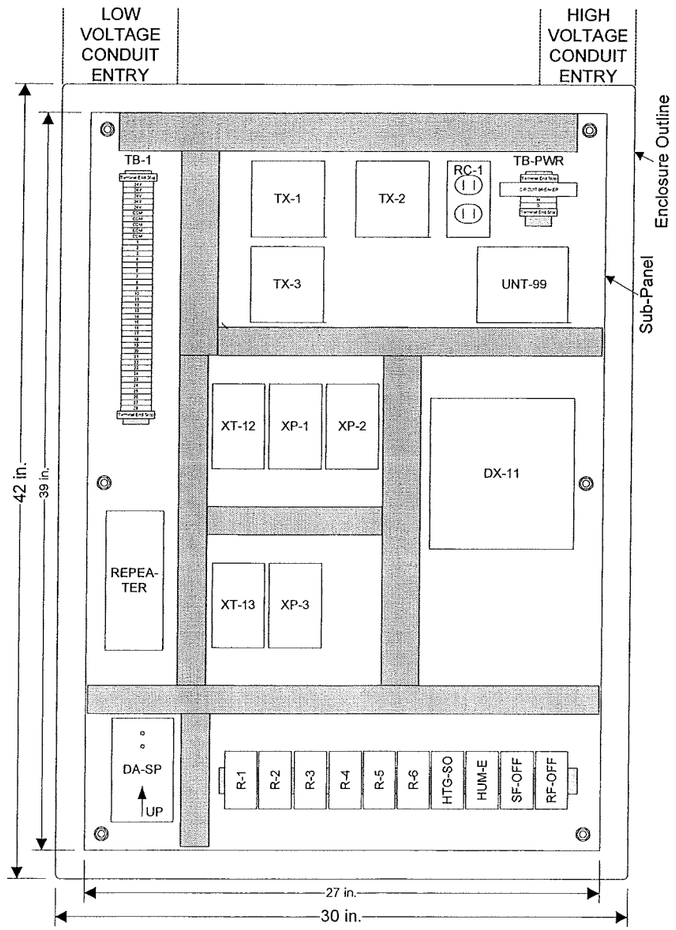
FIRE ALARM
CONTROL MODULE

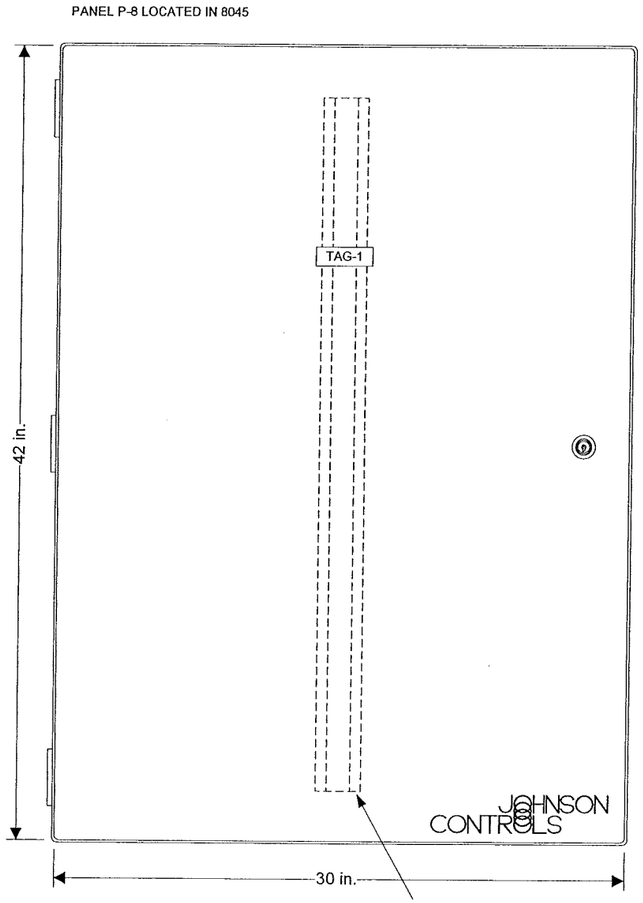
Note: "X" items are no longer in the control sequence.

REVISION INFORMATION	Drawing Title: AHU-8 FLOW							
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:11 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: ahu8f.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044		DRAWING NUMBER: 11.1	



REVISION INFORMATION	Drawing Title: AHU-8 FIELD POINTS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:10 AM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: ahu8fp.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490				CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 11.2





PANEL FACE TAGS:
TAG-1: PANEL P-8
AHU-8 SERVING 8TH FLOOR
JCI 0 3109-0044

Door Stiffener -
Do not mount devices on center 2" of Door.

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
DA-SP	1	DPT2640-2R5B	XMTR,DIFF PR,AIR,-2.5/2.5"WC,0-5VDC,0.5%
DX-11	1	AS-LCPKEY-0	CNTRLR,LCP SERVICE KEY
	1	DX-9100-8454	CNTRLR,DIG,DX,8AI,8AO,6BO,8BI
	1	DX-9100-8990	CNTRLR,DIG,DX,MTG BASE,F/ DX-9170-8454
	1	DX-9100-8991	KIT,CNTRLR,DIG,DX,WIRING PROTECTION
P-8	1	PAN-ENC3042WDP	PANEL, HOFFMAN 30X42X9 PERF-SUB W/ DOOR
R-x, HTG-SO, HUM-E, SF-OFF, RF-OFF	10	PD-101-27	BASE F/109-38,73,74/IDEC #SH3B-05
	10	PD-109-74	RLY,3PDT,10A,24VAC,LED/IDEC RH3B-ULAC24V
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
SAFETY-OV	1	RIB2401D	10A PILOT CONTROL RELAY,DPDT,FUNC.DEVICES
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	38	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	3	PD-114-02	XFMR,120/24VAC,96VA
XP-1	1	XP-9102-8304	CNTRLR,DIG,DX EXPN MOD,6AI,2AO,2/DX,1/XT
XP-2, XP-3	2	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-x	2	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

REVISION INFORMATION	Drawing Title						
NUMBER	AHU-8 PANEL LOCATED IN 8045						
DATE 04/17/08		1	RECORD DRAWINGS		03/30/08	WCS	
TIME 08:10 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME ahu8p.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703						

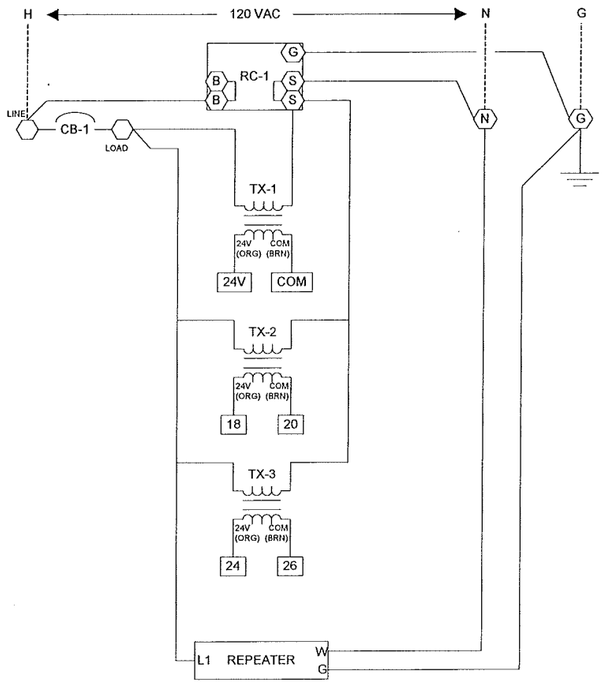
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

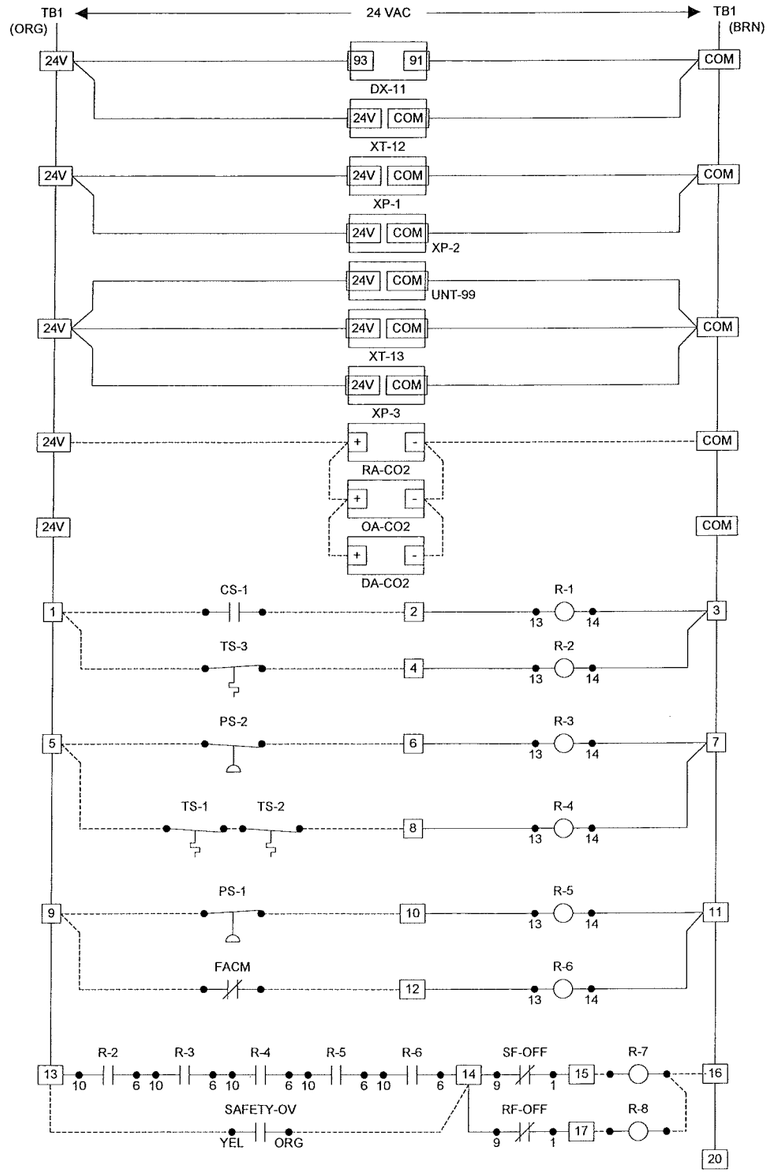
CONTRACT NUMBER: 0 3109-0044

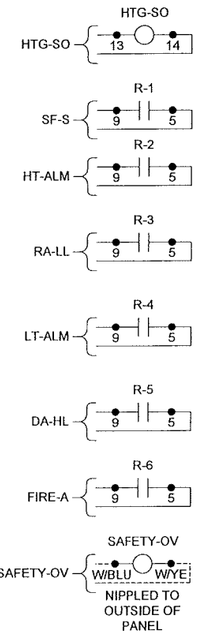
DRAWING NUMBER: 11.3

LINE VOLTAGE WIRING DIAGRAM

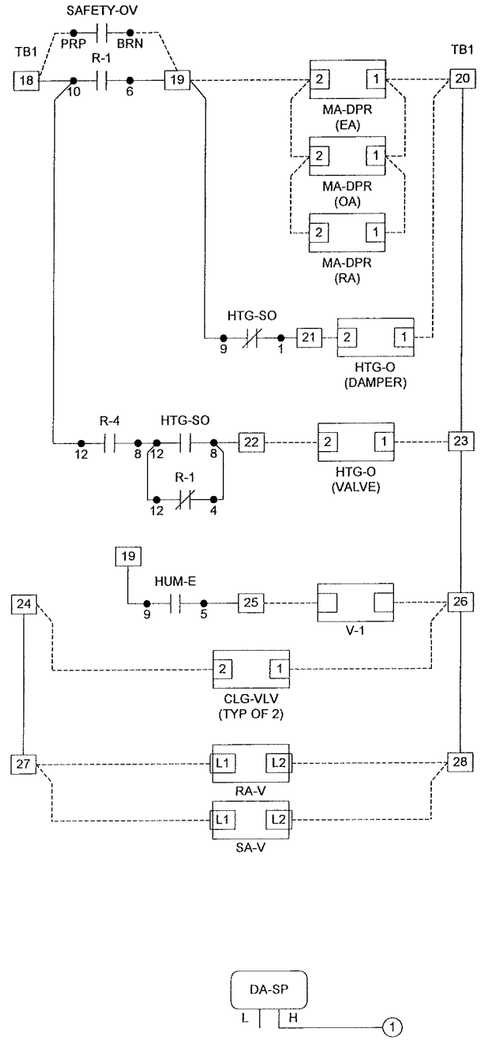


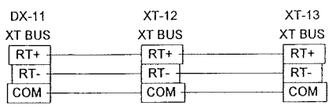
LOW VOLTAGE WIRING DIAGRAM





LOW VOLTAGE WIRING DIAGRAM





Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION							
NUMBER							
DATE 04/16/08							
TIME 01:06 PM							
		1	RECORD DRAWINGS			03/30/08	WCS
FILE NAME ahu8pw.vsd		REFERENCE DRAWING	NO	REVISION-LOCATION		ECN	DATE	BY

Drawing Title: **AHU-8 PANEL WIRING**

Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED	
GLA	SEL	RJM	BY	DATE	BY	DATE

Project Title: **DANE COUNTY COURTHOUSE**
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: **0 3109-0044**

DRAWING NUMBER: **11.4**

INDOOR AIR HANDLING UNIT VARIABLE VOLUME:

General:
Control electronically with stand-alone HVAC Node (HN).

The system will operate on a timed-programmed basis as determined by the system operator (initially set to start at 7:30 AM and stop at 6:30 PM, Monday-Friday).

System Off:
The supply and return fans will be off.

The outside air damper will be closed.

The return air damper will be open.

The steam heating will be off.

The cooling coil valve will be closed.

System Start:
When the air-handling unit is indexed to operate, the return fan will start first. Following a 5-second (adj.) delay, the supply fan will start. NOTE: The mixed air dampers and the supply/return fans speed drives will be ramped to their respective operating values over a time period (adj., initially set to 5 minutes)

Upon proof of supply and return fan operation, dampers, cooling coil valve, and steam valve will be indexed to their "System Run" conditions.

The air handler will be commanded on during the unoccupied mode when any of the associated zones is outside the setback set point temperatures.

System On:
Unoccupied Heating Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the lowest space temperature at the unoccupied heating set point (adj.). The supply fan speed will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Outside air damper is fully closed and return air damper is fully open.

Interlock supply fan with return fan. General exhaust fans will be off. Interlock (via software) supply and return fan with smoke detector in supply and return duct.

Heating Coil Valve and Face & Bypass Dampers: operate when the supply and return fans are on.
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate the steam heating valve and opens the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Fully closed.

Unoccupied Cooling Mode:
Supply and Return Fans: Supply and return fans will cycle to maintain the highest space temperature at the unoccupied cooling set point (adj.). The supply fan will be controlled to maintain duct static pressure at set point (adj., initially set to 1.5" water column) and the return fan speed will volume match the supply fan.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Outside air and exhaust dampers are modulated open and return air damper is modulated closed to control mixed air temperature at 55°F when the supply fan is on.
- Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.

Cooling Coil Valve: Modulating when fans are on to maintain unoccupied temperature set point.

Occupied Mode:
Supply and Return Fans: Supply and return fans will run continuously. The supply fan speed will be controlled to maintain duct static pressure ~~and the return fan speed will be controlled to maintain a volume differential between the supply and exhaust (adj.)~~. Add setpoint for manual offset for return fan speed.
Economizer Dampers: Economizer dampers will be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer set point.
- Economizer Available: Economizer dampers will modulate subject to a mixed air low limit of 55 degrees F (adj.).
- Economizer Not Available: The economizer dampers will maintain a minimum outside air damper position (adj.).

Steam Heating and Face & Bypass Dampers: Modulate steam heating and valve in sequence with the economizer dampers to maintain the discharge air temperature at set point as reset by space temperature
- Below 40 degrees F (adj.) mixed air temperature, fully open steam heating valve and modulate the face & bypass dampers.
- Above 40 degrees F (adj.) mixed air temperature, modulate steam heating valve and open the face and bypass dampers to maintain supply air temperature.

Cooling Coil Valve: Modulate in sequence with the economizer dampers to maintain discharge air temperature set point.

Match existing sequence.

~~Indoor Air Quality: Provide monitoring of outside air, return air and supply air CO2 concentration, calculate and maintain fresh air requirements. Adjust outdoor air intake to ensure return air CO2 high level limit is not exceeded.~~

~~STEAM HUMIDIFIER:~~
~~General:~~
~~Control electronically with HVAC Node (HN).~~

~~Humidity monitored by duct discharge humidity sensor and controlled by a modulating control valve.~~

System Off:
The steam valve will remain closed.

System Run:
Upon proof of airflow, system will be enabled to operate.

When the duct return humidity falls below 30% relative humidity (adj.) control valve will modulate open.

Safeties and Alarms:
Humidity valve will be prevented from operating until positive proof of airflow.

Humidity High Limit: Sensor located downstream from humidifier will modulate control valve closed upon exceeding high humidity limit.

System Stop:
When the air-handling unit is indexed to shut down, the supply and return fans will stop.

Dampers and control valve will be indexed to their "System Off" conditions.

Steam Heat will shut down.

REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE							
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer / Project Manager: GLA / SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
TIME 08:10 AM	Project Title	JOHNSON CONTROLS	Branch Information	CONTRACT NUMBER			
FILE NAME Ahu8s1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division	Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	0 3109-0044			
				DRAWING NUMBER 11.5			

Safeties and Alarms:
Filter Condition: Monitor differential pressure across filter and annunciate alarm when differential pressure set point is exceeded.

Low limit: Manual reset low limit thermostat will stop the supply and return fans, close the outdoor air dampers, open steam heating valve on and annunciate alarm should the coil discharge air temperature fall below 38 degrees F.

High Limit: Manual reset high limit thermostat located in the return air will stop the supply and return fans and annunciate alarm should the return air temperature rise above 125 degrees F. Dampers will be indexed to their "System Off" conditions.

Static High Limit: The static high limit sensor located in the discharge of the supply fan will shut down the unit and annunciate alarm if discharge static exceeds 3" w.g. (adj.).

Failure Modes:
Fan Failure: If the supply or return fan fails to operate, both fans will shut down and alarm will be annunciated. Dampers and control valves will be indexed to their "System Off" conditions.

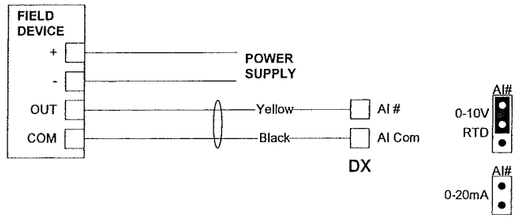
Sensor Failure: Upon the failure of an analog sensor, associated dampers and control valve will remain at their last position and alarm will be annunciated.

Power Failure:
Fans: Upon restoration of power, the supply and return fans will start after an adjustable delay to provide a staggered start of all building loads.
Dampers: Economizer dampers will be provided with spring return actuators to fail to their "System Off" positions.
Valves: Heating valve will be provided with spring return actuator to fail open to the coil.

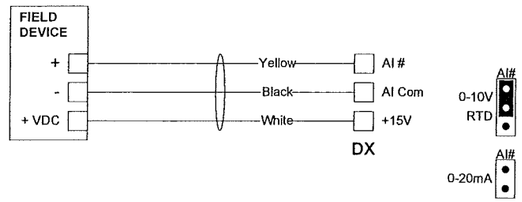
REVISION INFORMATION	Drawing Title							
NUMBER	SEQUENCE							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
		Sales Engineer: GLA / Project Manager: SEL / Applicatsn Engineer: RJM	DRAWN: BY / DATE		APPROVED: BY / DATE			
TIME 08:09 AM	Project Title	JOHNSON CONTROLS	Branch Information		CONTRACT NUMBER			
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division	Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044			
FILE NAME Ahu8s2.vsd					DRAWING NUMBER 11.6			

Electrician/Fitter	Point Information				Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Rel Detail Shape	Comment	Template
		AHU-8			DX 9100																						Power to Controller	
		AHU-8			DX 9100	N2	2	11						0													N2 Trunk	
	DO-3	AHU-8	SF-C	Supply Fan Cntl	DX 9100	N2	2	11	DO-3					0		-11-DO-3												
	DO-4	AHU-8	RF-C	Return Fan Cntl	DX 9100	N2	2	11	DO-4					0		-11-DO-4												
	DO-5	AHU-8	HTG-SO	Heating F&B/Valve Switch	DX 9100	N2	2	11	DO-5					0		-11-DO-5												
	DO-6	AHU-8	HUM-E	Humidifier Enable	DX 9100	N2	2	11	DO-6					0		-11-DO-6												
	DO-7	AHU-8	SF-OFF	Supply Fan FFCP Override	DX 9100	N2	2	11	DO-7					0		-11-DO-7												
	DO-8	AHU-8	RF-OFF	Return Fan FFCP Override	DX 9100	N2	2	11	DO-8					0		-11-DO-8												
	DI-1	AHU-8	SF-S	Supply Fan Sts	DX 9100	N2	2	11	DI-1					0		-11-DI-1												
	DI-2	AHU-8	RF-S	Return Fan Sts	DX 9100	N2	2	11	DI-2					0		-11-DI-2												
	DI-3	AHU-8	RASMK-A	Return Air Duct Detector	DX 9100	N2	2	11	DI-3					0		-11-DI-3												
	DI-4	AHU-8	SASMK-A	Supply Air Duct Detector	DX 9100	N2	2	11	DI-4					0		-11-DI-4												
	DI-5	AHU-8	FIRE-A	Building Flr Alarm	DX 9100	N2	2	11	DI-5					0		-11-DI-5												
	DI-6	AHU-8	EF1-S	Exhaust Fan 1 Status	DX 9100	N2	2	11	DI-6					0		-11-DI-6												
	DI-7	AHU-8	RA-LL	Ret Air Low Static Alm	DX 9100	N2	2	11	DI-7					0		-11-DI-7												
	DI-8	AHU-8	HT-ALM	Ret Air High Temp Alm	DX 9100	N2	2	11	DI-8					0		-11-DI-8												
	AI-1	AHU-8	RA-CO2	Return Air CO2 Level	DX 9100	N2	2	11	AI-1					0		-11-AI-1												
	AI-2	AHU-8	RA-FLOW	Return Air Flow	DX 9100	N2	2	11	AI-2					0		-11-AI-2												
	AI-3	AHU-8	RA-T	Return Air Temp	DX 9100	N2	2	11	AI-3					0		-11-AI-3												
	AI-4	AHU-8	SA-FLOW	Supply Air Flow	DX 9100	N2	2	11	AI-4					0		-11-AI-4												
	AI-5	AHU-8	DA-H	Disch Air Humidity	DX 9100	N2	2	11	AI-5					0		-11-AI-5												
	AI-6	AHU-8	MA-T	Mixed Air Temp	DX 9100	N2	2	11	AI-6					0		-11-AI-6												
	AI-7	AHU-8	DA-T	Discharge Air Temp	DX 9100	N2	2	11	AI-7					0		-11-AI-7												
	AI-8	AHU-8	DA-SP	Disch Air Static Press	DX 9100	N2	2	11	AI-8					0		-11-AI-8												
	AO-1	AHU-8	SF-O	Supply Fan VSD Cmd	DX 9100	N2	2	11	AO-1					0		-11-AO-1												
	AO-2	AHU-8	RF-O	Return Fan VSD Cmd	DX 9100	N2	2	11	AO-2					0		-11-AO-2												
	AO-9	AHU-8	MA-DPR	Mixed Air Dampers Cmd	DX 9100	N2	2	11	AO-9					0		-11-AO-9												
	AO-10	AHU-8	HTG-O	Heating Cmd	DX 9100	N2	2	11	AO-10					0		-11-AO-10												
	AO-11	AHU-8	CLG-VLV	Cooling Valve Cmd	DX 9100	N2	2	11	AO-11					0		-11-AO-11												
	AO-12	AHU-8	HUM-O	Humidifier Cmd	DX 9100	N2	2	11	AO-12					0		-11-AO-12												
	AO-13	AHU-8			DX 9100	N2	2	11	AO-13					0		-11-AO-13												
	AO-14	AHU-8			DX 9100	N2	2	11	AO-14					0		-11-AO-14												
		AHU-8			XT (Expansion Module)																						Power to Controller	
		AHU-8			XT (Expansion Module)	N2	2	12						0													N2 Trunk	
	XT1AI1	AHU-8	OA-CO2	Outdoor Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	12	AI-1					0		-12A-AI-1												
	XT1AI2	AHU-8	DA-CO2	Disch Air CO2 Level	XP 9102 (6AI, 2AO)	N2	2	12	AI-2					0		-12A-AI-2												
	XT1AI3	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AI-3					0		-12A-AI-3												
	XT1AI4	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AI-4					0		-12A-AI-4												
	XT1AI5	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AI-5					0		-12A-AI-5												
	XT1AI6	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AI-6					0		-12A-AI-6												
	XT1AO7	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AO-7					0		-12A-AO-7												
	XT1AO8	AHU-8			XP 9102 (6AI, 2AO)	N2	2	12	AO-8					0		-12A-AO-8												
	XT2DI1	AHU-8	FILTER-S	Filter Sts	XP 9104 (4DI, 4DO)	N2	2	12	DI-1					0		-12B-DI-1												
	XT2DI2	AHU-8	LT-ALM	Low Temp Alm	XP 9104 (4DI, 4DO)	N2	2	12	DI-2					0		-12B-DI-2												
	XT2DI3	AHU-8	DA-HL	Dis Air High Static Alm	XP 9104 (4DI, 4DO)	N2	2	12	DI-3					0		-12B-DI-3												
	XT2DI4	AHU-8	EF2-S	Exhaust Fan 2 Status	XP 9104 (4DI, 4DO)	N2	2	12	DI-4					0		-12B-DI-4												
	XT2DO5	AHU-8	EF1-C	Exhaust Fan 1 Command	XP 9104 (4DI, 4DO)	N2	2	12	DO-5					0		-12B-DO-5												
	XT2DO6	AHU-8	EF2-C	Exhaust Fan 2 Command	XP 9104 (4DI, 4DO)	N2	2	12	DO-6					0		-12B-DO-6												
	XT2DO7	AHU-8	EF3-C	Exhaust Fan 3 Command	XP 9104 (4DI, 4DO)	N2	2	12	DO-7					0		-12B-DO-7												
	XT2DO8	AHU-8	EF4-C	Exhaust Fan 4 Command	XP 9104 (4DI, 4DO)	N2	2	12	DO-8					0		-12B-DO-8												
		AHU-8			XT (Expansion Module)																							
		AHU-8			XT (Expansion Module)	N2	2	13						0														
	XT3DI1	AHU-8	EF3-S	Exhaust Fan 3 Status	XP 9104 (4DI, 4DO)	N2	2	13	DI-1					0		-13A-DI-1												
	XT3DI2	AHU-8	EF4-S	Exhaust Fan 4 Status	XP 9104 (4DI, 4DO)	N2	2	13	DI-2					0		-13A-DI-2												
	XT3DI3	AHU-8	EF5-S	Exhaust Fan 5 Status	XP 9104 (4DI, 4DO)	N2	2	13	DI-3					0		-13A-DI-3												
	XT3DI4	AHU-8			XP 9104 (4DI, 4DO)	N2	2	13	DI-4					0		-13A-DI-4												
	XT3DO5	AHU-8	EF5-C	Exhaust Fan 5 Command	XP 9104 (4DI, 4DO)	N2	2	13	DO-5					0		-13A-DO-5												
	XT3DO6	AHU-8			XP 9104 (4DI, 4DO)	N2	2	13	DO-6					0		-13A-DO-6												
	XT3DO7	AHU-8			XP 9104 (4DI, 4DO)	N2	2	13	DO-7					0		-13A-DO-7												
	XT3DO8	AHU-8			XP 9104 (4DI, 4DO)	N2	2	13	DO-8					0		-13A-DO-8												

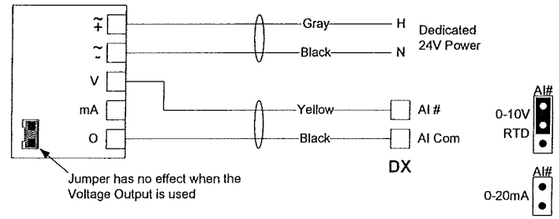
DETAIL D101 VOLTAGE INPUT - EXTERNAL SOURCE



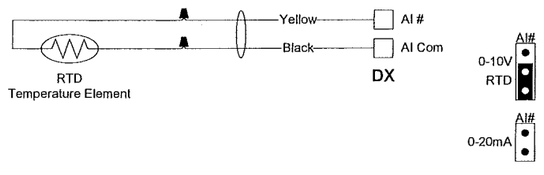
DETAIL D102 VOLTAGE INPUT - INTERNAL SOURCE



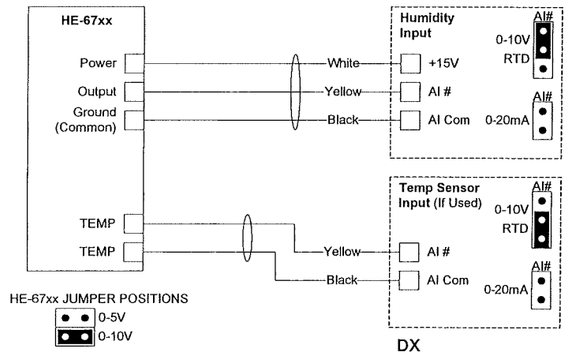
DETAIL D121 VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



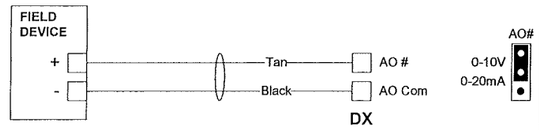
DETAIL D131 TEMPERATURE SENSOR INPUT



DETAIL D153 HE-6700 SERIES DUCT HUMIDITY SENSOR



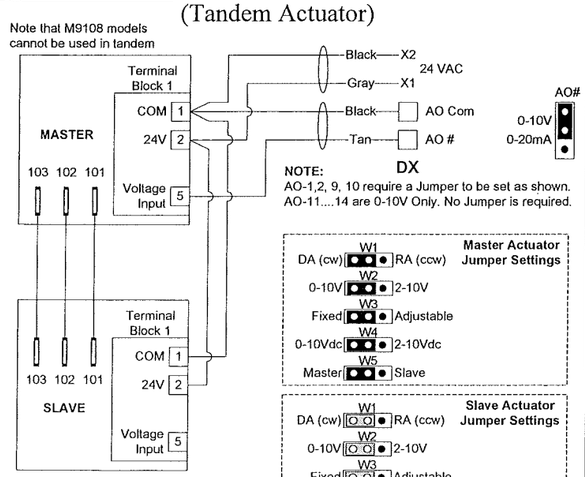
DETAIL D201 ANALOG OUTPUT (VOLTAGE)



NOTE:
AO-1, 2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

DETAIL D262 0-10VDC OUTPUT to M-9100 Series (Tandem Actuator)

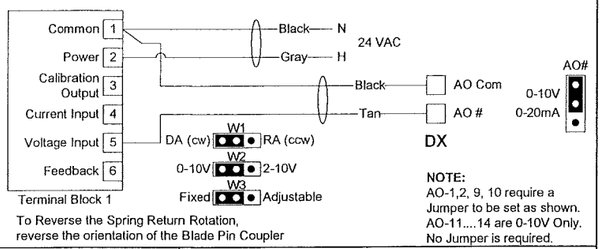
Note that M9108 models cannot be used in tandem



NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

When connecting 2 actuators back to back on the same shaft, the coupler on one actuator must be set to operate in the opposite direction from the other actuator.

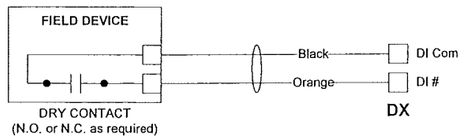
DETAIL D264 0-10VDC OUTPUT to M-9216



To Reverse the Spring Return Rotation, reverse the orientation of the Blade Pin Coupler

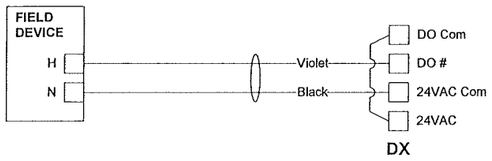
NOTE:
AO-1,2, 9, 10 require a Jumper to be set as shown.
AO-11....14 are 0-10V Only. No Jumper is required.

DETAIL D301 BINARY INPUT (DRY CONTACT)

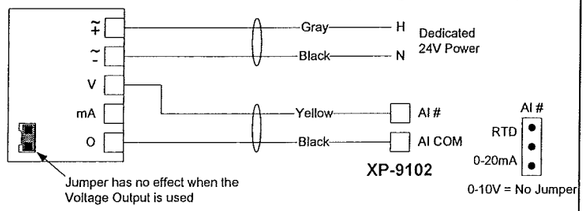


REVISION INFORMATION	Drawing Title							
NUMBER	POINT SCHEDULE							
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS	
TIME 08:09 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
		Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE		
FILE NAME ahu8ps2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
						DRAWING NUMBER: 11.8		

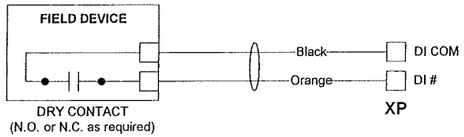
DETAIL D501 — 24 VAC BINARY OUTPUT (Switch High)



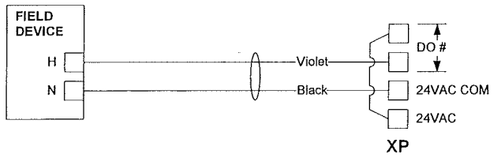
DETAIL XP121 — VOLTAGE INPUT from CD SERIES CO2 SENSORS (except CD-W00)



DETAIL XP301 — BINARY INPUT (DRY CONTACT)



DETAIL XP501 — 24 VAC BINARY OUTPUT (Switch High)



REVISION INFORMATION	Drawing Title: POINT SCHEDULE						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:09 AM		Sales Engineer: GLA; Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: ahu8ps3.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS — Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 11.9	

REV	FAN	FAN LOCATION	SERVING	HP	VOLTAGE	CFM	STARTER LOCATION	AHU I/L	S/S DRAWING NUMBER	STATUS DRAWING NUMBER	DETAIL	COMMENT
	EF-1	ROOF	8TH FLR - GENERAL	3/4	460	2,000	8046 (MDP-8)	-	11.7	11.7	A	
	EF-2	ROOF	8TH FLR - GENERAL	3/4	460	950	8046 (MDP-8)	-	11.7	11.7	A	
	EF-3	ROOF	8TH-LL1 - GENERAL	5	460	8,500	8046 (MDP-8)	-	11.7	11.7	A	
	EF-4	ROOF	8TH-LL2 - GENERAL	7-1/2	460	9,600	8046 (MDP-8)	-	11.7	11.7	A	
	EF-5	ROOF	8TH-4TH - TOILETS	3	460	5,880	8046 (MDP-8)	-	11.7	11.7	A	
	EF-6	LL1012	LL1012 (MECHANICAL ROOM)	1-1/2	460	4,000	LL1012 (MCC-2)	-	4.10	4.10	-	SEE ROOM SCHEDULE DETAIL F
	EF-7	LL2000	LL2000 (PARKING)	1/3	120	300	LL2001 (PPKA-7)	-	14.4	14.4	B	
	EF-8	LL1	KITCHEN HOOD					-				TERMINATED @ NAE-1,TRUNK 1,VMA-179
	EF-9	LL2003	LL2003 (GENERATOR ROOM)	5	460	6,300	LL2003 (MDP-GEN)	-	14.4	14.4	-	SEE ROOM SCHEDULE DETAIL G
	EF-10	LL2002	LL2002 (ELECTRICAL ROOM)	1/4	120	800	LL2001 (PPPKA-13)	-	14.4	14.4	-	SEE ROOM SCHEDULE DETAIL H
	EF-11	LL2001	LL2001 (ELECTRICAL ROOM)	1/4	120	800	LL2001 (PPKA-12)	-	14.4	14.4	-	SEE ROOM SCHEDULE DETAIL H
	KEF-1	LL1012	LL1042 (KITCHEN)	7-1/2	460	4,500	LL1012 (MCC-2)	-	4.10	4.10	-	SEE ROOM SCHEDULE DETAIL I
	SCF-1	LL2000	LOWER LEVEL 2	7-1/2	460	6,200	LL2002 (MDP-EMSB)	-	14.4	14.4	D	
	SCF-2	LL2000	LL2000 (PARKING)	2	460	9,150	LL2002 (MDP-EMSB)	-	14.4	14.4	-	SEE ROOM SCHEDULE DETAIL J
	SPF-1	ROOF	8TH-1ST - ST-A	1-1/2	460	7,800	STAIR @ ROOF DOOR	-			C	TERMINATED @ NAE-3,TRUNK 2,VMA-174
	SPF-2A	ROOF	8TH-LWR LVL 2 - ST-C & ST-D	1	460	5,700	ROOF	-			C	TERMINATED @ NAE-3,TRUNK 2,VMA-181
	SPF-2B	ROOF	8TH-LWR LVL 2 - ST-C & ST-D	1	460	5,700	ROOF	-			C	TERMINATED @ NAE-3,TRUNK 2,VMA-181

REVISION INFORMATION

NUMBER

DATE 04/17/08

TIME 08:08 AM

FILE NAME Fan-det.vsd

Drawing Title

FAN DETAILS

	1	RECORD DRAWINGS		03/30/08	WCS
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title

DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

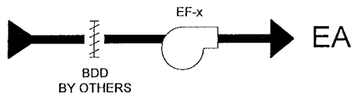
CONTRACT NUMBER 0 3109-0044

DRAWING NUMBER 12.1

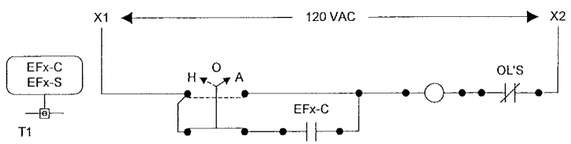
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
EFx-C, EFx-S	1	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY

DETAIL A
TYPICAL OF 5



EXHAUST FAN STARTER WIRING



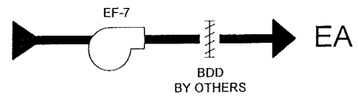
General Exhaust Fan

The exhaust fan will operate anytime the AHU's are operating.

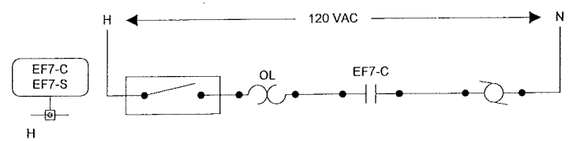
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
EF7-C, EF7-S	1	H548	SW,CURR,0.5-20A,MINI,CMND RLY,HOA,ADJUST

DETAIL B
TYPICAL OF 1



EXHAUST FAN EF-7 WIRING



Parking Garage Exhaust Fan

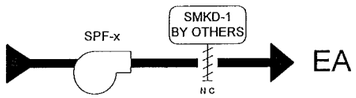
The exhaust fan will operate on an owner determined time schedule.

REVISION INFORMATION	Drawing Title: FAN DETAILS							
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:07 AM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: fandetab.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 12.2

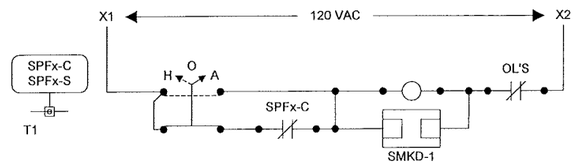
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
SPFx-C, SPFx-S	1	H748	SENS,CURR,1A @30VAC/DC,1/4HP,CMND RELAY

DETAIL C
TYPICAL OF 3



STAIRWELL PRESSURIZATION FAN STARTER WIRING



STAIRWELL PRESSURIZATION FANS:
General:
Supply fan to control an individual stair by maintaining a specific pressure in the zone.
System Off:
The damper will close.

The fan will move to the off position.

System Start:
Upon fire detection anywhere in the building, a signal from the FMS system the fan will be turned on and the damper will open.

System On:
Supply fan will operate continuously.

Barometer relief damper will modulate open when the supply fan is activated to maintain stair pressure at 0.15" w.c. positive.

System Stop:
The fan will move to the off position.

Safeties:
The fan will be controllable (on/off).

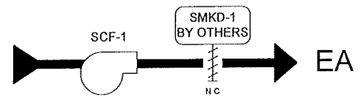
Failure Modes:
The fan will fail to the on position.

The damper will fail to the closed position.

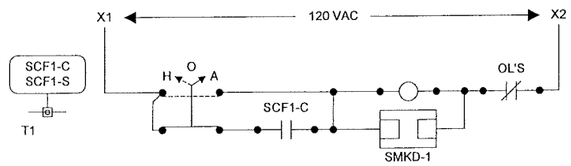
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
SCF1-C, SCF1-S	1	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY

DETAIL D
TYPICAL OF 1



SMOKE CONTROL FAN SCF-1 STARTER WIRING



Smoke Control, Fire in Holding:
Supply Fan AHU-1 will stop.

SCF-1 will start and the associated smoke damper will open.

Failure Modes:
The fan will fail to the off position.

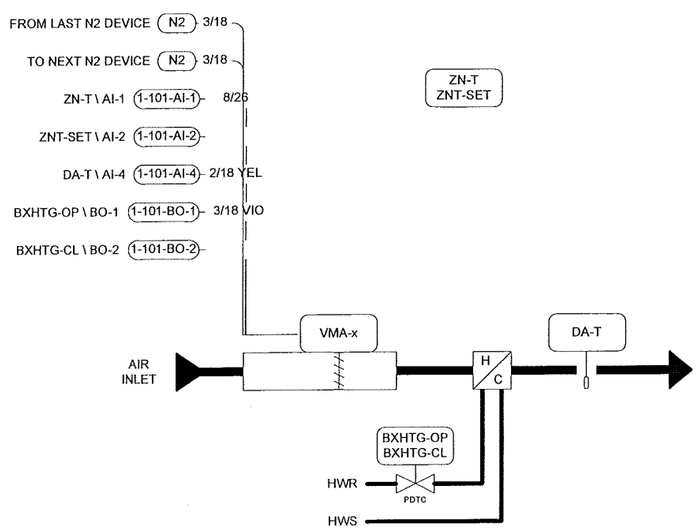
The damper will fail to the closed position.

REVISION INFORMATION	Drawing Title							
NUMBER	FAN DETAILS			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED	
		GLA	SEL	RJM	BY / DATE		BY / DATE	
TIME 08:06 AM	Project Title	JOHNSON CONTROLS			Branch Information		CONTRACT NUMBER	
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division			Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044	
FILE NAME Fandetcd.vsd							DRAWING NUMBER 12.3	

DETAIL A
TYPICAL OF 179

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
BXHTG-OP, BXHTG-CL	0	VALVE	SEE ROOM SCHEDULE
DA-T	1	TJBCR01	VERIS-4", 2K PT TEMP SENSOR-VERIS
VMA-x	1	AP-VMA1420-0	VAV MODULAR ASSY - CLG W/ REHEAT
ZN-T, ZNT-SET	1	TE-67NP-2N00	SENSOR,RM,1K NI,PHONE JACK,SET-PT



VMA INSTALLATION NOTE: FIELD VERIFY TYPE OF VAV BOXES. 90 DEG BOXES: VMA INSTALLED WITH DAMPER CLOSED; 45 DEG AND 60 DEG BOXES: INSTALL WITH DAMPER OPEN. SEE VMA1400 SERIES CONTROLLERS TECHNICAL BULLETIN.

POWER OBTAINED FROM CENTRAL TRANSFORMER PANEL. MAXIMUM (4) VMA CONTROLLERS PER 100 VA TRANSFORMER.

VAV TERMINAL WITH HOT WATER REHEAT:

General:
Terminal unit control dedicated to individual zones using hot water reheat to condition the zone.

System Off:
The hot water valve will modulate closed.

The damper will move to the closed position.

System Start:
Upon a signal from the FMS for the associated air handling unit serving the terminal box to start, the terminal unit controller will also be activated.

System On:
Upon a rise in room temperature above set point the terminal unit's damper will modulate open, increasing CFM, to maintain room set point.

Upon a decrease in room temperature below set point the terminal unit's damper will modulate closed to maintain room set point.

If the temperature continues to fall and the damper has reached it's minimum position, and the hot water re-heat valve will modulate open to maintain room set point.

Upon a rise in room temperature the reverse will occur.

There will be separate heating and cooling set points.

System Stop:
The hot water valve will close.

The damper will move to the closed position.

Safeties and Alarms:
An alarm will be noted in the event of a low and/or high temperature limit in the zone sensor.

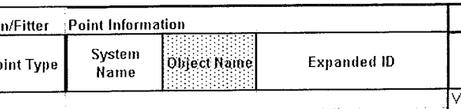
Failure Mode
The terminal unit valve will fail to the closed position.

The terminal unit damper will fail to the open position.

REVISION INFORMATION	Drawing Title						
NUMBER	ROOM SCHEDULE DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:06 AM		Sales Engineer GLA / Project Manager SEL / Application Engineer RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME rsdeta.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER 0 3109-0044 / DRAWING NUMBER 13.1	

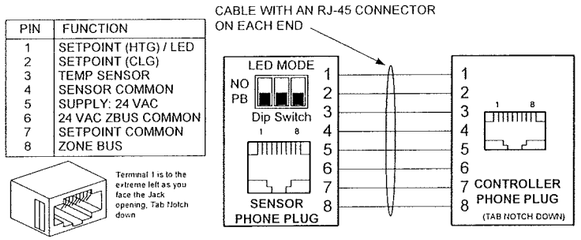
Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-1	@VAV BOX									Power to Controller
					VMA	1	101				VAV-1	@VAV BOX	0								N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	101	AI-1		Phone Jack	VAV-1	@VAV BOX	0		1-101-AI-1	8/26	Phone Jack	TE-6700 (Jack, No PB)		VMA134	
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	101	AI-2			VAV-1	@VAV BOX	0		1-101-AI-2						
	AI-3				VMA	1	101	AI-3			VAV-1	@VAV BOX	0		1-101-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	101	AI-4		AI4,COM	VAV-1	@VAV BOX	0		1-101-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	101	AI-5			VAV-1	@VAV BOX	0		1-101-AI-5						
	BI-1				VMA	1	101	BI-1			VAV-1	@VAV BOX	0		1-101-BI-1						
	BI-2				VMA	1	101	BI-2			VAV-1	@VAV BOX	0		1-101-BI-2						
	BI-3				VMA	1	101	BI-3			VAV-1	@VAV BOX	0		1-101-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	101	BO-1		BO-a,BO-b,BCOM	VAV-1	@VAV BOX	0		1-101-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	101	BO-2			VAV-1	@VAV BOX	0		1-101-BO-2						
	BO-3				VMA	1	101	BO-3			VAV-1	@VAV BOX	0		1-101-BO-3						
	BO-4				VMA	1	101	BO-4			VAV-1	@VAV BOX	0		1-101-BO-4						
	BO-5				VMA	1	101	BO-5			VAV-1	@VAV BOX	0		1-101-BO-5						
	AO-1				VMA	1	101	AO-1			VAV-1	@VAV BOX	0		1-101-AO-1						
	AO-2				VMA	1	101	AO-2			VAV-1	@VAV BOX	0		1-101-AO-2						

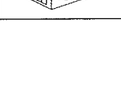
DETAIL VMA131 TEMPERATURE SENSOR INPUT



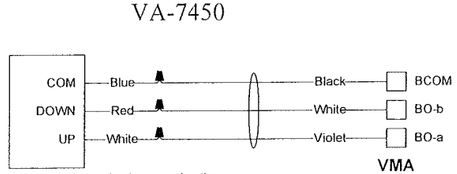
DETAIL VMA134 TE-6700 (Phone Jack) - NO PB

PIN	FUNCTION
1	SETPOINT (HTG) / LED
2	SETPOINT (CLG)
3	TEMP SENSOR
4	SENSOR COMMON
5	SUPPLY: 24 VAC
6	24 VAC ZBUS COMMON
7	SETPOINT COMMON
8	ZONE BUS





DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



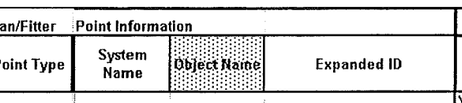
Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION	Drawing Title									
NUMBER	POINT SCHEDULE									
DATE 04/18/08		REFERENCE DRAWING		NO.	REVISION-LOCATION		ECN	DATE	BY
TIME 09:52 AM		Sales Engineer GLA	Project Manager SEL	Application Engineer RJM	DRAWN BY	DATE	APPROVED BY	DATE	
	Project Title	JOHNSON CONTROLS Systems & Services Division			Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782		CONTRACT NUMBER 0 3109-0044		
FILE NAME rsdetaps1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI						DRAWING NUMBER 13.2		

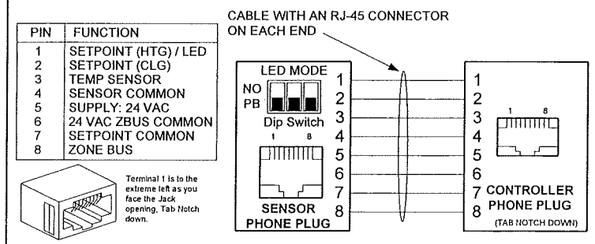
Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-2	@VAV BOX									Power to Controller
					VMA	1	102				VAV-2	@VAV BOX	0								N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	102	AI-1		Phone Jack	VAV-2	@VAV BOX	0		2-102-AI-1	8/26	Phone Jack	TE-6700 (Jack, No PB)		VMA134	
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	102	AI-2			VAV-2	@VAV BOX	0		2-102-AI-2						
	AI-3				VMA	1	102	AI-3			VAV-2	@VAV BOX	0		2-102-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	102	AI-4		AI4,COM	VAV-2	@VAV BOX	0		2-102-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	102	AI-5			VAV-2	@VAV BOX	0		2-102-AI-5						
	BI-1				VMA	1	102	BI-1			VAV-2	@VAV BOX	0		2-102-BI-1						
	BI-2				VMA	1	102	BI-2			VAV-2	@VAV BOX	0		2-102-BI-2						
	BI-3				VMA	1	102	BI-3			VAV-2	@VAV BOX	0		2-102-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	102	BO-1		BO-a,BO-b,BCOM	VAV-2	@VAV BOX	0		2-102-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	102	BO-2			VAV-2	@VAV BOX	0		2-102-BO-2						
	BO-3	VAV	xFSD-C	Fire/Smk Damper Cntl	VMA	1	102	BO-3		BO3,BCOM	VAV-2	@VAV BOX	0		2-102-BO-3	2/18 VIO	See wiring detail	24VAC OUT		VMA401	
	BO-4				VMA	1	102	BO-4			VAV-2	@VAV BOX	0		2-102-BO-4						
	BO-5				VMA	1	102	BO-5			VAV-2	@VAV BOX	0		2-102-BO-5						
	AO-1				VMA	1	102	AO-1			VAV-2	@VAV BOX	0		2-102-AO-1						
	AO-2				VMA	1	102	AO-2			VAV-2	@VAV BOX	0		2-102-AO-2						

DETAIL VMA131 TEMPERATURE SENSOR INPUT



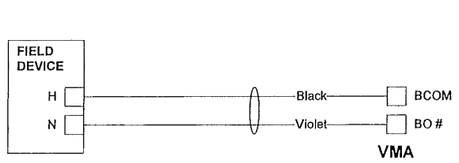
DETAIL VMA134 TE-6700 (Phone Jack) - NO PB

PIN	FUNCTION
1	SETPOINT (HTG) / LED
2	SETPOINT (CLG)
3	TEMP SENSOR
4	SENSOR COMMON
5	SUPPLY: 24 VAC
6	24 VAC ZBUS COMMON
7	SETPOINT COMMON
8	ZONE BUS

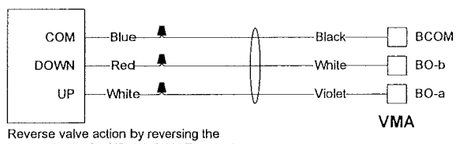


Terminal 1 is to the extreme left as you face the Jack opening, Tab Notch down.

DETAIL VMA401 24 VAC BINARY OUTPUT



DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION	Drawing Title									
NUMBER	POINT SCHEDULE									
DATE 04/17/08										
TIME 10:18 AM		REFERENCE DRAWING		NO	REVISION-LOCATION		ECN	DATE	BY	
	Project Title	Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED			
FILE NAME rsdetaps2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	GLA	SEL	RJM	BY	DATE	BY	DATE		

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Appleton Branch
2140 American Drive
Neenah
WI 54956
Phone: 920-739-2461
Fax: 920-739-4782

CONTRACT NUMBER **0 3109-0044**

DRAWING NUMBER **13.3**

DETAIL B
TYPICAL OF 100

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
BXHTG-OP, BXHTG-CL, RAD-OP, RAD-CL	0	VALVE	SEE ROOM SCHEDULE
DA-T	1	TJBCR01	VERIS-4", 2K PT TEMP SENSOR-VERIS
VMA-x	1	AP-VMA1420-0	VAV MODULAR ASSY - CLG W/ REHEAT
ZN-T, ZNT-SET	1	TE-67NP-2N00	SENSOR,RM,1K NI,PHONE JACK,SET-PT

VAV TERMINAL WITH HOT WATER REHEAT AND RADIATION:
General:
Terminal unit control dedicated to individual zones using hot water reheat to condition the zone.

System Off:
The hot water valve will modulate closed.

The damper will move to the closed position.

System Start:
Upon a signal from the FMS for the associated air handling unit serving the terminal box to start, the terminal unit controller will also be activated.

System On:
Upon a rise in room temperature above set point the terminal unit's damper will modulate open, increasing CFM, to maintain room set point.

Upon a decrease in room temperature below set point the terminal unit's damper will modulate closed to maintain room set point.

If the temperature continues to fall and the damper has reached it's minimum position, and the hot water re-heat valve will modulate open to maintain room set point.

Upon a rise in room temperature the reverse will occur.

There will be separate heating and cooling set points.

System Stop:
The hot water valve will close.

The damper will move to the closed position.

Safeties and Alarms:
An alarm will be noted in the event of a low and/or high temperature limit in the zone sensor.

Failure Mode
The terminal unit valve will fail to the closed position.

The terminal unit damper will fail to the open position.

FIN RADIATION - HOT WATER:
General:
Control electronically by associated VAV box control.

System Off:
Fin radiation control valve shall be positioned to 100% closed.

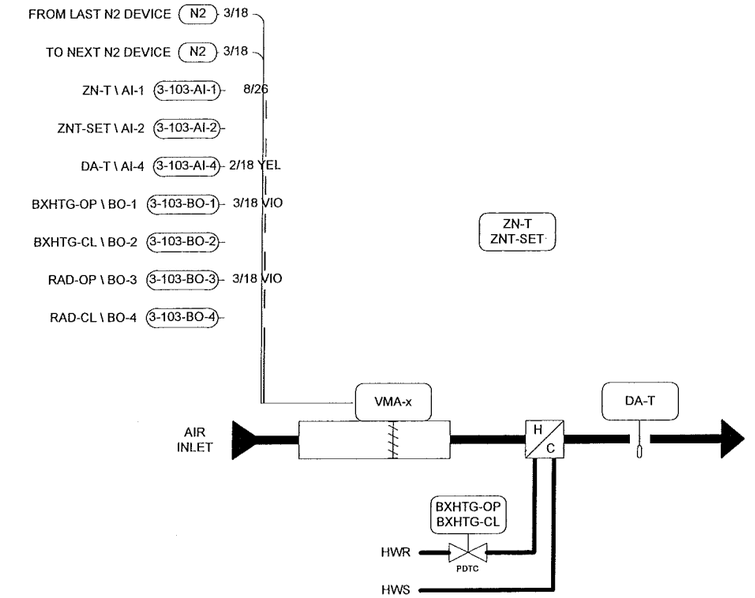
System Start:
When the associated hot water system is started, fin radiation control valves shall be permitted to control to set point.

System Run:
Unoccupied Heating Mode:
Fin radiation control valve shall modulate to maintain space temperature at the unoccupied heating set point (adj.).

Occupied Heating Mode:
Fin radiation control valve shall modulate in conjunction with the VAV box to maintain space temperature at the occupied heating set point (adj.).
Set point shall be adjusted remotely from thermostat 65-85F.

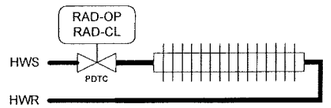
System Stop:
Fin radiation control valve shall be indexed to the "System Off" condition.

Safeties and Alarms:
Annunciate alarms when space temperature exceeds minimum and maximum limits.



VMA INSTALLATION NOTE: FIELD VERIFY TYPE OF VAV BOXES. 90 DEG BOXES: VMA INSTALLED WITH DAMPER CLOSED; 45 DEG AND 60 DEG BOXES: INSTALL WITH DAMPER OPEN. SEE VMA1400 SERIES CONTROLLERS TECHNICAL BULLETIN.

POWER OBTAINED FROM CENTRAL TRANSFORMER PANEL. MAXIMUM (4) VMA CONTROLLERS PER 100 VA TRANSFORMER.

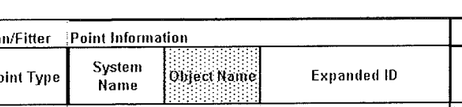


NOTE: WIRING REFERENCE DETAIL IS SHOWN FOR A VA-7450 ACTUATOR. SOME OF THE RADIATION VALVES HAVE VA-7150 ACTUATORS. SEE INSTALLATION INSTRUCTIONS WITH THE VA-7150 ACTUATORS FOR WIRING DETAILS.

REVISION INFORMATION	Drawing Title						
NUMBER	ROOM SCHEDULE DETAILS						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:06 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
FILE NAME Rsdetb.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
					DRAWING NUMBER: 13.4		

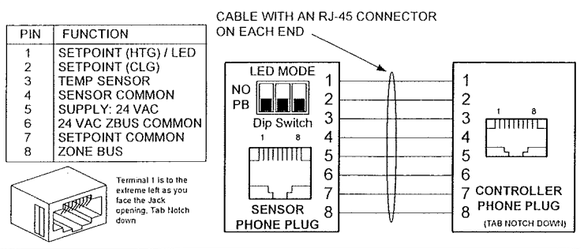
Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-3	@VAV BOX									Power to Controller
					VMA	1	103				VAV-3	@VAV BOX	0								N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	103	AI-1		Phone Jack	VAV-3	@VAV BOX	0		3-103-AI-1	8/26	Phone Jack	TE-6700 (Jack, No PB)		VMA134	
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	103	AI-2			VAV-3	@VAV BOX	0		3-103-AI-2						
	AI-3				VMA	1	103	AI-3			VAV-3	@VAV BOX	0		3-103-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	103	AI-4		AI4,COM	VAV-3	@VAV BOX	0		3-103-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	103	AI-5			VAV-3	@VAV BOX	0		3-103-AI-5						
	BI-1				VMA	1	103	BI-1			VAV-3	@VAV BOX	0		3-103-BI-1						
	BI-2				VMA	1	103	BI-2			VAV-3	@VAV BOX	0		3-103-BI-2						
	BI-3				VMA	1	103	BI-3			VAV-3	@VAV BOX	0		3-103-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	103	BO-1		BO-a,BO-b,BCOM	VAV-3	@VAV BOX	0		3-103-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	103	BO-2			VAV-3	@VAV BOX	0		3-103-BO-2						
	BO-3	VAV	RAD-OP	Suppl Heating Open	VMA	1	103	BO-3		BO-a,BO-b,BCOM	VAV-3	@VAV BOX	0		3-103-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-4	VAV	RAD-CL	Suppl Heating Close	VMA	1	103	BO-4			VAV-3	@VAV BOX	0		3-103-BO-4						
	BO-5				VMA	1	103	BO-5			VAV-3	@VAV BOX	0		3-103-BO-5						
	AO-1				VMA	1	103	AO-1			VAV-3	@VAV BOX	0		3-103-AO-1						
	AO-2				VMA	1	103	AO-2			VAV-3	@VAV BOX	0		3-103-AO-2						

DETAIL VMA131 TEMPERATURE SENSOR INPUT

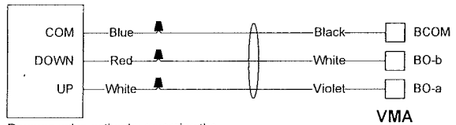


DETAIL VMA134 TE-6700 (Phone Jack) - NO PB

PIN	FUNCTION
1	SETPOINT (HTG) / LED
2	SETPOINT (CLG)
3	TEMP SENSOR
4	SENSOR COMMON
5	SUPPLY: 24 VAC
6	24 VAC ZBUS COMMON
7	SETPOINT COMMON
8	ZONE BUS



DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



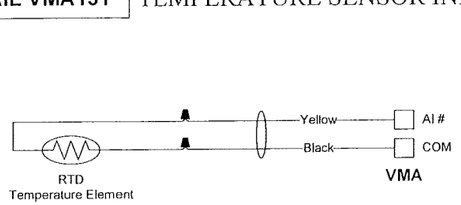
Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION	Drawing Title									
NUMBER	POINT SCHEDULE									
DATE 04/18/08		REFERENCE DRAWING		NO.	REVISION-LOCATION		ECN	DATE	BY	
TIME 04:22 PM		Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED			
		SRJ	KDK	RJM	BY	DATE	BY	DATE		
FILE NAME rsdetbps1.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division	Branch Information: Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 13.5					

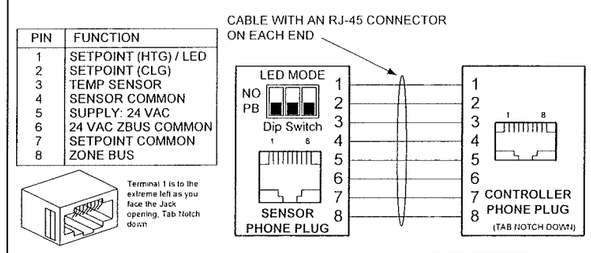
Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-4	@VAV BOX									
					VMA	1	104				VAV-4	@VAV BOX	0								Power to Controller N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	104	AI-1		Phone Jack	VAV-4	@VAV BOX	0		4-104-AI-1	8/26	Phone Jack	TE-6700 (Jack, No PB)		VMA134	
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	104	AI-2			VAV-4	@VAV BOX	0		4-104-AI-2						
	AI-3				VMA	1	104	AI-3			VAV-4	@VAV BOX	0		4-104-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	104	AI-4		AI4,COM	VAV-4	@VAV BOX	0		4-104-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	104	AI-5			VAV-4	@VAV BOX	0		4-104-AI-5						
	BI-1				VMA	1	104	BI-1			VAV-4	@VAV BOX	0		4-104-BI-1						
	BI-2				VMA	1	104	BI-2			VAV-4	@VAV BOX	0		4-104-BI-2						
	BI-3				VMA	1	104	BI-3			VAV-4	@VAV BOX	0		4-104-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	104	BO-1		BO-a,BO-b,BCOM	VAV-4	@VAV BOX	0		4-104-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	104	BO-2			VAV-4	@VAV BOX	0		4-104-BO-2						
	BO-3	VAV	RAD-OP	Suppl Heating Open	VMA	1	104	BO-3		BO-a,BO-b,BCOM	VAV-4	@VAV BOX	0		4-104-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-4	VAV	RAD-CL	Suppl Heating Close	VMA	1	104	BO-4			VAV-4	@VAV BOX	0		4-104-BO-4						
	BO-5	VAV	xFSD-C	Fire/Smk Damper Cntl	VMA	1	104	BO-5		BO5,BCOM	VAV-4	@VAV BOX	0		4-104-BO-5	2/18 VIO	See wiring detail	24VAC OUT		VMA401	
	AO-1				VMA	1	104	AO-1			VAV-4	@VAV BOX	0		4-104-AO-1						
	AO-2				VMA	1	104	AO-2			VAV-4	@VAV BOX	0		4-104-AO-2						

DETAIL VMA131 TEMPERATURE SENSOR INPUT

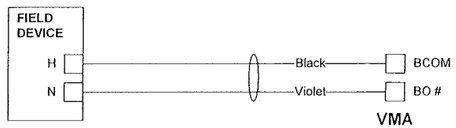


DETAIL VMA134 TE-6700 (Phone Jack) - NO PB

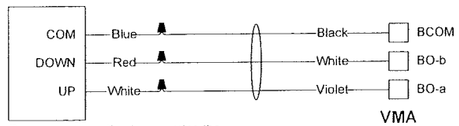
PIN	FUNCTION
1	SETPOINT (HTG) / LED
2	SETPOINT (CLG)
3	TEMP SENSOR
4	SENSOR COMMON
5	SUPPLY: 24 VAC
6	24 VAC ZBUS COMMON
7	SETPOINT COMMON
8	ZONE BUS



DETAIL VMA401 24 VAC BINARY OUTPUT



DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

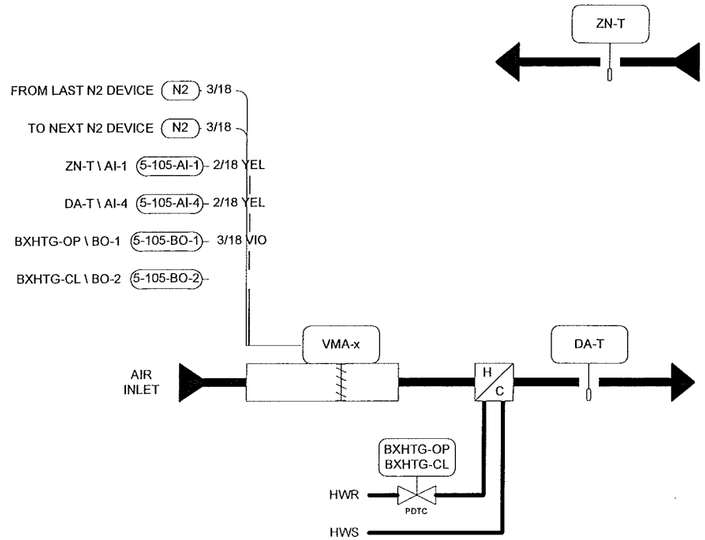
REVISION INFORMATION	Drawing Title																				
NUMBER	POINT SCHEDULE																				
DATE																					
04/18/08		REFERENCE DRAWING				NO.		REVISION-LOCATION						ECN	DATE	BY					
TIME		Sales Engineer		Project Manager		Application Engineer		DRAWN				APPROVED									
04:23 PM	Project Title	GLA		SEL		RJM		BY		DATE		BY		DATE							
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division						Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782				CONTRACT NUMBER 0 3109-0044										
FILE NAME rsdetbps2.vsd												DRAWING NUMBER 13.6									

DETAIL C
TYPICAL OF 12

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
BXHTG-OP, BXHTG-CL	0	VALVE	SEE ROOM SCHEDULE
DA-T	1	TJBCR01	VERIS-4", 2K PT TEMP SENSOR-VERIS
VMA-x	1	AP-VMA1420-0	VAV MODULAR ASSY - CLG W/ REHEAT
ZN-T	1	TE-6311P-1	SENSOR,T-NI,0.1%,8IN DUCT

NOTE: ZN-T IS LOCATED IN CELL EXHAUST DUCT.



VMA INSTALLATION NOTE: FIELD VERIFY TYPE OF VAV BOXES. 90 DEG BOXES: VMA INSTALLED WITH DAMPER CLOSED; 45 DEG AND 60 DEG BOXES: INSTALL WITH DAMPER OPEN. SEE VMA1400 SERIES CONTROLLERS TECHNICAL BULLETIN.

POWER OBTAINED FROM CENTRAL TRANSFORMER PANEL. MAXIMUM (4) VMA CONTROLLERS PER 100 VA TRANSFORMER.

VAV TERMINAL WITH HOT WATER REHEAT (TEMP SENSOR IN EXHAUST DUCT):

General:
Terminal unit control dedicated to individual zones using hot water reheat to condition the zone.

System Off:
The hot water valve will modulate closed.

The damper will move to the closed position.

System Start:
Upon a signal from the FMS for the associated air handling unit serving the terminal box to start, the terminal unit controller will also be activated.

System On:
Upon a rise in room temperature above set point the terminal unit's damper will modulate open, increasing CFM, to maintain room set point.

Upon a decrease in room temperature below set point the terminal unit's damper will modulate closed to maintain room set point.

If the temperature continues to fall and the damper has reached it's minimum position, and the hot water re-heat valve will modulate open to maintain room set point.

Upon a rise in room temperature the reverse will occur.

There will be separate heating and cooling set points.

System Stop:
The hot water valve will close.

The damper will move to the closed position.

Safeties and Alarms:
An alarm will be noted in the event of a low and/or high temperature limit in the zone sensor.

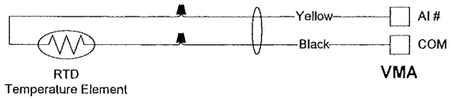
Failure Mode
The terminal unit valve will fail to the closed position.

The terminal unit damper will fail to the open position.

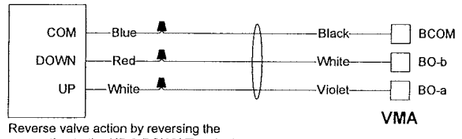
REVISION INFORMATION	Drawing Title						
NUMBER	ROOM SCHEDULE DETAILS						
DATE 04/17/08			1	RECORD DRAWINGS	03/30/08	WCS	
TIME 08:05 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
FILE NAME rsdetc.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 13.7		

Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-7	@VAV BOX									Power to Controller
					VMA	1	107				VAV-7	@VAV BOX	0								N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	107	AI-1		AI1,AICM	VAV-7	@VAV BOX	0		7-107-AI-1	1/18,BLK	1-Wire	Jumper			
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	107	AI-2		AI2,AICM	VAV-7	@VAV BOX	0		7-107-AI-2	1/18,BLK	1-Wire	Jumper			
	AI-3				VMA	1	107	AI-3			VAV-7	@VAV BOX	0		7-107-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	107	AI-4		AI4,COM	VAV-7	@VAV BOX	0		7-107-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	107	AI-5			VAV-7	@VAV BOX	0		7-107-AI-5						
	BI-1				VMA	1	107	BI-1			VAV-7	@VAV BOX	0		7-107-BI-1						
	BI-2				VMA	1	107	BI-2			VAV-7	@VAV BOX	0		7-107-BI-2						
	BI-3				VMA	1	107	BI-3			VAV-7	@VAV BOX	0		7-107-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	107	BO-1		BO-a,BO-b,BCOM	VAV-7	@VAV BOX	0		7-107-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	107	BO-2			VAV-7	@VAV BOX	0		7-107-BO-2						
	BO-3	VAV	RAD-OP	Suppl Heating Open	VMA	1	107	BO-3		BO-a,BO-b,BCOM	VAV-7	@VAV BOX	0		7-107-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-4	VAV	RAD-CL	Suppl Heating Close	VMA	1	107	BO-4			VAV-7	@VAV BOX	0		7-107-BO-4						
	BO-5				VMA	1	107	BO-5			VAV-7	@VAV BOX	0		7-107-BO-5						
	AO-1				VMA	1	107	AO-1			VAV-7	@VAV BOX	0		7-107-AO-1						
	AO-2				VMA	1	107	AO-2			VAV-7	@VAV BOX	0		7-107-AO-2						

DETAIL VMA131 TEMPERATURE SENSOR INPUT



DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



Reverse valve action by reversing the connection to the UP & DOWN Terminals

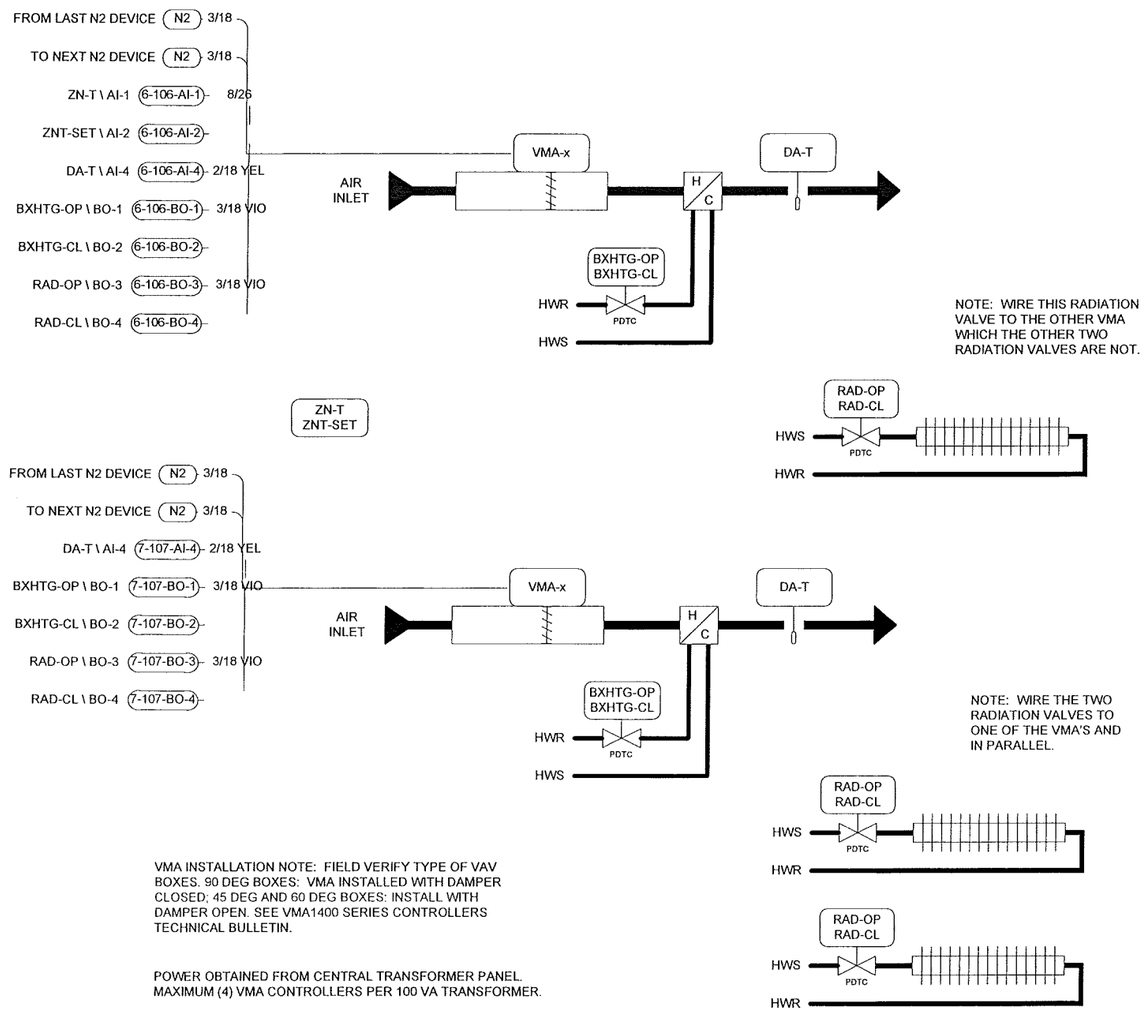
Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION	Drawing Title																				
NUMBER	POINT SCHEDULE																				
DATE																					
04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION					ECN	DATE	BY									
TIME		Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED														
10:20 AM		GLA	SEL	RJM	BY	DATE	BY	DATE													
	Project Title				Branch Information																
FILE NAME	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division			Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782																
rsdetdps2.vsd					CONTRACT NUMBER																
					0 3109-0044																
					DRAWING NUMBER																
					13.8																

DETAIL D
TYPICAL OF 1

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
BXHTG-OP, BXHTG-CL , RAD-OP, RAD-CL	0	VALVE	SEE ROOM SCHEDULE
DA-T	2	TJBCR01	VERIS-4", 2K PT TEMP SENSOR-VERIS
VMA-x	2	AP-VMA1420-0	VAV MODULAR ASSY - CLG W/ REHEAT
ZN-T, ZNT-SET	1	TE-67NP-2N00	SENSOR,RM,1K NI,PHONE JACK,SET-PT



VMA INSTALLATION NOTE: FIELD VERIFY TYPE OF VAV BOXES. 90 DEG BOXES: VMA INSTALLED WITH DAMPER CLOSED; 45 DEG AND 60 DEG BOXES: INSTALL WITH DAMPER OPEN. SEE VMA1400 SERIES CONTROLLERS TECHNICAL BULLETIN.

POWER OBTAINED FROM CENTRAL TRANSFORMER PANEL. MAXIMUM (4) VMA CONTROLLERS PER 100 VA TRANSFORMER.

VAV TERMINAL WITH HOT WATER REHEAT AND RADIATION (ONE ZONE SENSOR SERVING TWO VAV BOXES):
General:
Terminal unit control dedicated to individual zones using hot water reheat to condition the zone.

System Off:
The hot water valve will modulate closed.

The damper will move to the closed position.

System Start:
Upon a signal from the FMS for the associated air handling unit serving the terminal box to start, the terminal unit controller will also be activated.

System On:
Upon a rise in room temperature above set point the terminal unit's damper will modulate open, increasing CFM, to maintain room set point.

Upon a decrease in room temperature below set point the terminal unit's damper will modulate closed to maintain room set point.

If the temperature continues to fall and the damper has reached it's minimum position, and the hot water re-heat valve will modulate open to maintain room set point.

Upon a rise in room temperature the reverse will occur.

There will be separate heating and cooling set points.

System Stop:
The hot water valve will close.

The damper will move to the closed position.

Safeties and Alarms:
An alarm will be noted in the event of a low and/or high temperature limit in the zone sensor.

Failure Mode
The terminal unit valve will fail to the closed position.

The terminal unit damper will fail to the open position.

FIN RADIATION - HOT WATER:
General:
Control electronically by associated VAV box control.

System Off:
Fin radiation control valve shall be positioned to 100% closed.

System Start:
When the associated hot water system is started, fin radiation control valves shall be permitted to control to set point.

System Run:
Unoccupied Heating Mode:
Fin radiation control valve shall modulate to maintain space temperature at the unoccupied heating set point (adj.).

Occupied Heating Mode:
Fin radiation control valve shall modulate in conjunction with the VAV box to maintain space temperature at the occupied heating set point (adj.).
Set point shall be adjusted remotely from thermostat 65-85F.

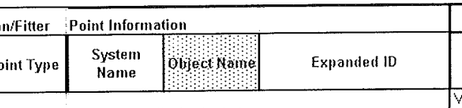
System Stop:
Fin radiation control valve shall be indexed to the "System Off" condition.

Safeties and Alarms:
Annunciate alarms when space temperature exceeds minimum and maximum limits.

REVISION INFORMATION	Drawing Title						
NUMBER	ROOM SCHEDULE DETAILS						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:05 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN: BY / DATE; APPROVED: BY / DATE					
FILE NAME rsdetd.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 13.9		

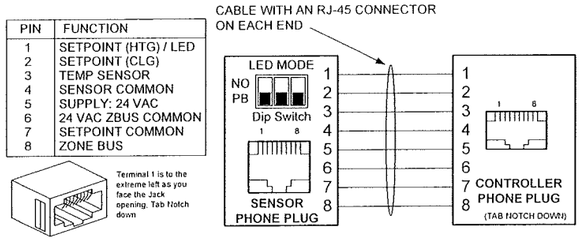
Electrician/Fitter		Point Information			Controller Information						Panel Information					Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment	
					VMA						VAV-6	@VAV BOX										Power to Controller
					VMA	1	106				VAV-6	@VAV BOX	0									N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	106	AI-1		Phone Jack	VAV-6	@VAV BOX	0		6-106-AI-1	8/26	Phone Jack	TE-6700 (Jack, No PB)		VMA134		
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	106	AI-2			VAV-6	@VAV BOX	0		6-106-AI-2							
	AI-3				VMA	1	106	AI-3			VAV-6	@VAV BOX	0		6-106-AI-3							
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	106	AI-4		AI4,COM	VAV-6	@VAV BOX	0		6-106-AI-4	2/18 YEL	2-Wire	TE		VMA131		
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	106	AI-5			VAV-6	@VAV BOX	0		6-106-AI-5							
	BI-1				VMA	1	106	BI-1			VAV-6	@VAV BOX	0		6-106-BI-1							
	BI-2				VMA	1	106	BI-2			VAV-6	@VAV BOX	0		6-106-BI-2							
	BI-3				VMA	1	106	BI-3			VAV-6	@VAV BOX	0		6-106-BI-3							
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	106	BO-1		BO-a,BO-b,BCOM	VAV-6	@VAV BOX	0		6-106-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483		
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	106	BO-2			VAV-6	@VAV BOX	0		6-106-BO-2							
	BO-3	VAV	RAD-OP	Suppl Heating Open	VMA	1	106	BO-3		BO-a,BO-b,BCOM	VAV-6	@VAV BOX	0		6-106-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483		
	BO-4	VAV	RAD-CL	Suppl Heating Close	VMA	1	106	BO-4			VAV-6	@VAV BOX	0		6-106-BO-4							
	BO-5				VMA	1	106	BO-5			VAV-6	@VAV BOX	0		6-106-BO-5							
	AO-1				VMA	1	106	AO-1			VAV-6	@VAV BOX	0		6-106-AO-1							
	AO-2				VMA	1	106	AO-2			VAV-6	@VAV BOX	0		6-106-AO-2							

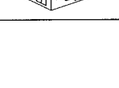
DETAIL VMA131 TEMPERATURE SENSOR INPUT



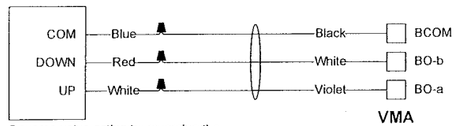
DETAIL VMA134 TE-6700 (Phone Jack) - NO PB

PIN	FUNCTION
1	SETPOINT (HTG) / LED
2	SETPOINT (CLG)
3	TEMP SENSOR
4	SENSOR COMMON
5	SUPPLY: 24 VAC
6	24 VAC ZBUS COMMON
7	SETPOINT COMMON
8	ZONE BUS





DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION
NUMBER
DATE 04/18/08
TIME 04:24 PM
FILE NAME rsdetdps1.vsd

Drawing Title
POINT SCHEDULE

Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

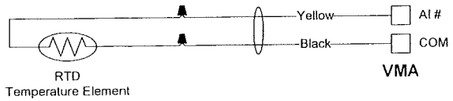
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Appleton Branch
2140 American Drive
Neenah
WI 54956
Phone: 920-739-2461
Fax: 920-739-4782

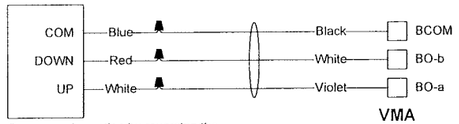
CONTRACT NUMBER 0 3109-0044
DRAWING NUMBER 13.10

Electrician/Fitter		Point Information			Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					VMA						VAV-7	@VAV BOX									Power to Controller
					VMA	1	107				VAV-7	@VAV BOX	0								N2 Trunk
	AI-1	VAV	ZN-T	Zone Temperature	VMA	1	107	AI-1		AI1,AICM	VAV-7	@VAV BOX	0		7-107-AI-1	1/18,BLK	1-Wire	Jumper			
	AI-2	VAV	ZNT-SET	Remote Setpoint	VMA	1	107	AI-2		AI2,AICM	VAV-7	@VAV BOX	0		7-107-AI-2	1/18,BLK	1-Wire	Jumper			
	AI-3				VMA	1	107	AI-3			VAV-7	@VAV BOX	0		7-107-AI-3						
	AI-4	VAV	DA-T	Discharge Air Temp	VMA	1	107	AI-4		AI4,COM	VAV-7	@VAV BOX	0		7-107-AI-4	2/18 YEL	2-Wire	TE		VMA131	
	AI-5	VAV	SA-VP	Supply Delta P	VMA	1	107	AI-5			VAV-7	@VAV BOX	0		7-107-AI-5						
	BI-1				VMA	1	107	BI-1			VAV-7	@VAV BOX	0		7-107-BI-1						
	BI-2				VMA	1	107	BI-2			VAV-7	@VAV BOX	0		7-107-BI-2						
	BI-3				VMA	1	107	BI-3			VAV-7	@VAV BOX	0		7-107-BI-3						
	BO-1	VAV	BXHTG-OP	Box Heating Open	VMA	1	107	BO-1		BO-a,BO-b,BCOM	VAV-7	@VAV BOX	0		7-107-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-2	VAV	BXHTG-CL	Box Heating Close	VMA	1	107	BO-2			VAV-7	@VAV BOX	0		7-107-BO-2						
	BO-3	VAV	RAD-OP	Suppl Heating Open	VMA	1	107	BO-3		BO-a,BO-b,BCOM	VAV-7	@VAV BOX	0		7-107-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr)		VMA483	
	BO-4	VAV	RAD-CL	Suppl Heating Close	VMA	1	107	BO-4			VAV-7	@VAV BOX	0		7-107-BO-4						
	BO-5				VMA	1	107	BO-5			VAV-7	@VAV BOX	0		7-107-BO-5						
	AO-1				VMA	1	107	AO-1			VAV-7	@VAV BOX	0		7-107-AO-1						
	AO-2				VMA	1	107	AO-2			VAV-7	@VAV BOX	0		7-107-AO-2						

DETAIL VMA131 TEMPERATURE SENSOR INPUT



DETAIL VMA483 INCREMENTAL CONTROL to VA-7450



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

REVISION INFORMATION	Drawing Title																				
NUMBER	POINT SCHEDULE																				
DATE 04/18/08																					
TIME 04:24 PM		REFERENCE DRAWING				NO	REVISION-LOCATION					ECN	DATE	BY							
		Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED														
FILE NAME rsdetdps2.vsd	Project Title	GLA	SEL	RJM	BY	DATE	BY	DATE													
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division			Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782																	

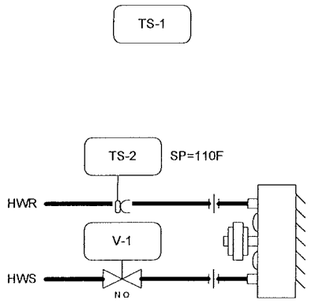
CONTRACT NUMBER **0 3109-0044**

DRAWING NUMBER **13.11**

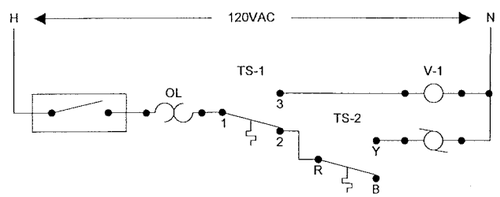
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
TS-1	1	T26S-18C	STAT,120VAC,RM,HTG/CLG,ADJ,40/90F
TS-2	1	A19DAC-1C	STAT,STRP,SPDT,100/240F
V-1	0	VALVE	SEE ROOM SCHEDULE

DETAIL E
TYPICAL OF 29



UNIT HEATER WIRING



UNIT HEATER / CABINET UNIT HEATER ELECTRIC CONTROL - HOT WATER:
General:
Controlled locally by line voltage thermostat.

System Off:
Unit heater control valve will be closed, and fan disabled.

System Start:
When hot water return pipe is 110 degrees F or greater as sensed by line voltage aquastat, the unit heater will be permitted to run

System Run:
Line voltage electric thermostat will cycle control valve and fan to maintain set point

System Stop:
Unit heater will be indexed to the "System Off" condition.

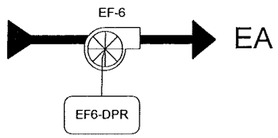
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
EF6-C, EF6-S	1	H748	SENS,CURR,1A @30VAC/DC,1/4HP,CMND RELAY
EF6-DPR	0	DAMPER	SEE DAMPER SCHEDULE
MECH-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL
TX-1	1	M9000-103	CLASS 2 TRANSFORMER

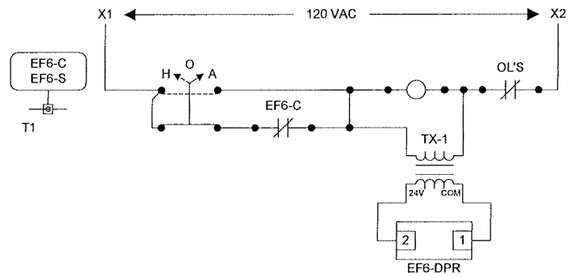
DETAIL F
TYPICAL OF 1

MECH-T

NOTE: ALL POINTS ARE WIRED TO PANEL P-1.



EXHAUST FAN EF-6 STARTER WIRING



MECHANICAL ROOM EXHAUST FAN EF-6 OCCUPIED/UNOCCUPIED CONTROL:
General:
The exhaust fan will run in different modes when in occupied or unoccupied control. The exhaust fan will operate in low flow when not in high flow as required by Mechanical Refrigeration Code Comm 45.

System Off:
The exhaust fan will operate in low flow when not in high flow as required by Mechanical Refrigeration Code Comm 45.

System Start:
Upon a signal from the FMS system the fan will start and Vortex inlet dampers will vary flow from low to high.

System On:
Upon a call for cooling from the FMS the system fan will start modulate air flow to maximum.

System Stop:
The fan will operate continuously in low flow.

Safeties and Alarms:
The system will have a manual override switch to turn the system on at low flow from the smoke control panel.

Fan EF-6 will operate at full flow upon a high alarm from the refrigerant leak detector (See Section 15675).

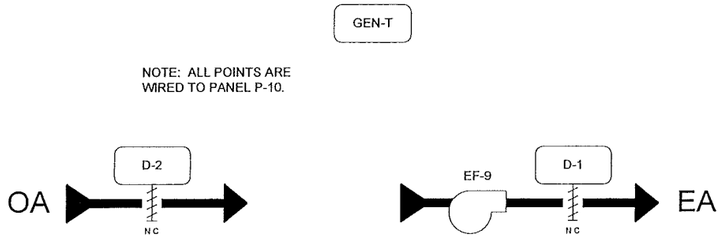
Failure Modes:
The fan will fail to on with full flow position.

REVISION INFORMATION	Drawing Title							
NUMBER	ROOM SCHEDULE DETAILS							
				1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer	Project Manager	Application Engineer	DRAWN BY / DATE		APPROVED BY / DATE	
TIME 08:05 AM	Project Title	GLA	SEL	RJM				
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER 0 3109-0044	
FILE NAME rsdetef.vsd							DRAWING NUMBER 13.12	

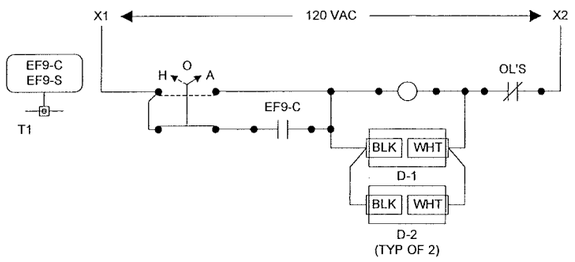
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
D-x	0	DAMPER	SEE DAMPER SCHEDULE
EF9-C, EF9-S	1	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
GEN-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL

DETAIL G
TYPICAL OF 1



EXHAUST FAN EF-9 STARTER WIRING



GENERATOR ROOM EXHAUST FAN EF-9 CONTROL:
General:
Exhaust fan control to maintain a thermostat set point throughout the space with electronic control.

System On:
The fan shall operate if space temperature rises above set point. Otherwise, fan is off. The exhaust and outdoor air damper will be open when the fan is energized.

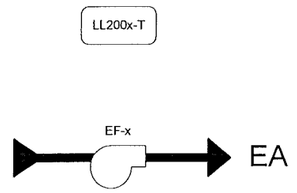
Failure Mode:
The fan shall fail to the off position.

BILL OF MATERIALS

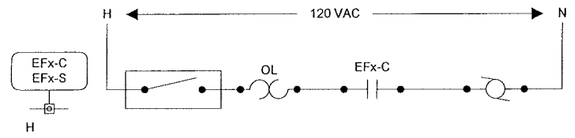
Designation	Qty	Part Number	Description
Field Devices:			
EFx-C, EFx-S	1	H548	SENS,CURR,0.5-20A,MINI,CMND RLY,HOA,ADJU
LL200x-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL

DETAIL H
TYPICAL OF 2

NOTE: ALL POINTS ARE WIRED TO PANEL P-10 FOR BOTH EF-10 AND EF-11 AND THEIR ASSOCIATED ZONE TEMPERATURE SENSORS.



EXHAUST FAN WIRING



ELECTRICAL EQUIPMENT ROOM EXHAUST FAN CONTROL:
General:
Exhaust fan control to maintain a thermostat set point throughout the space with electronic control.

System On:
The fan shall operate if space temperature rises above set point. Otherwise, fan is off.

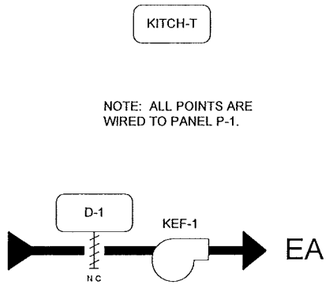
Failure Mode:
The fan shall fail to the off position.

REVISION INFORMATION	Drawing Title: ROOM SCHEDULE DETAILS							
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:05 AM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE		
FILE NAME: Rsdetgh.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 13.13	

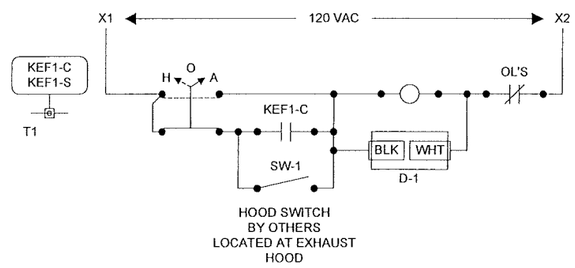
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
D-1	0	DAMPER	SEE DAMPER SCHEDULE
KEF1-C, KEF1-S	1	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
KITCH-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL

DETAIL I
TYPICAL OF 1



KITCHEN EXHAUST FAN KEF-1 STARTER WIRING



KITCHEN ROOM EXHAUST FAN (TEMPERATURE CONTROL):
General:
Exhaust fan control to maintain a thermostat set point throughout the space with electronic control.

System Off:
The fan will operate if space temperature rises above set point. Otherwise, fan is off.

System On:
When switch at hood is on fan will operate.

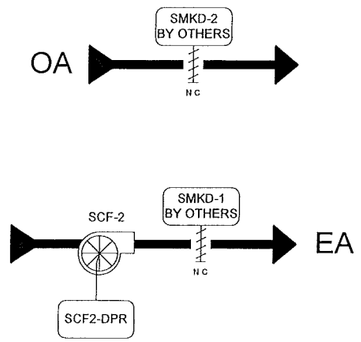
System Stop:
Fan will stop and operate as required by space temperature when local switch is in Off position.

Failure Mode:
The fan will fail to the off position.

BILL OF MATERIALS

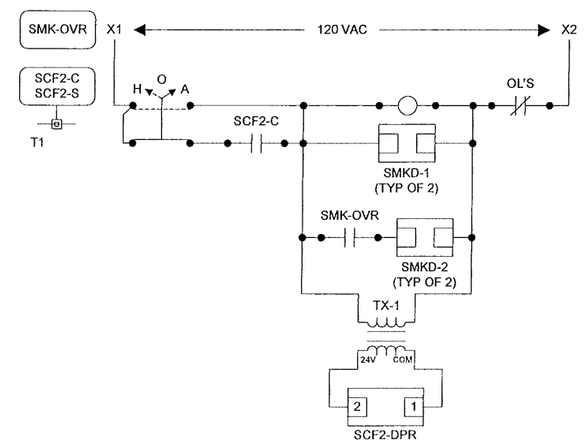
Designation	Qty	Part Number	Description
Field Devices:			
GAR-COx	2	GWXS	SENSOR, CO,WALL,ALARM @ 35PPM,0-5/10VDC
SCF2-C, SCF2-S	1	H738	SENS,CURR,1A @30VAC/DC,1/3HP,CMND RELAY
SCF2-DPR	0	DAMPER	SEE DAMPER SCHEDULE
SMK-OVR	1	RIBU1C	10AMP SPDT 10-30VAC/DC/120VAC
TX-1	1	M9000-103	CLASS 2 TRANSFORMER

DETAIL J
TYPICAL OF 1



NOTE: ALL POINTS ARE WIRED TO PANEL P-10.

SMOKE CONTROL FAN SCF-2 STARTER WIRING



PARKING EXHAUST FAN:
System Off:
SCF-2 is off.

System On:
CO sensor will energize SCF-2 and EL-1 will open. When a ppm of 25 (adjustable) is reached, SCF-2 will operate and EL-1 will open. From 7am to 9am and from 4pm to 7pm daily SCF-2 will operate and EL-1 will open.

System Stop:
The damper will close.

The fan will move to the off position.

Smoke Control, Fire in Parking:
In a smoke control mode the SCF-2 will start, and damper for the associated smoke damper will open. The damper for EL-1 will close.

Failure Modes:
The fan will fail to the off position.

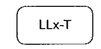
The damper will fail to the closed position.

REVISION INFORMATION	Drawing Title						
NUMBER	ROOM SCHEDULE DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:04 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY / DATE; APPROVED BY / DATE					
FILE NAME Rsdetij.vsd	Project Title: DANE COUNTY COURTHOUSE, 215 SOUTH HAMILTON ST., MADISON, WI 53703	JOHNSON CONTROLS, Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 13.14	

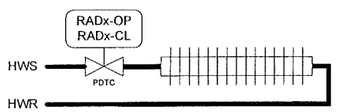
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
LLx-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL
RADx-OP, RADx-CL	0	VALVE	SEE ROOM SCHEDULE

DETAIL K
TYPICAL OF 3



NOTE: ALL POINTS ARE WIRED TO UNT CONTROLLERS MOUNTED ABOVE THE CEILING SPACE. SEE MISCELLANEOUS DETAIL L FOR DETAILS.



FIN RADIATION - HOT WATER:

System Off:
Fin radiation control valve will be positioned to 100% closed.

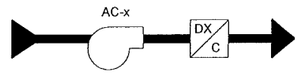
System Start:
When the associated hot water system is started, fin radiation control valves will be permitted to control to set point.

System Run:
Fin radiation control valve will modulate to maintain space temperature at the heating set point (adj.).

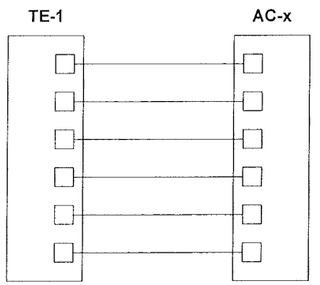
System Stop:
Fin radiation control valve will be indexed to the "System Off" condition.

Safeties and Alarms:
Annunciate alarms when space temperature exceeds minimum and maximum limits.

DETAIL L
TYPICAL OF 6



NOTE: WIRING DETAILS NOT AVAILABLE AT TIME OF SUBMITTAL.



SELF CONTAINED AIR CONDITIONING UNIT:

All of the controls will be provided with the unit. JCI will mount and wire the zone temperature sensor to the unit.

REVISION INFORMATION	Drawing Title: ROOM SCHEDULE DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 08:04 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE		
FILE NAME: Rsdetkl.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
					DRAWING NUMBER: 13.15		

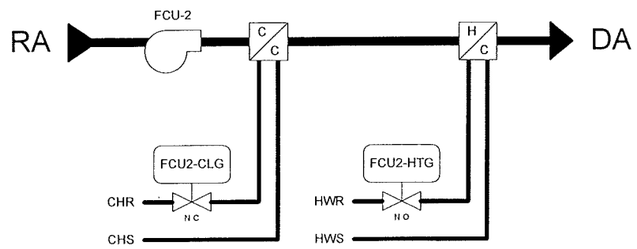
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
FCU2-C	1	RIBU1S	10AMP SPST-NO+HOA 10-30VAC/DC/120VAC
FCU2-CLG, FCU2-HTG	0	VALVE	SEE ROOM SCHEDULE
LL2041-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL

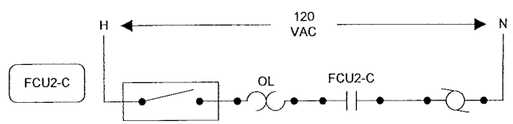
DETAIL M
TYPICAL OF 1

LL2041-T

NOTE: ALL CONTROL POINTS ARE WIRED TO UNT CONTROLLER LOCATED ABOVE THE CEILING SPACE. SEE MISCELLANEOUS DETAIL L FOR DETAILS.



FAN COIL UNIT FCU-2 WIRING



FAN COIL UNIT:

The fan will run continuously during occupied times. When the unit is running, on a call for heat, the hot water valve will open to maintain zone temperature set point. When the unit is running, on a call for cool, the chilled water valve will open to maintain zone temperature set point. During unoccupied times, when the unit is running, both the valves will be closed.

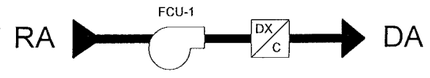
BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
FCU1-C, FCU1-CLG	2	RIBU1S	10AMP SPST-NO+HOA 10-30VAC/DC/120VAC
LL2040-T	1	TE-67NT-0N00	TEMP SENSOR 1K NICKEL

DETAIL N
TYPICAL OF 1

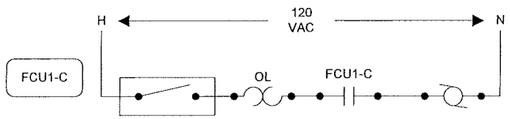
LL2040-T

NOTE: ALL CONTROL POINTS ARE WIRED TO UNT CONTROLLER LOCATED ABOVE THE CEILING SPACE. SEE MISCELLANEOUS DETAIL L FOR DETAILS.

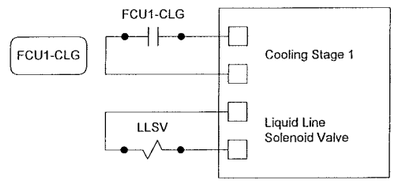


NOTE: WIRING DETAILS NOT AVAILABLE AT TIME OF SUBMITTAL.

FAN COIL UNIT FCU-1 WIRING



DX COOLING WIRING

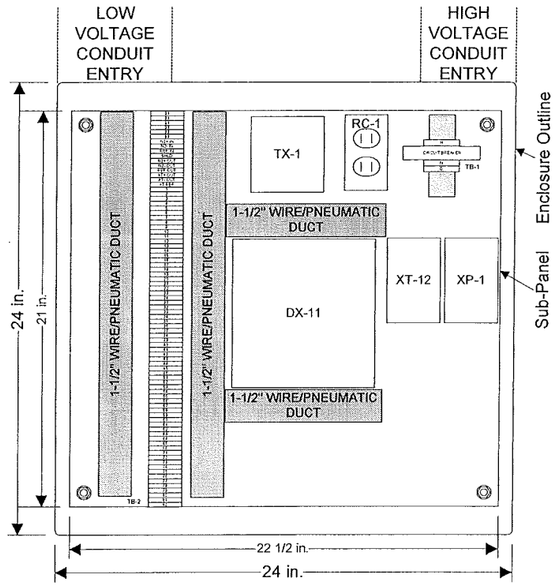


FAN COIL UNIT:

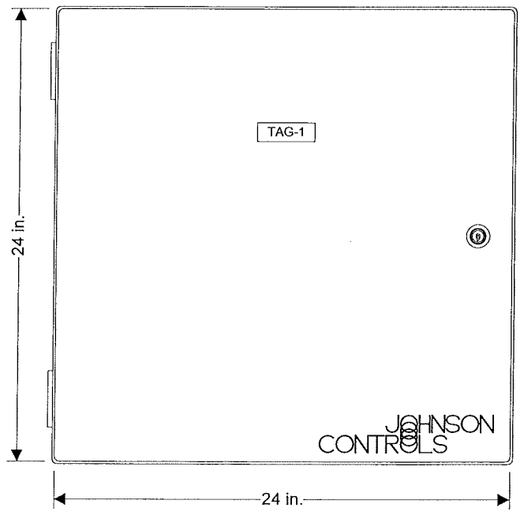
The fan will run continuously during occupied times. When the unit is running, on a call for cool, the DX coil will be cycled on to maintain zone temperature set point. During unoccupied times, when the unit is running, both the valves will be closed.

REVISION INFORMATION	Drawing Title							
NUMBER	ROOM SCHEDULE DETAILS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
04/17/08		Sales Engineer / Project Manager	Application Engineer	DRAWN		APPROVED		
TIME		GLA / SEL	RJM	BY / DATE		BY / DATE		
08:04 AM	Project Title			Branch Information		CONTRACT NUMBER		
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
FILE NAME						DRAWING NUMBER		
Rsdetmn.vsd						13.16		

DETAIL A
TYPICAL OF 1



PANEL P-10 LOCATED IN LL2001



PANEL FACE TAGS:
TAG-1: PANEL P-10
MISC. EXHAUST FAN CONTROL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-10	1	PADPE	PANEL ASSY, DX MOUNTED IN 24X24 ENCL
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
XP-1	1	XP-9104-8304	CNTRLR,DIG,DX EXPN MOD,4BI,4BO,2/XT
XT-12	1	XT-9100-8304	CNTRLR,DIG,DX EXTENSION MODULE,8/DX

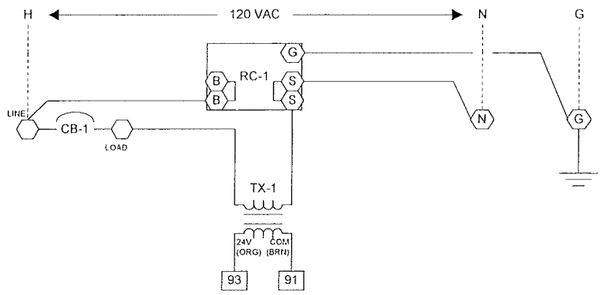
EXHAUST FANS CONTROL PANEL

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
DATE 04/17/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 08:03 AM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE
FILE NAME msdeta.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.1		

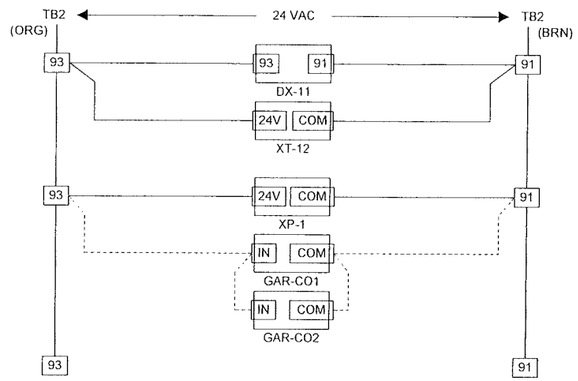
DETAIL A (CONT.)

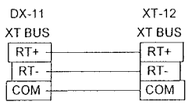
TYPICAL OF 1

LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM





EXHAUST FANS CONTROL PANEL WIRING

Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	
NUMBER	
DATE	04/17/08
TIME	08:03 AM
FILE NAME	msdetapw.vsd

Drawing Title: MISCELLANEOUS DETAILS

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

REFERENCE DRAWING	NO	REVISION LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

JOHNSON CONTROLS
Systems & Services Division

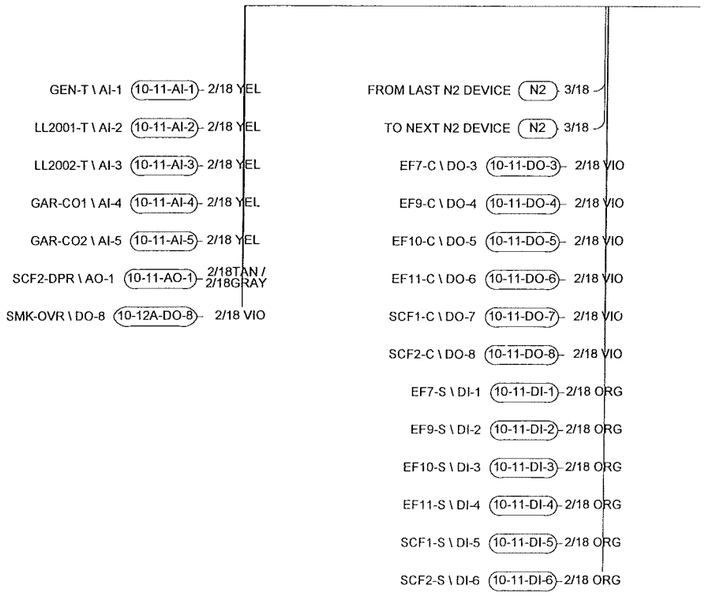
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.2

DETAIL A (CONT.)

TYPICAL OF 1

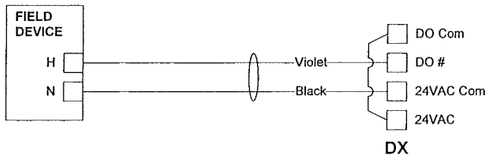


FIELD POINTS

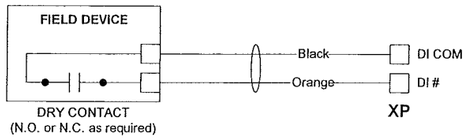
REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:03 AM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME msdetafp.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.3	

Electrician/Fitter		Point Information			Controller Information						Panel Information					Intermediate Device					Field Device						
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Details	Trunk Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Termination Out	Location	Wiring /Tubing	Termination In	Device	Location	Ref Detail Sheet	Comment	Template
		EXH-FANS			DX 9100																						Power to Controller	
		EXH-FANS			DX 9100	N2	1	11						0													N2 Trunk	
	DO-3	EXH-FANS	EF7-C	Prkg Garage Exh Fan Cntl	DX 9100	N2	1	11	DO-3					0		-11-DO-3												
	DO-4	EXH-FANS	EF9-C	Gener Rm Exh Fan Cntl	DX 9100	N2	1	11	DO-4					0		-11-DO-4												
	DO-5	EXH-FANS	EF10-C	LL2002 Exh Fan Cntl	DX 9100	N2	1	11	DO-5					0		-11-DO-5												
	DO-6	EXH-FANS	EF11-C	LL2001 Exh Fan Cntl	DX 9100	N2	1	11	DO-6					0		-11-DO-6												
	DO-7	EXH-FANS	SCF1-C	LL2 Smk Cntl Fan Cntl	DX 9100	N2	1	11	DO-7					0		-11-DO-7												
	DO-8	EXH-FANS	SCF2-C	Prkg Smk Cntl Fan Cntl	DX 9100	N2	1	11	DO-8					0		-11-DO-8												
	DI-1	EXH-FANS	EF7-S	Prkg Garage Exh Fan Sts	DX 9100	N2	1	11	DI-1					0		-11-DI-1												
	DI-2	EXH-FANS	EF9-S	Gener Rm Exh Fan Sts	DX 9100	N2	1	11	DI-2					0		-11-DI-2												
	DI-3	EXH-FANS	EF10-S	LL2002 Exh Fan Sts	DX 9100	N2	1	11	DI-3					0		-11-DI-3												
	DI-4	EXH-FANS	EF11-S	LL2001 Exh Fan Sts	DX 9100	N2	1	11	DI-4					0		-11-DI-4												
	DI-5	EXH-FANS	SCF1-S	LL2 Smk Cntl Fan Sts	DX 9100	N2	1	11	DI-5					0		-11-DI-5												
	DI-6	EXH-FANS	SCF2-S	Prkg Smk Cntl Fan Sts	DX 9100	N2	1	11	DI-6					0		-11-DI-6												
	DI-7	EXH-FANS	SPF1-S	ST-A Press Fan Sts	DX 9100	N2	1	11	DI-7					0		-11-DI-7												
	DI-8	EXH-FANS	SPF2A-S	ST-C/ST-D Press Fan Sts	DX 9100	N2	1	11	DI-8					0		-11-DI-8												
	AI-1	EXH-FANS	GEN-T	Generator Room Temp	DX 9100	N2	1	11	AI-1					0		-11-AI-1												
	AI-2	EXH-FANS	LL2001-T	Electrical Rm 2001 Temp	DX 9100	N2	1	11	AI-2					0		-11-AI-2												
	AI-3	EXH-FANS	LL2002-T	Electrical Rm 2002 Temp	DX 9100	N2	1	11	AI-3					0		-11-AI-3												
	AI-4	EXH-FANS	GAR-CO1	Prkg Garage CO Level #1	DX 9100	N2	1	11	AI-4					0		-11-AI-4												
	AI-5	EXH-FANS	GAR-CO2	Prkg Garage CO Level #2	DX 9100	N2	1	11	AI-5					0		-11-AI-5												
	AI-6	EXH-FANS			DX 9100	N2	1	11	AI-6					0		-11-AI-6												
	AI-7	EXH-FANS			DX 9100	N2	1	11	AI-7					0		-11-AI-7												
	AI-8	EXH-FANS			DX 9100	N2	1	11	AI-8					0		-11-AI-8												
	AO-1	EXH-FANS	SCF2-DPR	Smk Cntl Fan Dpr Cmd	DX 9100	N2	1	11	AO-1					0		-11-AO-1												
	AO-2	EXH-FANS			DX 9100	N2	1	11	AO-2					0		-11-AO-2												
	AO-9	EXH-FANS			DX 9100	N2	1	11	AO-9					0		-11-AO-9												
	AO-10	EXH-FANS			DX 9100	N2	1	11	AO-10					0		-11-AO-10												
	AO-11	EXH-FANS			DX 9100	N2	1	11	AO-11					0		-11-AO-11												
	AO-12	EXH-FANS			DX 9100	N2	1	11	AO-12					0		-11-AO-12												
	AO-13	EXH-FANS			DX 9100	N2	1	11	AO-13					0		-11-AO-13												
	AO-14	EXH-FANS			DX 9100	N2	1	11	AO-14					0		-11-AO-14												
		EXH-FANS			XT (Expansion Module)																						Power to Controller	
		EXH-FANS			XT (Expansion Module)	N2	1	12						0													N2 Trunk	
	XT1DI1	EXH-FANS	SPF2B-S	ST-C/ST-D Press Fan Sts	XP 9104 (4DI, 4DO)	N2	1	12	DI-1					0		-12A-DI-1												
	XT1DI2	EXH-FANS			XP 9104 (4DI, 4DO)	N2	1	12	DI-2					0		-12A-DI-2												
	XT1DI3	EXH-FANS			XP 9104 (4DI, 4DO)	N2	1	12	DI-3					0		-12A-DI-3												
	XT1DI4	EXH-FANS			XP 9104 (4DI, 4DO)	N2	1	12	DI-4					0		-12A-DI-4												
	XT1DO5	EXH-FANS	SPF1-C	ST-A Press Fan Cntl	XP 9104 (4DI, 4DO)	N2	1	12	DO-5					0		-12A-DO-5												
	XT1DO6	EXH-FANS	SPF2A-C	ST-C/ST-D Press Fan Cntl	XP 9104 (4DI, 4DO)	N2	1	12	DO-6					0		-12A-DO-6												
	XT1DO7	EXH-FANS	SPF2B-C	ST-C/ST-D Press Fan Cntl	XP 9104 (4DI, 4DO)	N2	1	12	DO-7					0		-12A-DO-7												
	XT1DO8	EXH-FANS	SMK-OVR	Smk Dmpr Override Closed	XP 9104 (4DI, 4DO)	N2	1	12	DO-8					0		-12A-DO-8												

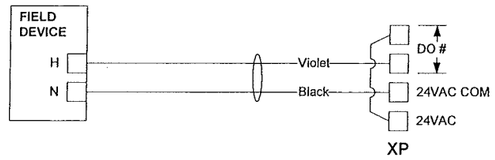
DETAIL D501 — 24 VAC BINARY OUTPUT (Switch High)



DETAIL XP301 — BINARY INPUT (DRY CONTACT)

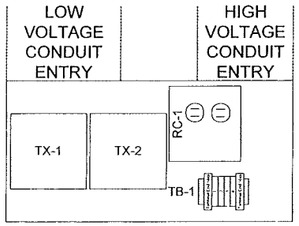


DETAIL XP501 — 24 VAC BINARY OUTPUT (Switch High)

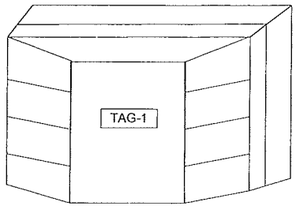


REVISION INFORMATION	Drawing Title						
NUMBER	POINT SCHEDULE		1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:02 AM	Project Title	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
FILE NAME msdetaps2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782		CONTRACT NUMBER 0 3109-0044		
					DRAWING NUMBER 14.5		

DETAIL B
TYPICAL OF 1



PANEL P-11 LOCATED IN LL2032



PANEL FACE TAGS:
TAG-1: PANEL P-11
LOWER LEVEL 2 VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-11, RC-1	1	EN-EWC12-0	UNIV PKG MOD,SING,PWR BOX
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	4	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	2	PD-114-02	XFMR,120/24VAC,96VA

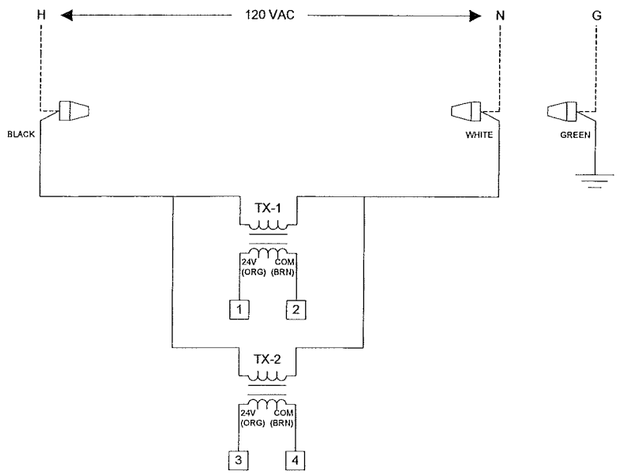
LOWER LEVEL 2 VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/17/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 08:02 AM	Project Title	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
FILE NAME msdetb.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 14.6		

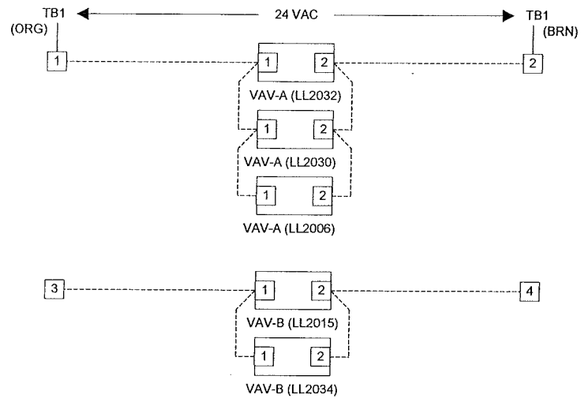
DETAIL B (CONT.)

TYPICAL OF 1

LINE AND LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOWER LEVEL 2 VMA TRANSFORMER PANEL WIRING

Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	
NUMBER	
DATE	04/17/08
TIME	08:01 AM
FILE NAME	msdetbpw.vsd

Drawing Title: **MISCELLANEOUS DETAILS**

Project Title: **DANE COUNTY COURTHOUSE**
215 SOUTH HAMILTON ST.
MADISON, WI 53703

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

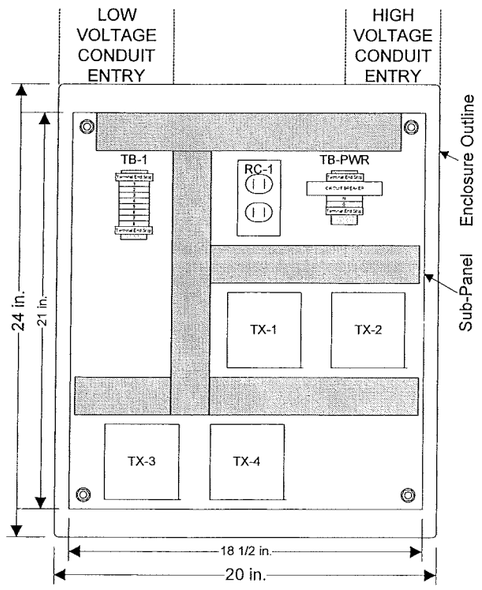
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

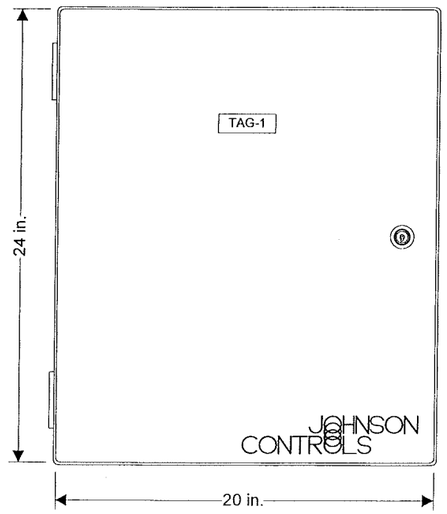
CONTRACT NUMBER: **0 3109-0044**

DRAWING NUMBER: **14.7**

DETAIL C
TYPICAL OF 1



PANEL P-12 LOCATED IN LL1016



PANEL FACE TAGS:
TAG-1: PANEL P-12
LOWER LEVEL 1 VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-12	1	PAN-ENC2024WDP	PANEL, HOFFMAN 20X24X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	8	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	4	PD-114-02	XFMR,120/24VAC,96VA

LOWER LEVEL 1 VMA TRANSFORMER PANEL

REVISION INFORMATION						
NUMBER						
DATE 03/31/08						
TIME 10:55 PM						
FILE NAME msdetc.vsd		1	RECORD DRAWINGS		03/30/08	WCS
	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY

Drawing Title: MISCELLANEOUS DETAILS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

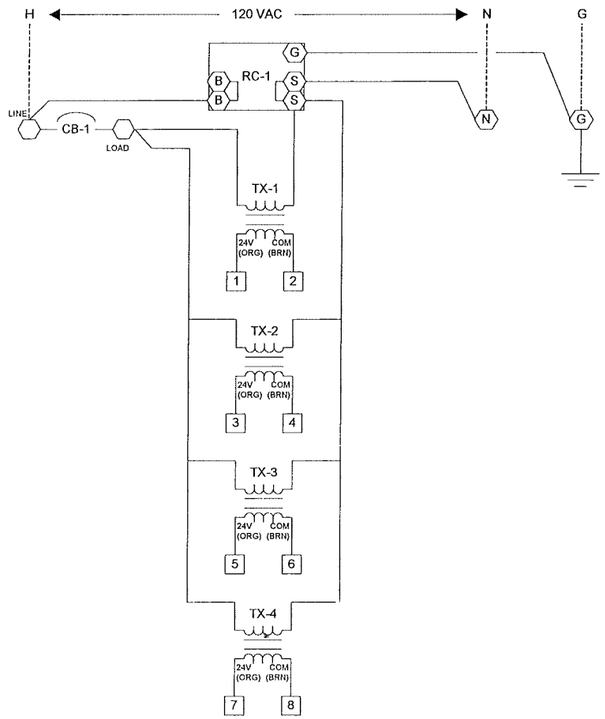
CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.8

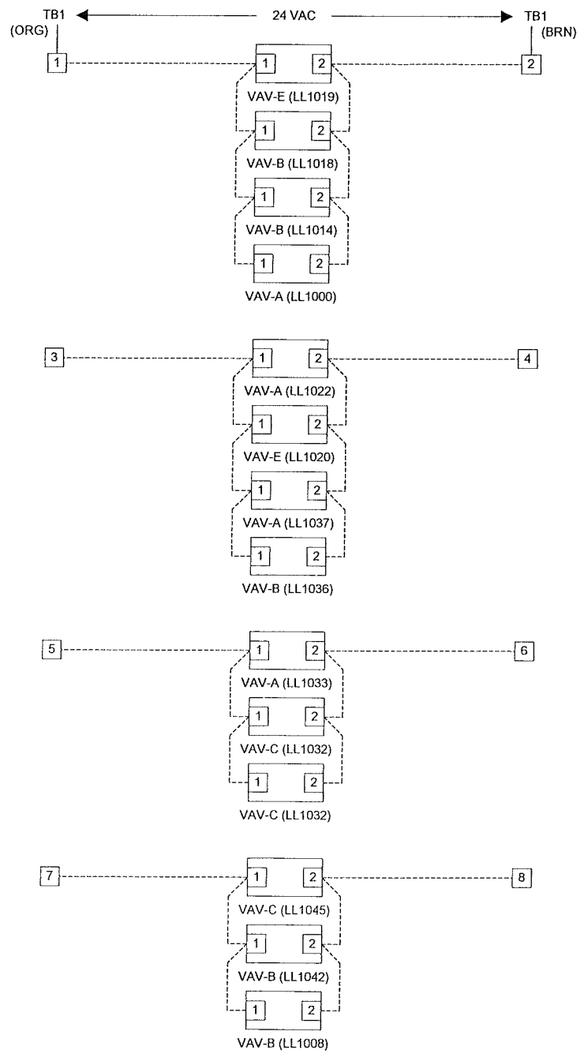
DETAIL C (CONT.)

TYPICAL OF 1

LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



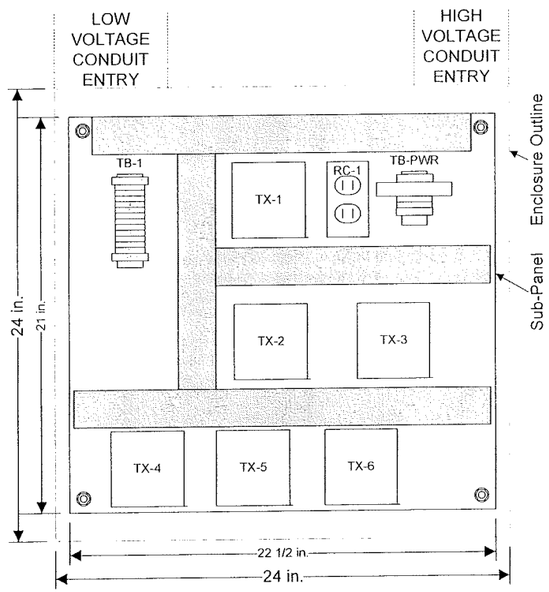
Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

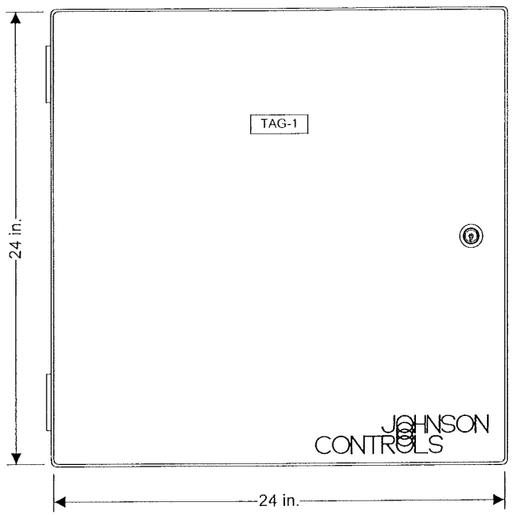
LOWER LEVEL 1 VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 04:54 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME: msdetcpw.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		DRAWING NUMBER: 14.9	

DETAIL D
TYPICAL OF 1



PANEL P-13 LOCATED IN 1035



PANEL FACE TAGS:
TAG-1: PANEL P-13
1ST FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-13	1	PAN-ENC2424WDP	PANEL, HOFFMAN 24X24X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	12	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	6	PD-114-02	XFMR,120/24VAC,96VA

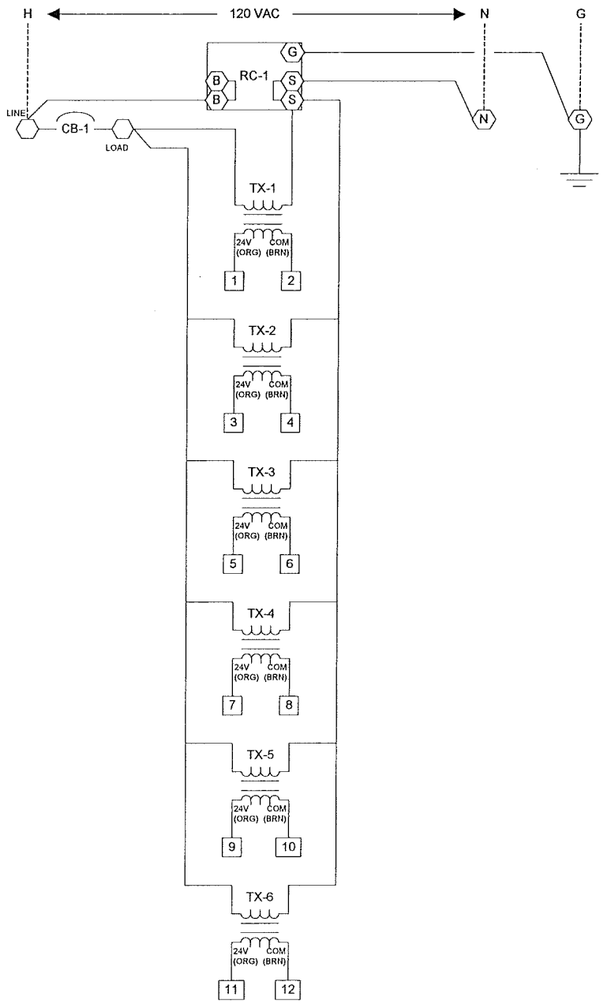
1ST FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title							
NUMBER	MISCELLANEOUS DETAILS		1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 01:47 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME msdetd.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 14.10		

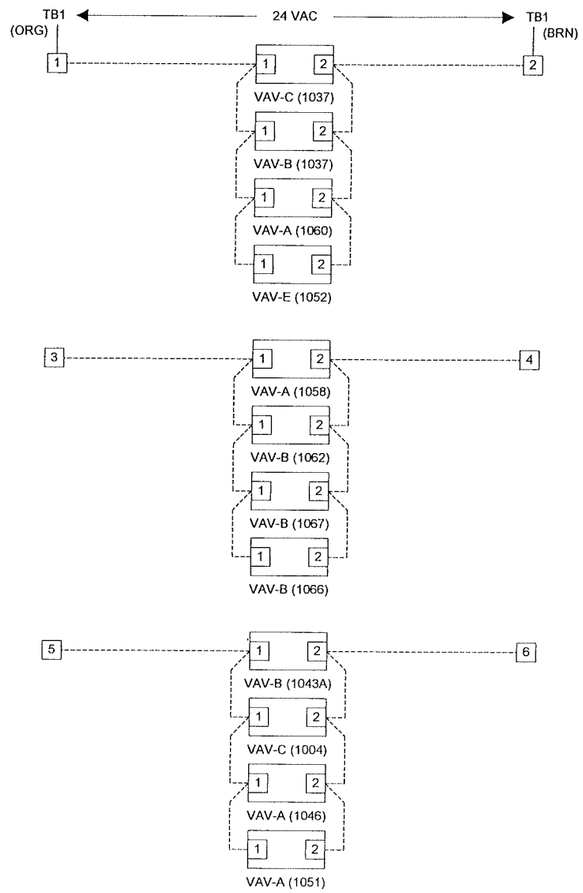
DETAIL D (CONT.)

TYPICAL OF 1

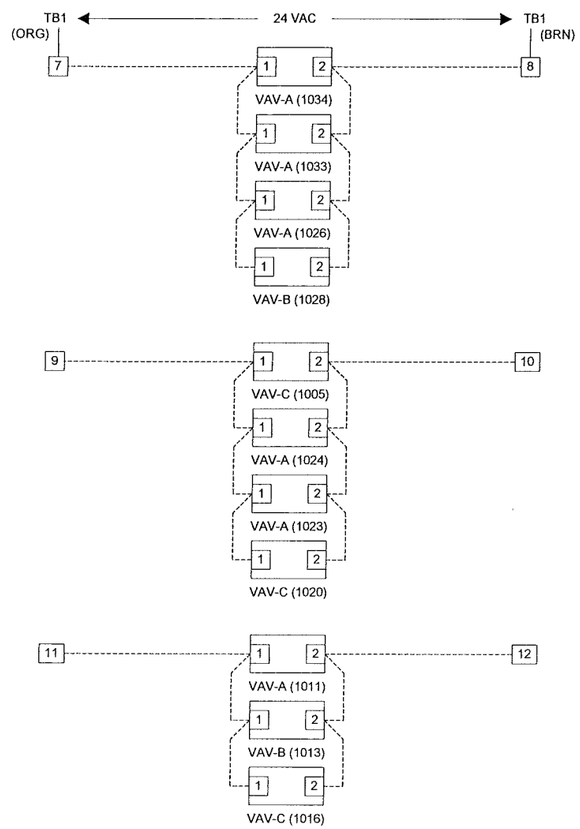
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



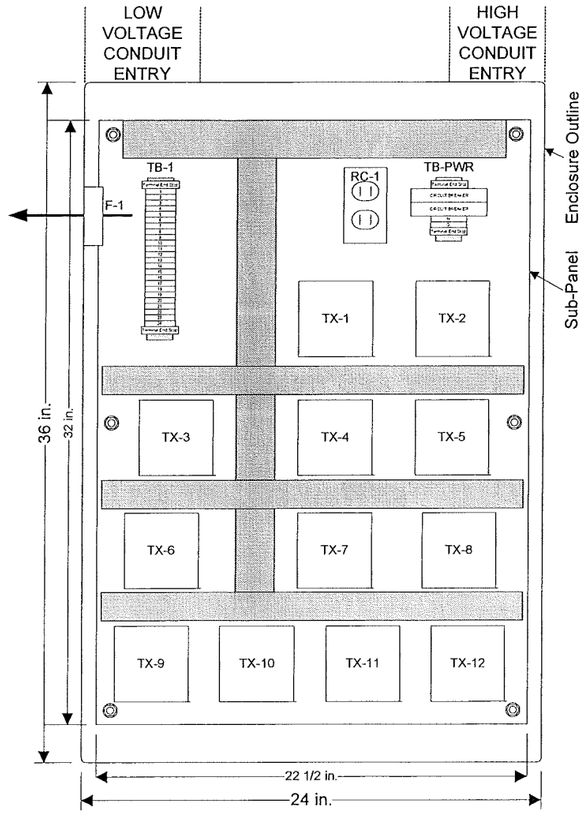
Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

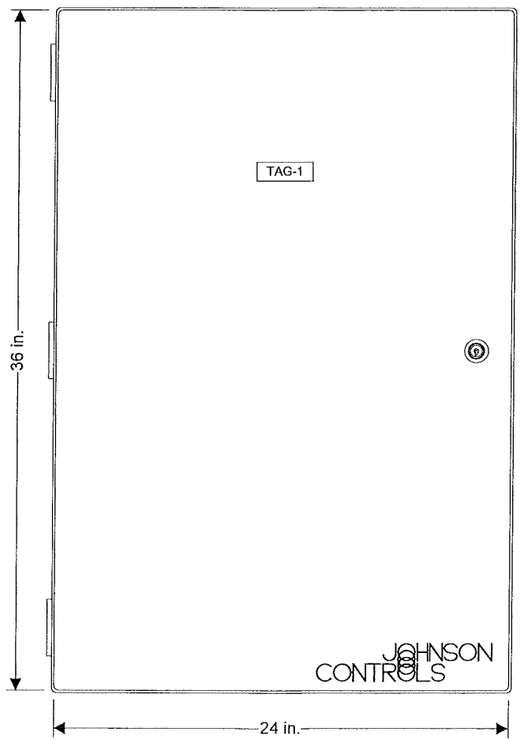
1ST FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 01:47 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME msdetdpw.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.11		

DETAIL E
TYPICAL OF 1



PANEL P-14 LOCATED IN 2052



PANEL FACE TAGS:
TAG-1: PANEL P-14
2ND FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
F-1	1	4WT40	DAYTON-3-1/8" SQUARE AXIAL FAN-GRAINGER
	1	4YD96	AYTON-3-1/8" WIRE FAN GUARD-GRAINGER
P-14	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	24	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	2	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	12	PD-114-02	XFMR,120/24VAC,96VA

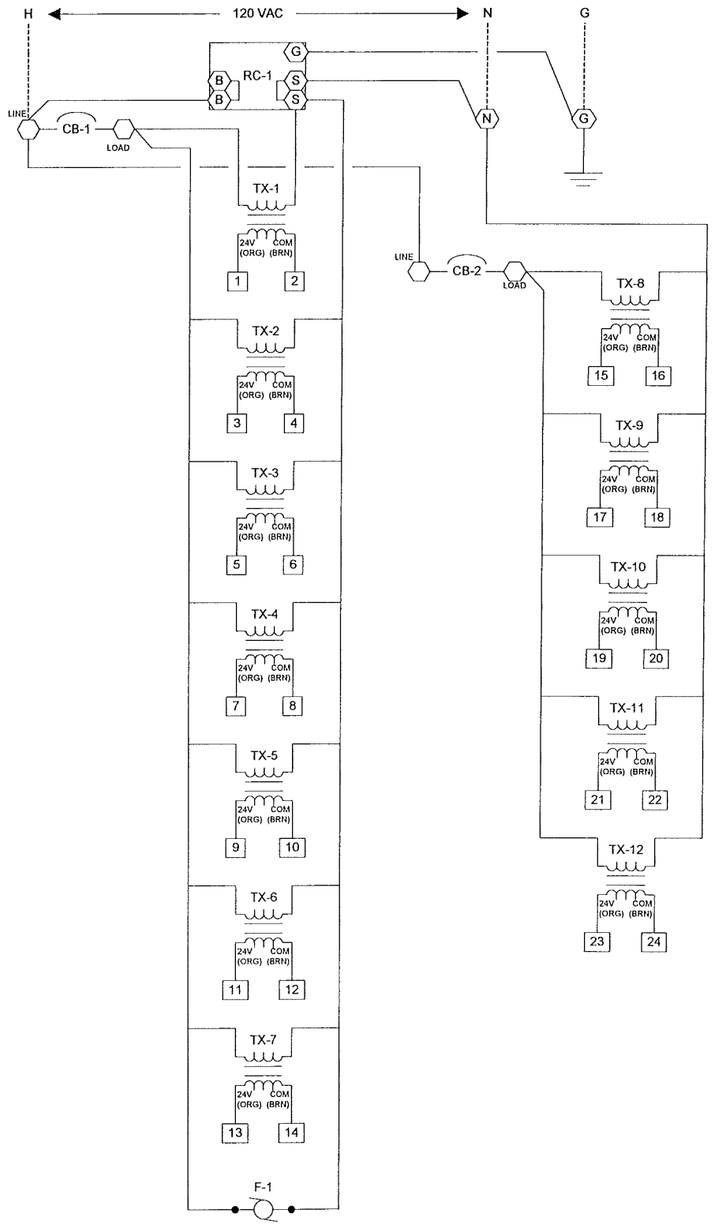
2ND FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 03/31/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 11:04 PM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME: msdete.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.12		

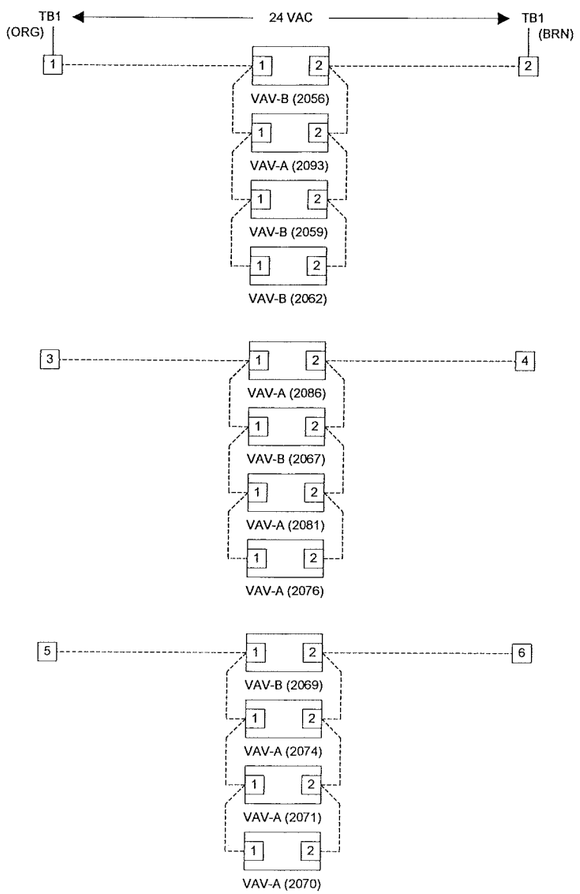
DETAIL E (CONT.)

TYPICAL OF 1

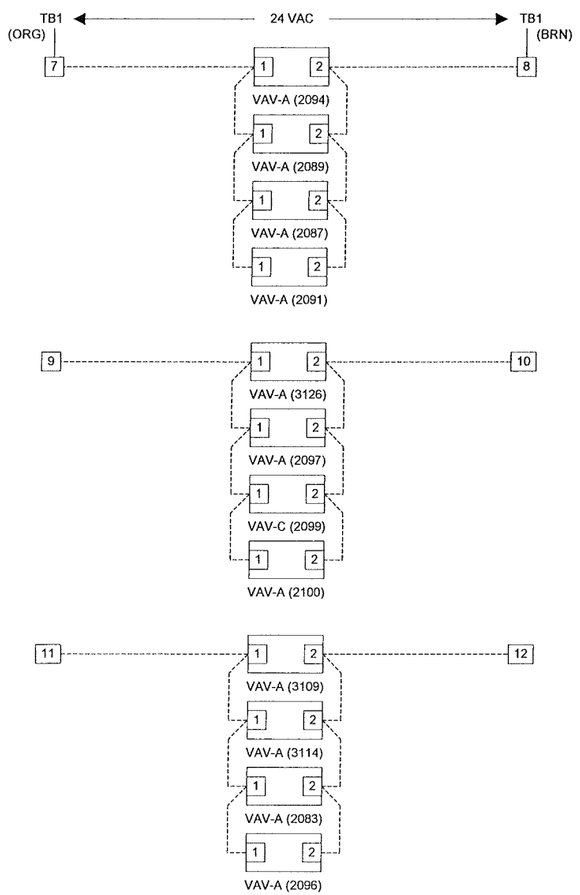
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

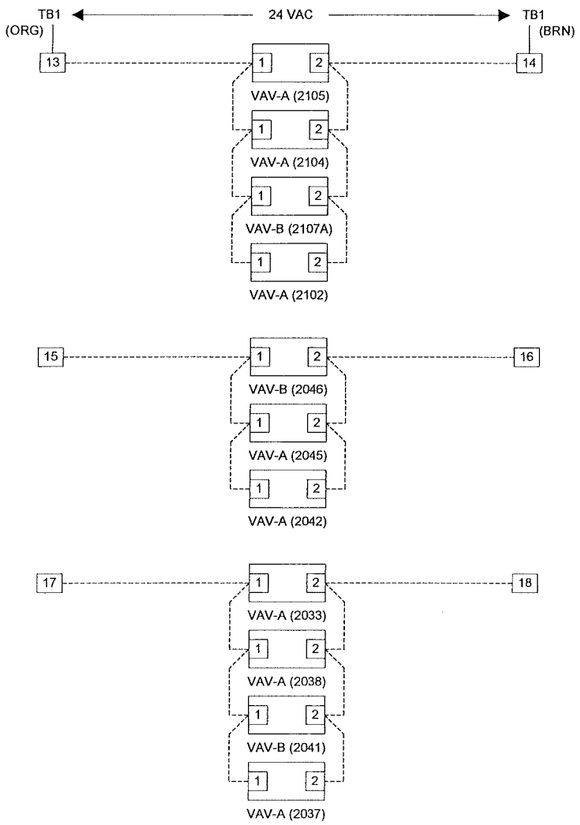
2ND FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER		1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:46 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE
FILE NAME: msdetepw1.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.13			

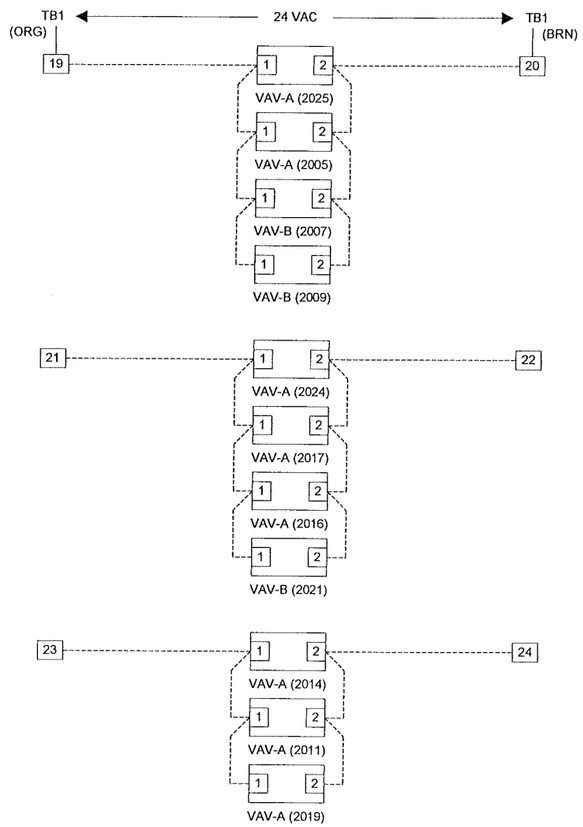
DETAIL E (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



2ND FLOOR VMA TRANSFORMER PANEL WIRING

Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

			1	RECORD DRAWINGS		03/30/08	WCS	
REVISION INFORMATION			REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED	
			BY	DATE	BY	DATE
GLA	SEL	RJM				

REVISION INFORMATION
NUMBER
DATE: 04/16/08
TIME: 01:46 PM
FILE NAME: Msdetepw2.vsd

Drawing Title: MISCELLANEOUS DETAILS

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

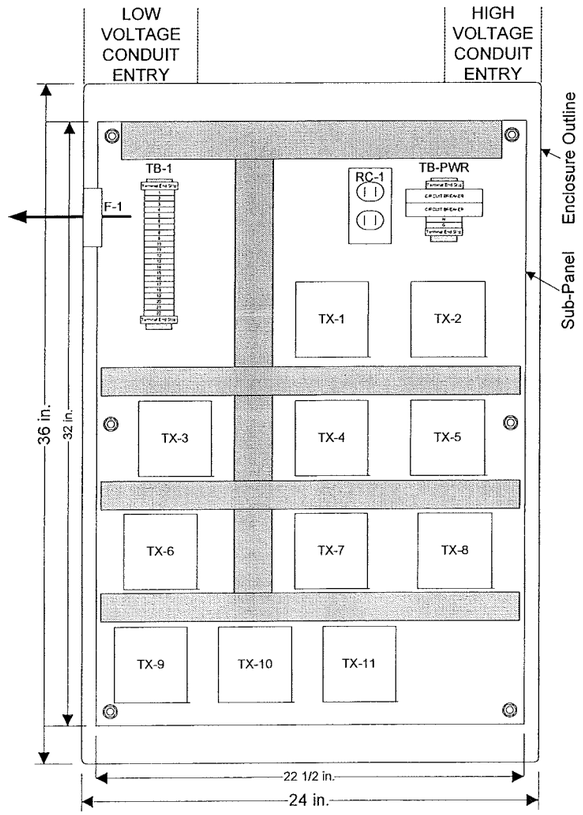
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

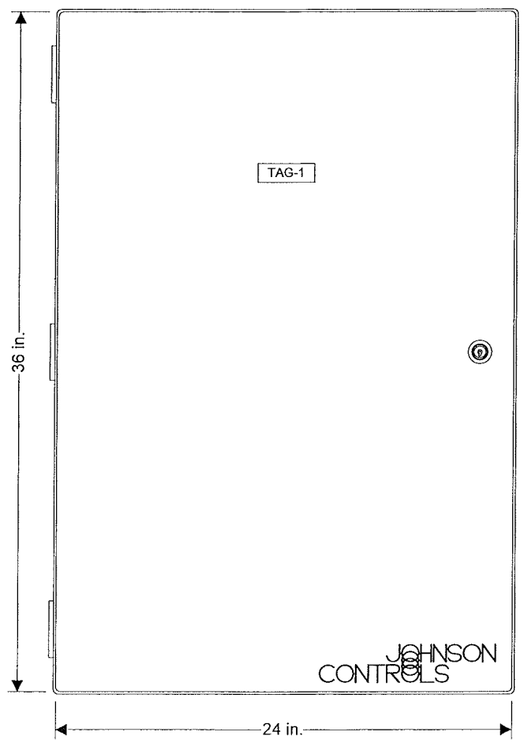
CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.14

DETAIL F
TYPICAL OF 1



PANEL P-15 LOCATED IN 3096



PANEL FACE TAGS:
TAG-1: PANEL P-15
3RD FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
F-1	1	4WT40	DAYTON-3-1/8" SQUARE AXIAL FAN-GRAINGER
	1	4YD96	AYTON-3-1/8" WIRE FAN GUARD-GRAINGER
P-15	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	22	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	2	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	11	PD-114-02	XFMR,120/24VAC,96VA

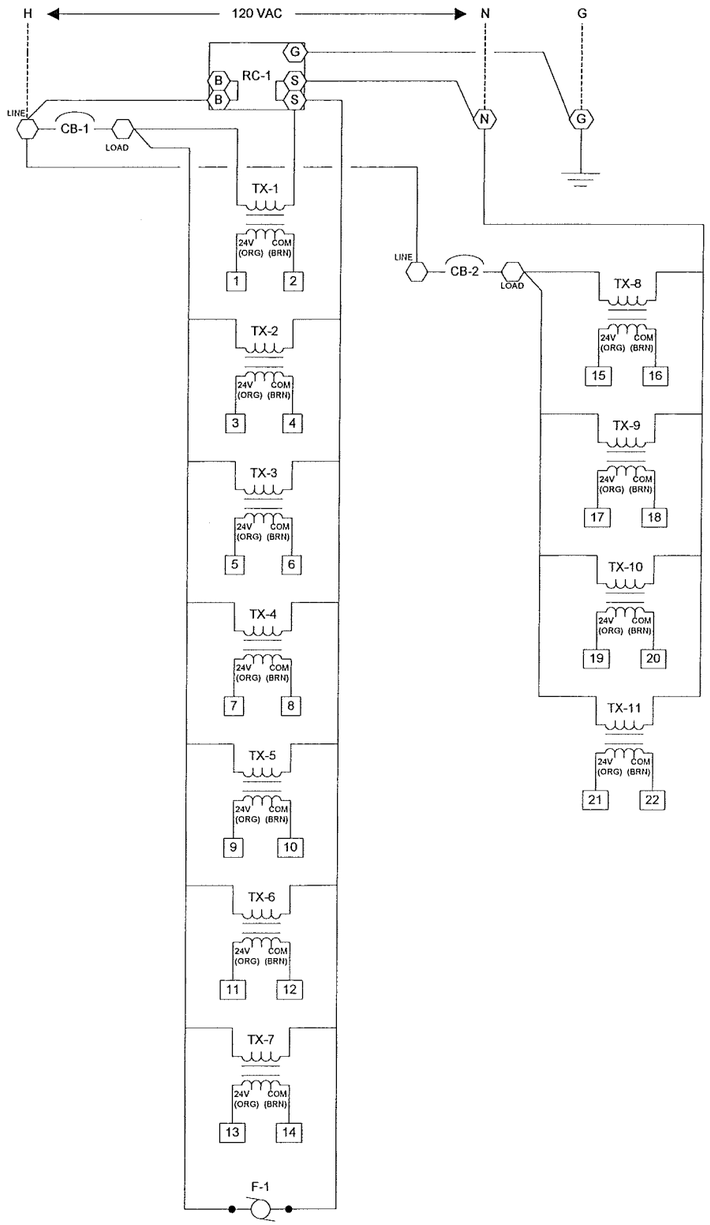
3RD FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:44 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: msdetf.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		DRAWING NUMBER: 14.15	

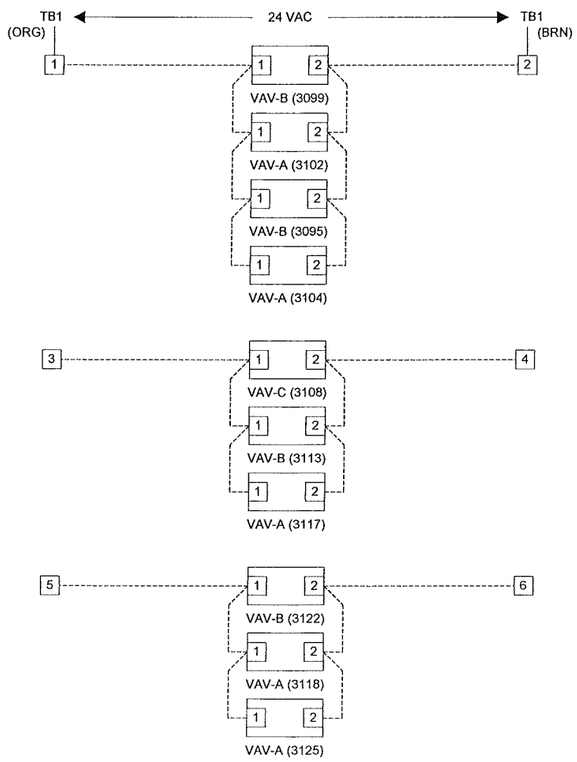
DETAIL F (CONT.)

TYPICAL OF 1

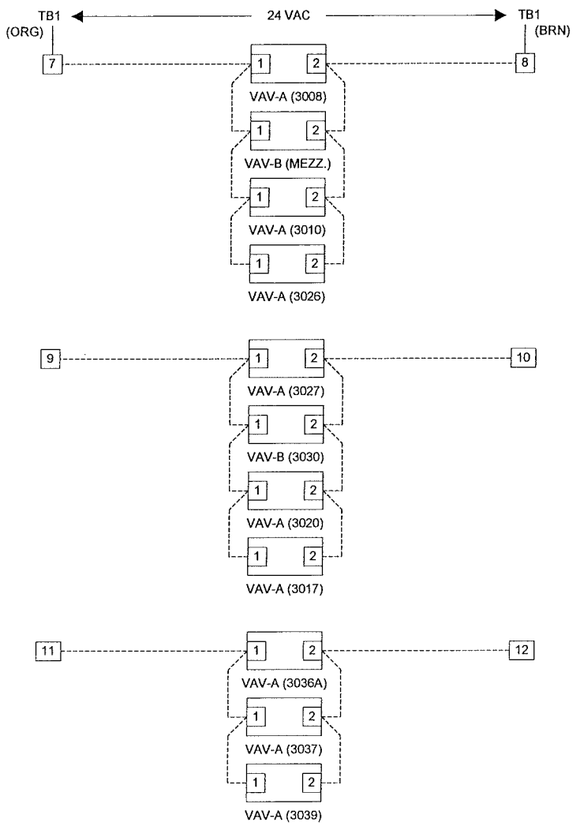
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



3RD FLOOR VMA TRANSFORMER PANEL WIRING

Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS
NUMBER	
DATE: 04/16/08	
TIME: 01:44 PM	Project Title: DANE COUNTY COURTHOUSE, 215 SOUTH HAMILTON ST., MADISON, WI 53703
FILE NAME: msdetfpw1.vsd	

NO.	REVISION-LOCATION	ECN	DATE	BY
1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

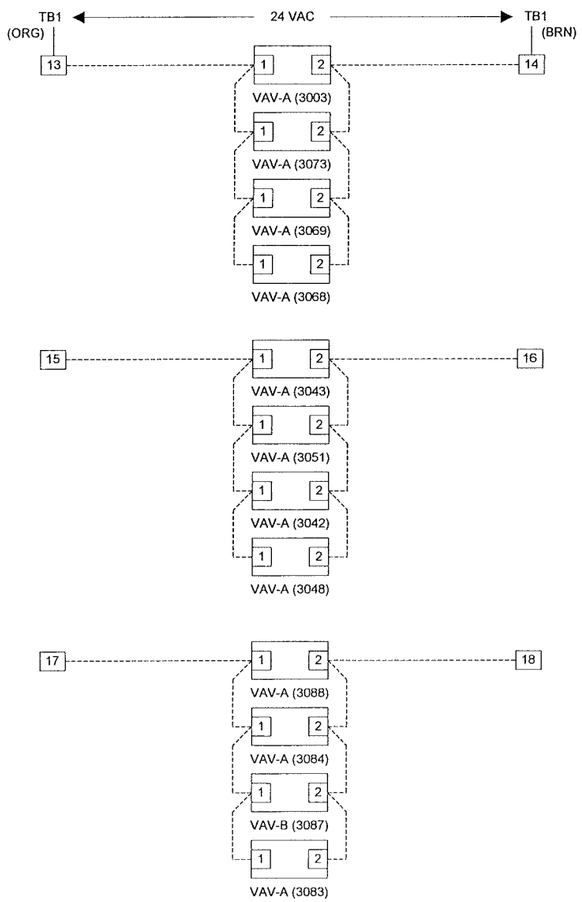
CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.16

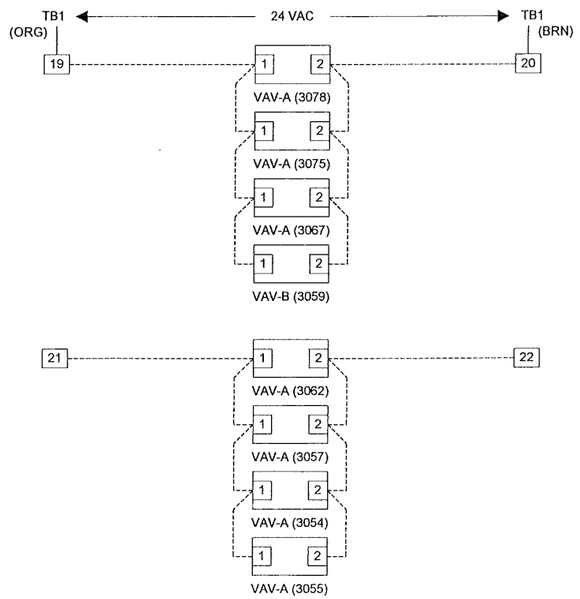
DETAIL F (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

3RD FLOOR VMA TRANSFORMER PANEL WIRING

		1	RECORD DRAWINGS		03/30/08	WCS
		NO.	REVISION-LOCATION	ECN	DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

REVISION INFORMATION
NUMBER
DATE 04/16/08
TIME 01:43 PM
FILE NAME Msdetfpw2.vsd

Drawing Title
MISCELLANEOUS DETAILS

Project Title
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

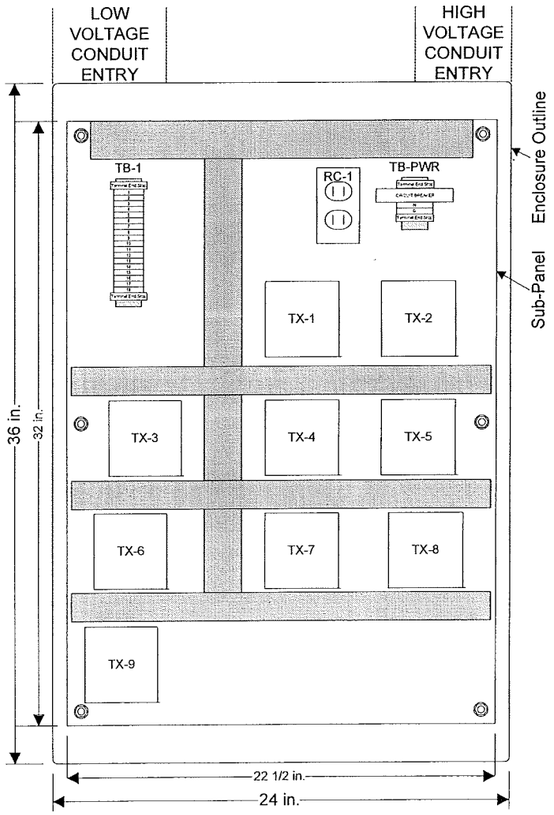
JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

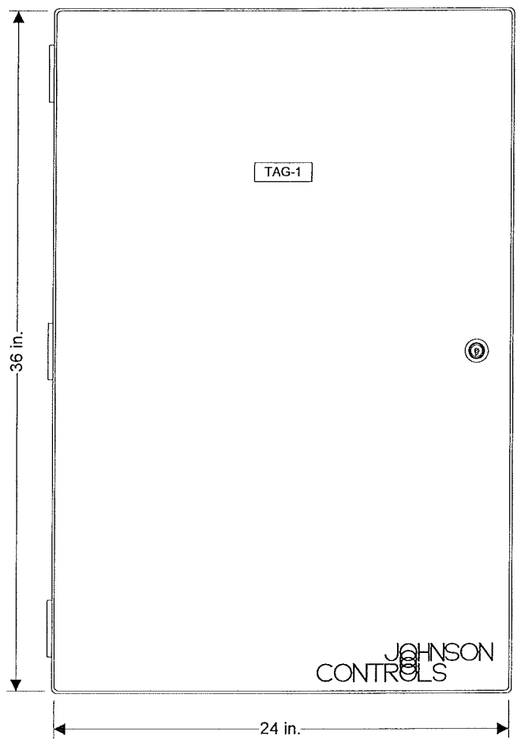
CONTRACT NUMBER
0 3109-0044

DRAWING NUMBER
14.17

DETAIL G
TYPICAL OF 1



PANEL P-16 LOCATED IN 4045



PANEL FACE TAGS:
TAG-1: PANEL P-16
4TH FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-16	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	18	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	9	PD-114-02	XFMR,120/24VAC,96VA

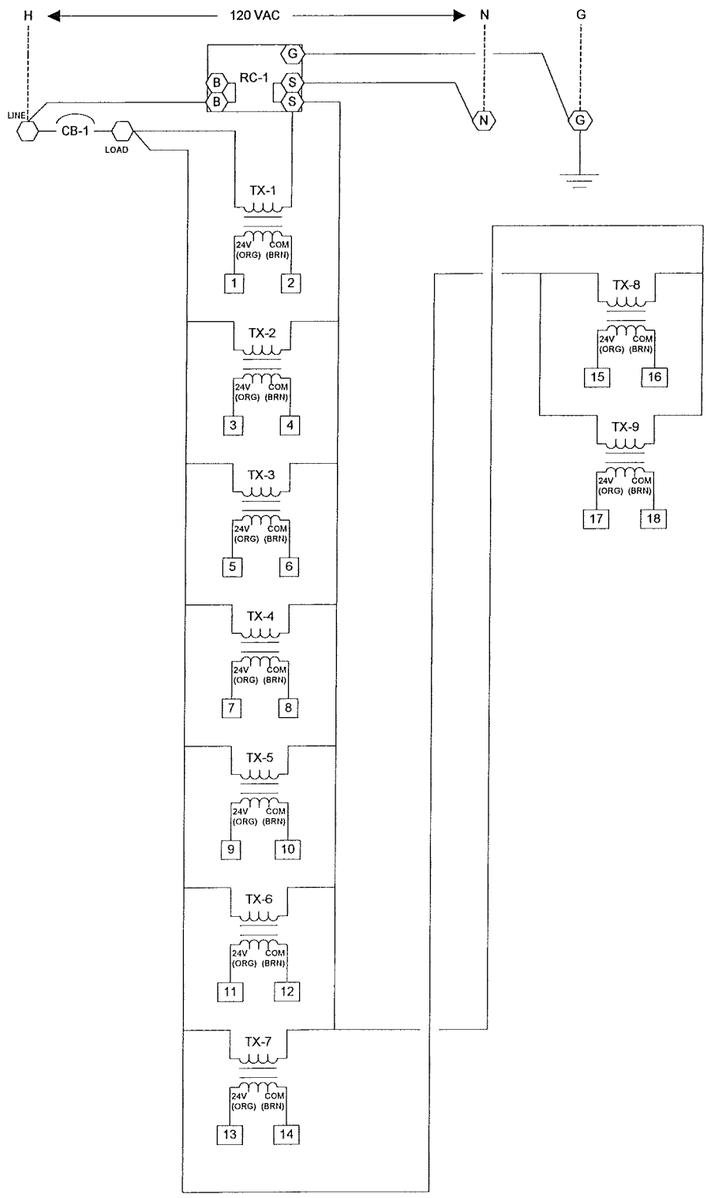
4TH FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
NUMBER		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
DATE: 03/31/08		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY	DRAWN DATE	APPROVED BY / APPROVED DATE
TIME: 11:16 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
FILE NAME: msdetg.vsd					DRAWING NUMBER: 14.18		

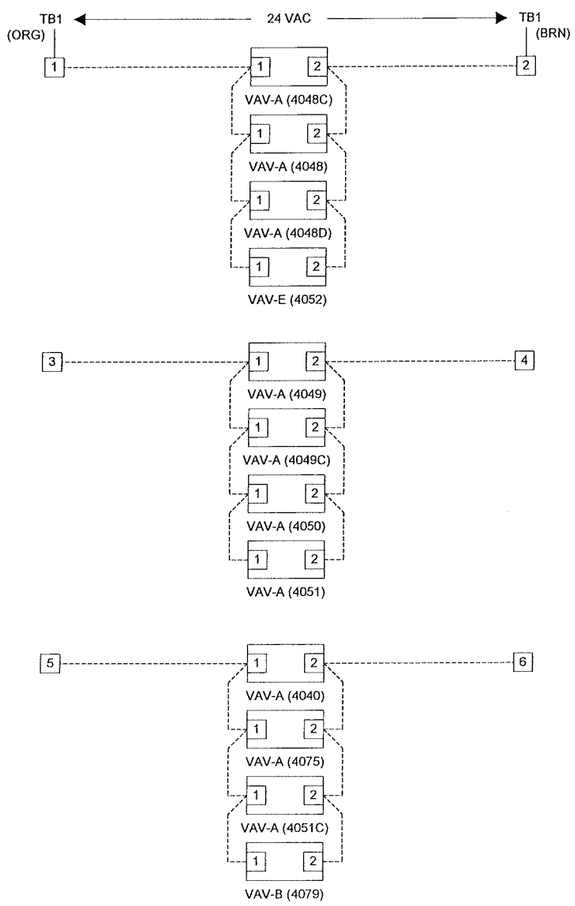
DETAIL G (CONT.)

TYPICAL OF 1

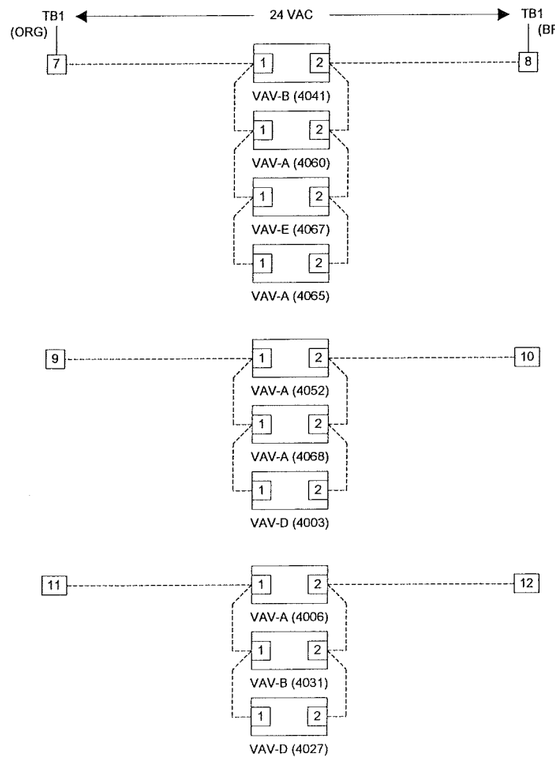
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

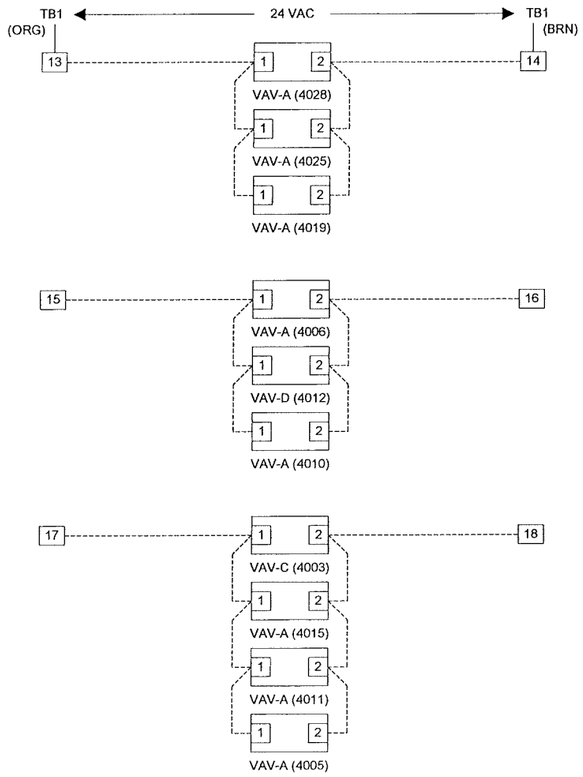
4TH FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:43 PM	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME: msdetgpw1.vsd	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490			CONTRACT NUMBER: 0 3109-0044		
					DRAWING NUMBER: 14.19		

DETAIL G (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



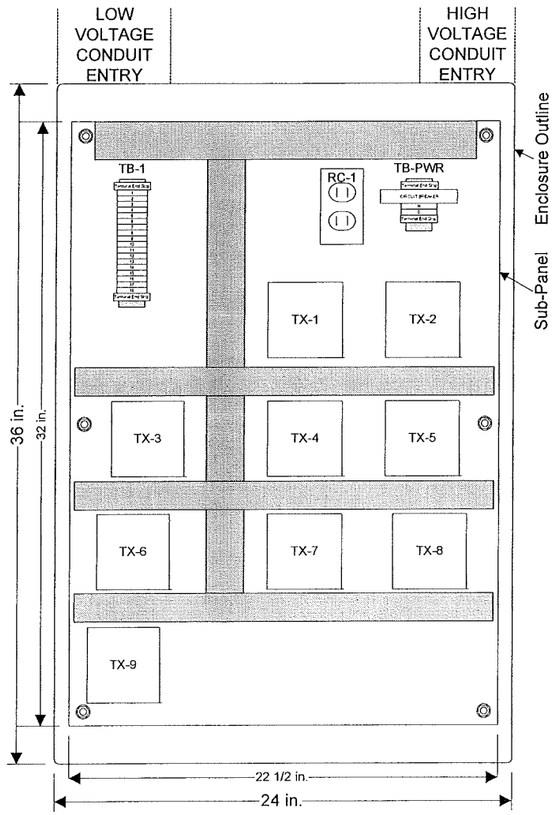
Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

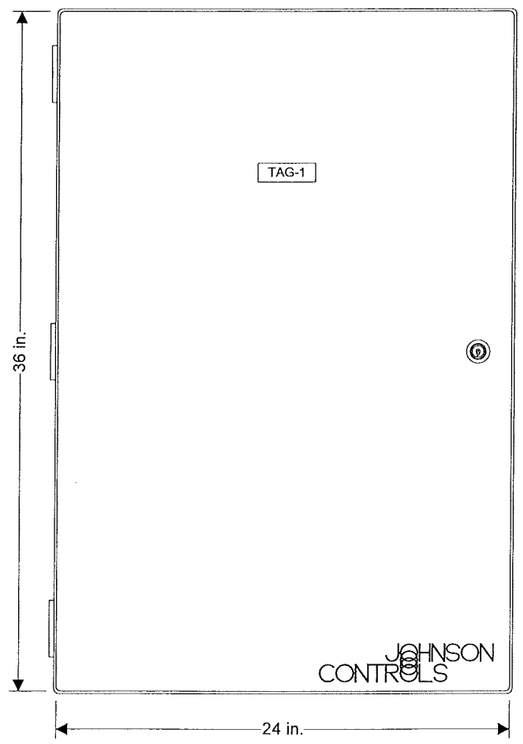
4TH FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title							
NUMBER	MISCELLANEOUS DETAILS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME 01:42 PM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE						
FILE NAME Msdetgpw2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 14.20			

DETAIL H
TYPICAL OF 1



PANEL P-17 LOCATED IN 5045



PANEL FACE TAGS:
TAG-1: PANEL P-17
5th FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-17	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	18	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	9	PD-114-02	XFMR,120/24VAC,96VA

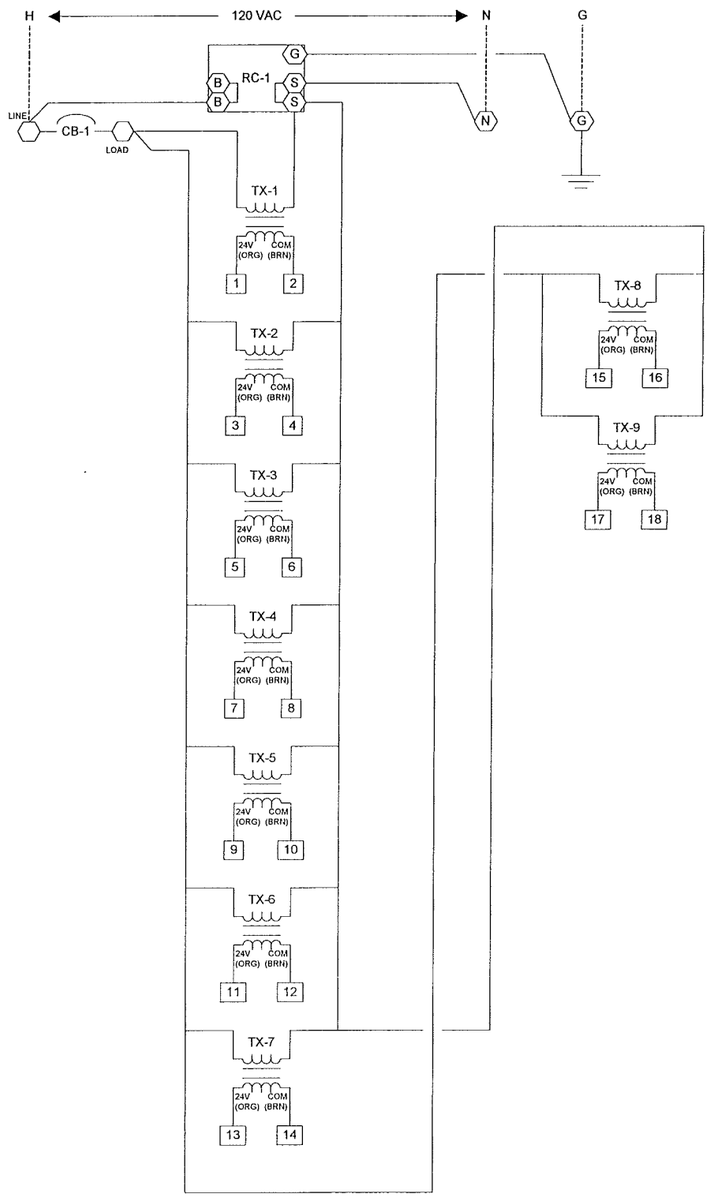
5th FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:42 PM		Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: msdeth.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.21	

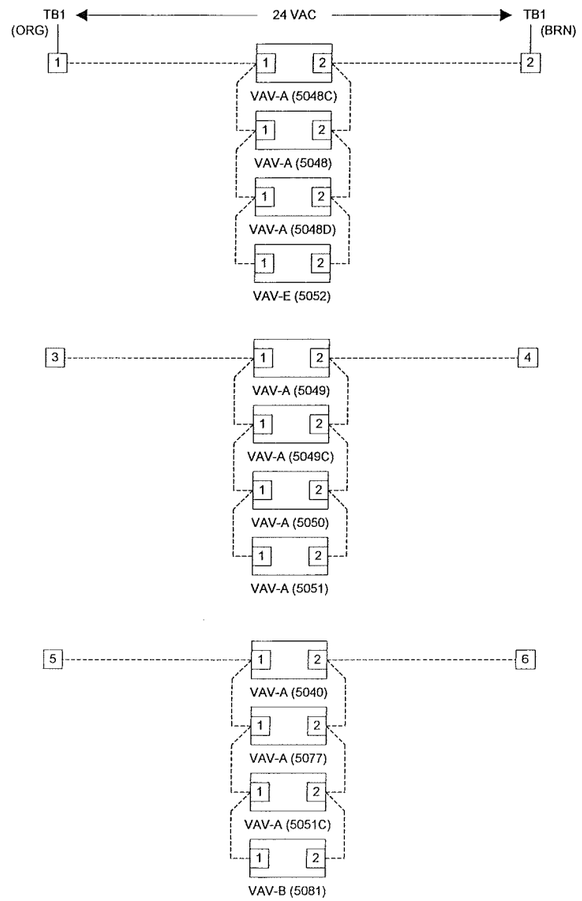
DETAIL H (CONT.)

TYPICAL OF 1

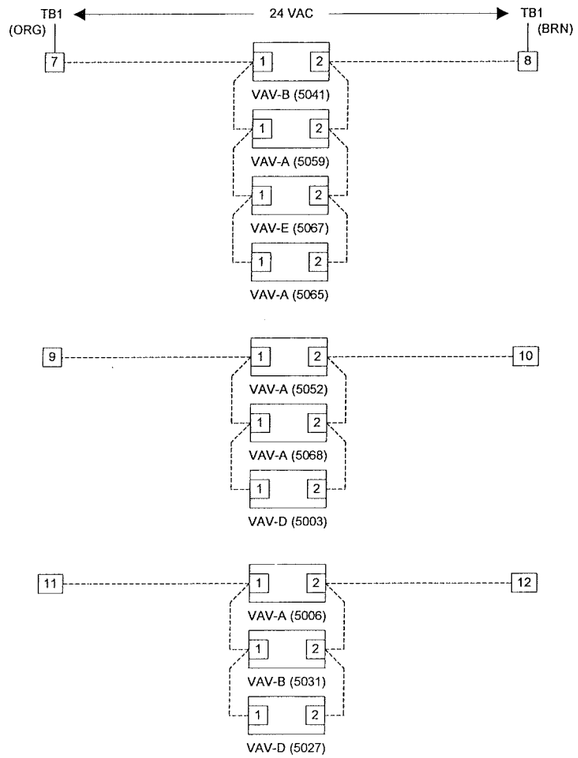
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

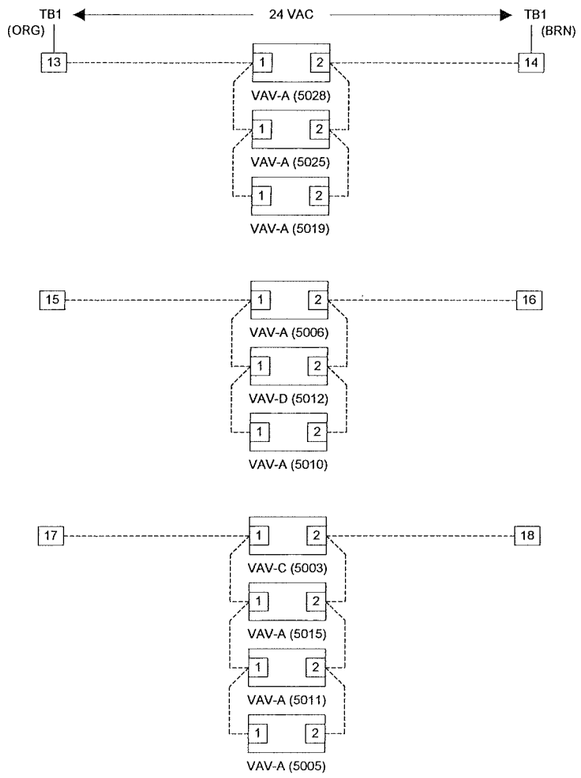
5TH FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
DATE 04/16/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:36 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	Project Title	Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME msdethpw1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	
						DRAWING NUMBER: 14.22	

DETAIL H (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



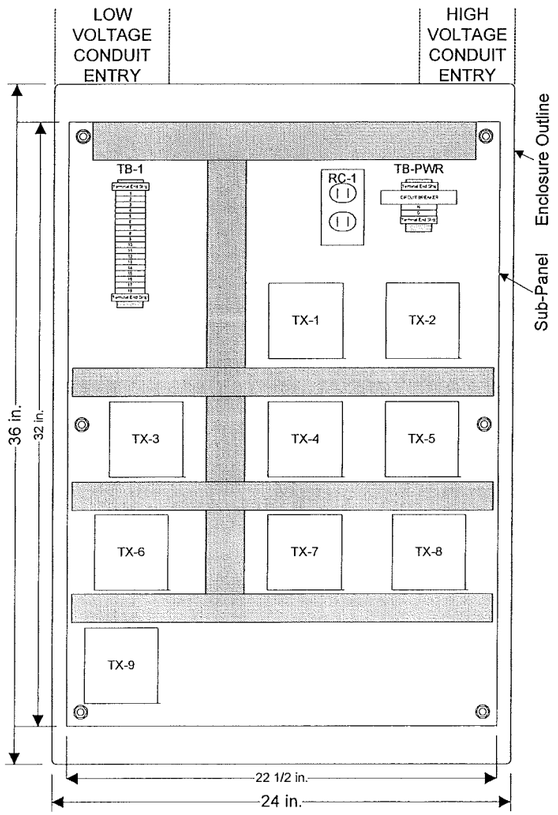
5TH FLOOR VMA TRANSFORMER PANEL WIRING

Wiring Legend

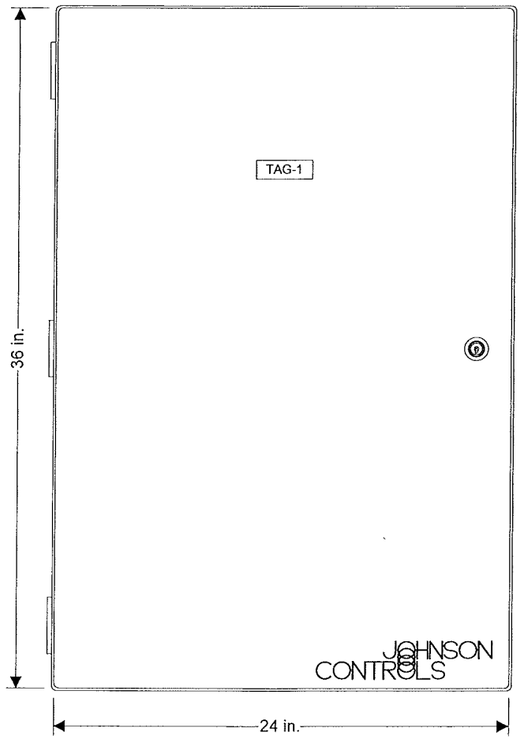
- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title							
NUMBER	MISCELLANEOUS DETAILS							
			1	RECORD DRAWINGS		03/30/08	WCS	
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	
TIME 01:36 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044				
FILE NAME Msdethpw2.vsd				DRAWING NUMBER 14.23				

DETAIL I
TYPICAL OF 1



PANEL P-18 LOCATED IN 6045



PANEL FACE TAGS:
TAG-1: PANEL P-18
6th FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
P-18	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	18	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	1	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	9	PD-114-02	XFMR,120/24VAC,96VA

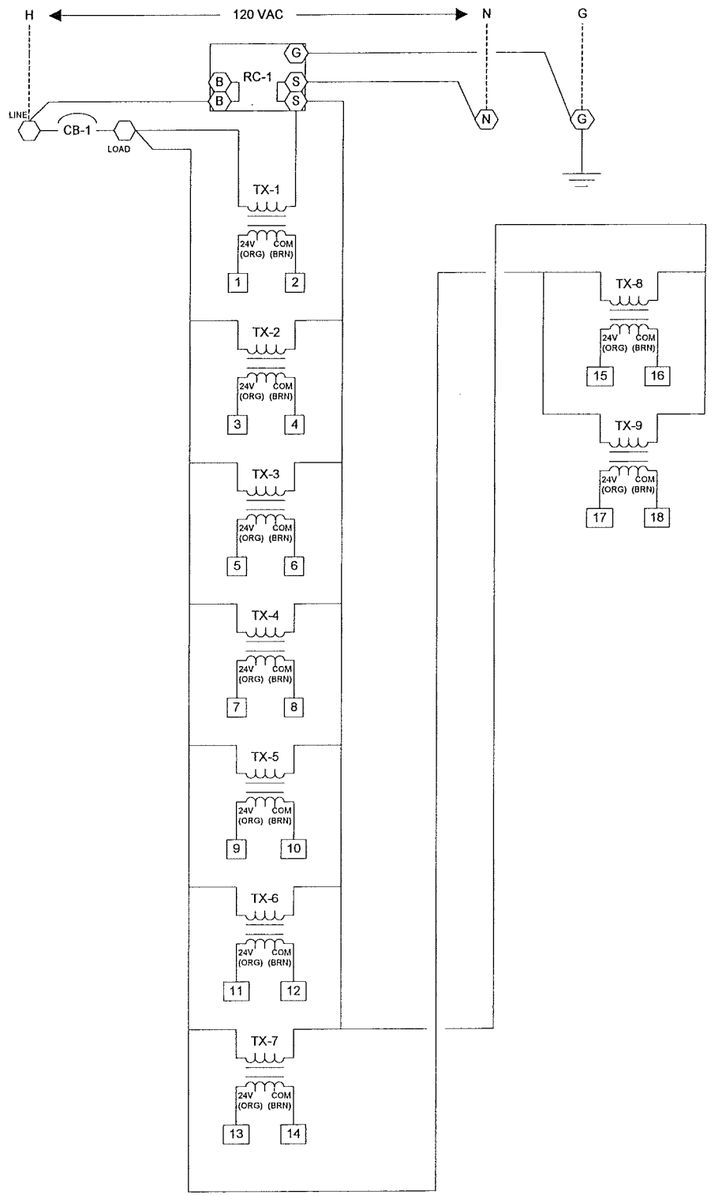
6th FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title: MISCELLANEOUS DETAILS						
NUMBER			1	RECORD DRAWINGS		03/30/08	WCS
DATE: 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 01:35 PM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME: msdeti.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.24		

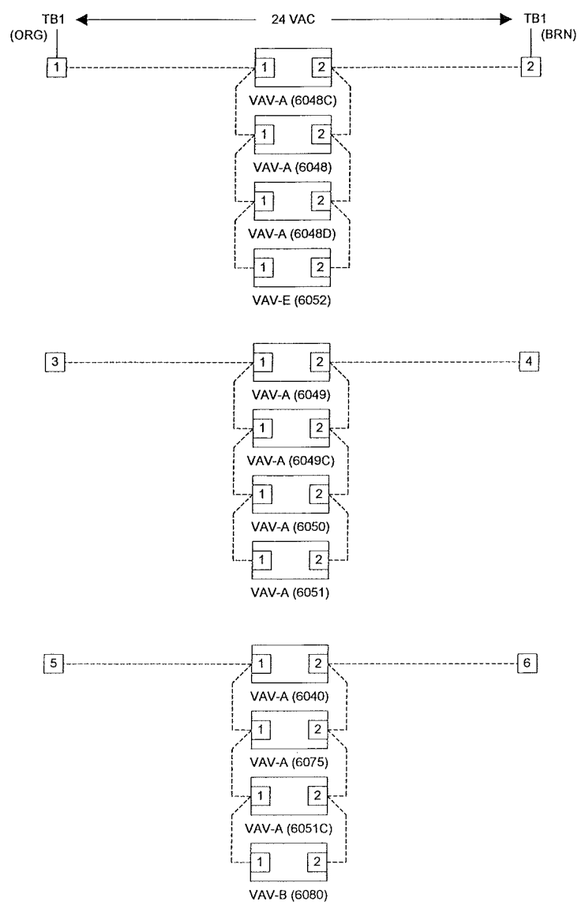
DETAIL I (CONT.)

TYPICAL OF 1

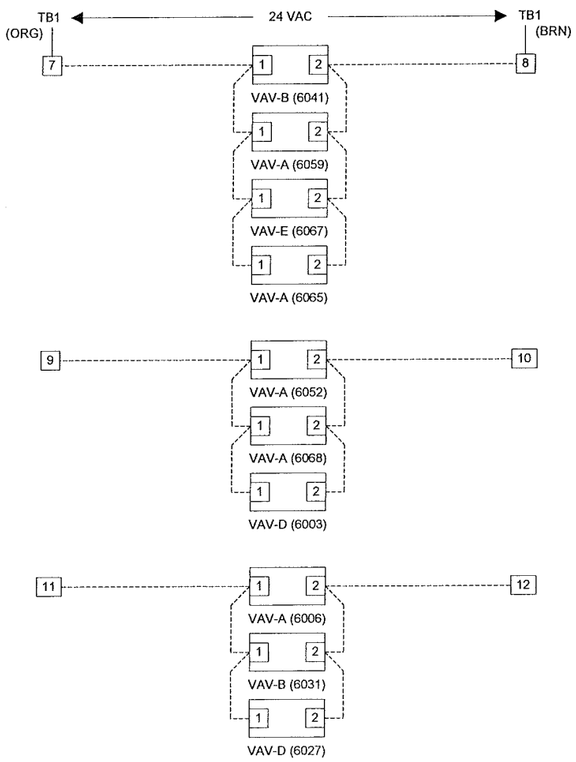
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

6th FLOOR VMA TRANSFORMER PANEL WIRING

		1	RECORD DRAWINGS		03/30/08	WCS
REFERENCE DRAWING		NO.	REVISION-LOCATION		ECN DATE	BY
Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	

REVISION INFORMATION
NUMBER
DATE: 03/31/08
TIME: 11:27 PM
FILE NAME: msdetipw1.vsd

Drawing Title: MISCELLANEOUS DETAILS

Project Title:
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information:
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

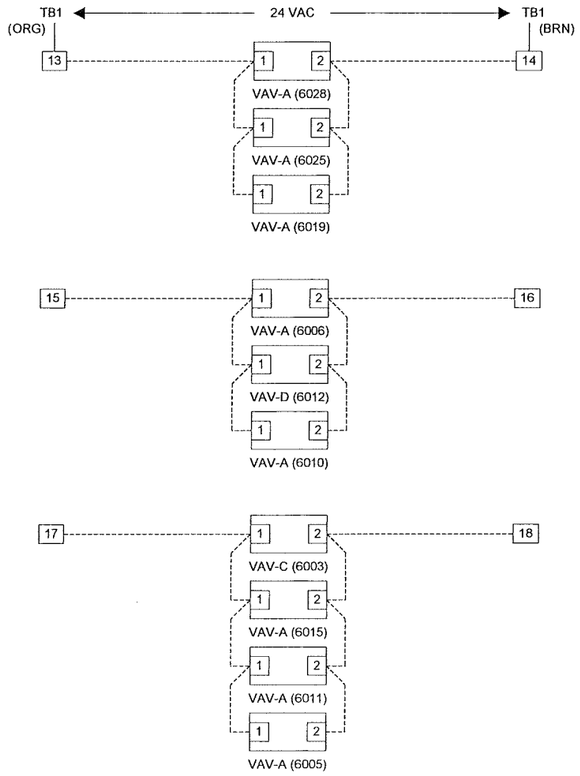
CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.25

DETAIL I (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



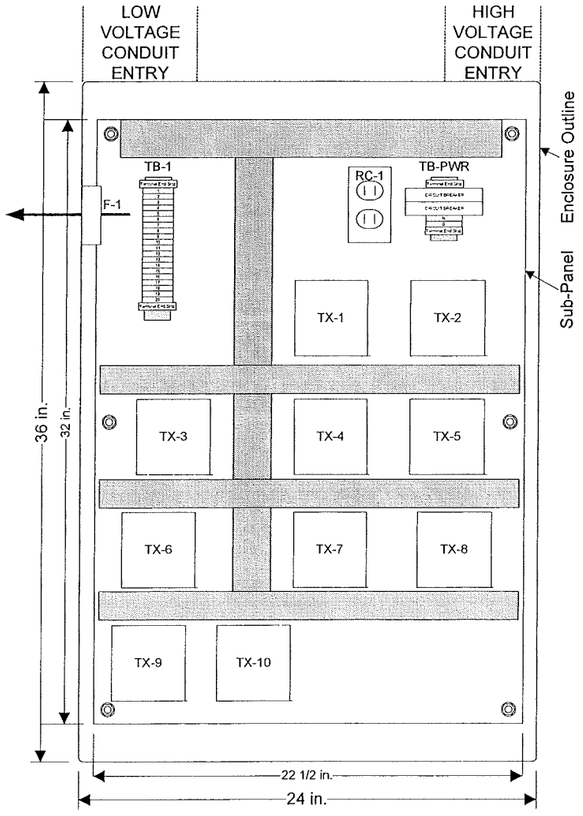
Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

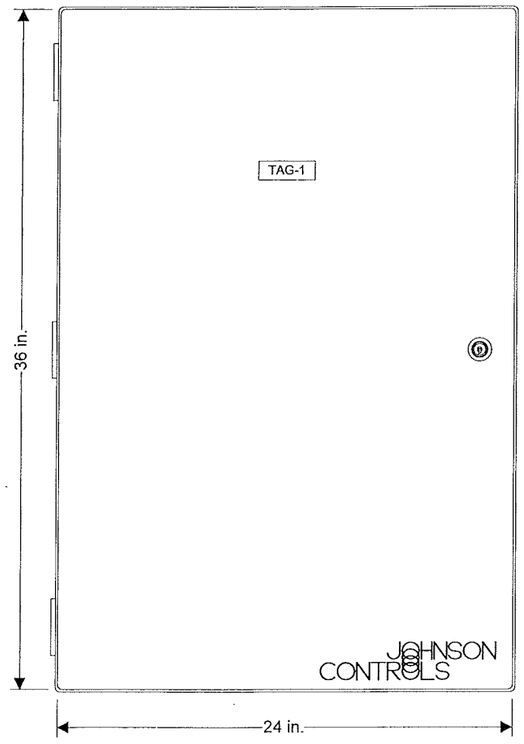
6TH FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title							
NUMBER	MISCELLANEOUS DETAILS							
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 01:35 PM		Sales Engineer: GLA; Project Manager: SEL; Application Engineer: RJM; DRAWN BY/DATE; APPROVED BY/DATE					
	Project Title	Branch Information			CONTRACT NUMBER		
FILE NAME Msdetipw2.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		0 3109-0044		
					DRAWING NUMBER 14.26		

DETAIL J
TYPICAL OF 1



PANEL P-19 LOCATED IN 7045



PANEL FACE TAGS:
TAG-1: PANEL P-19
7th FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
F-1	1	4WT40	DAYTON-3-1/8" SQUARE AXIAL FAN-GRAINGER
	1	4YD96	AYTON-3-1/8" WIRE FAN GUARD-GRAINGER
P-19	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	20	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	2	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	10	PD-114-02	XFMR,120/24VAC,96VA

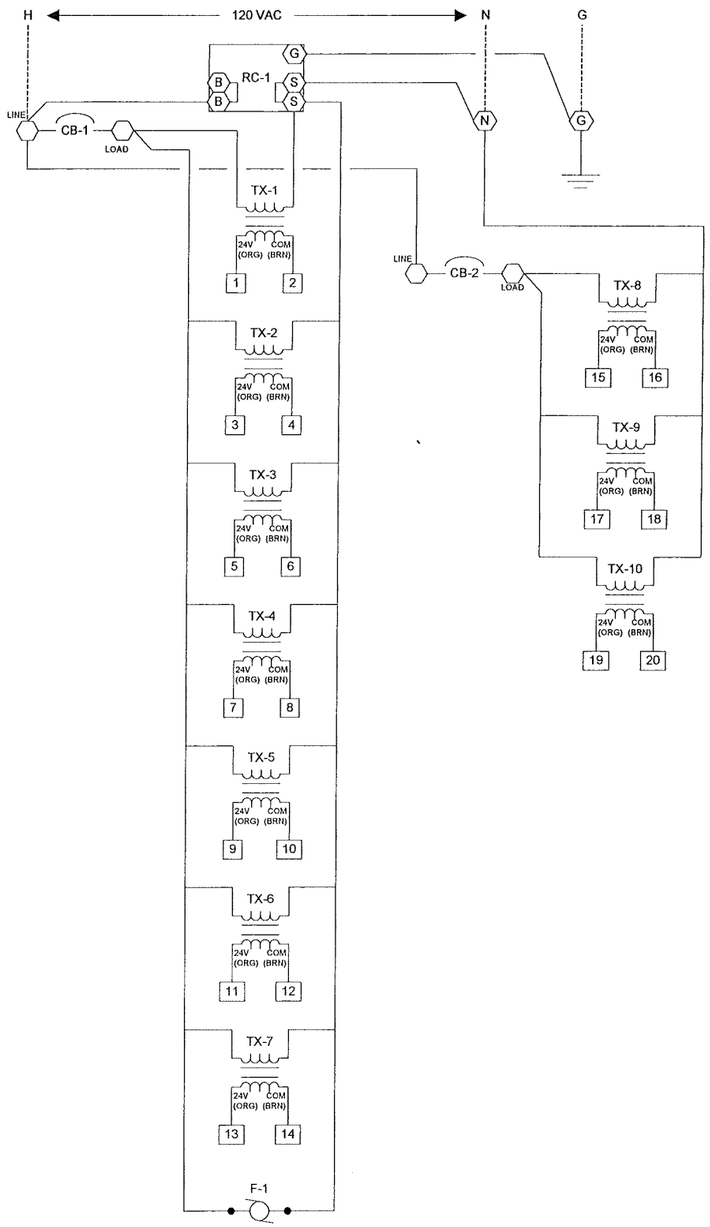
7th FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION	Drawing Title					
NUMBER	MISCELLANEOUS DETAILS					
DATE 04/16/08			1	RECORD DRAWINGS	03/30/08	WCS
TIME 01:29 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN DATE	BY
FILE NAME msdetj.vsd	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.27	

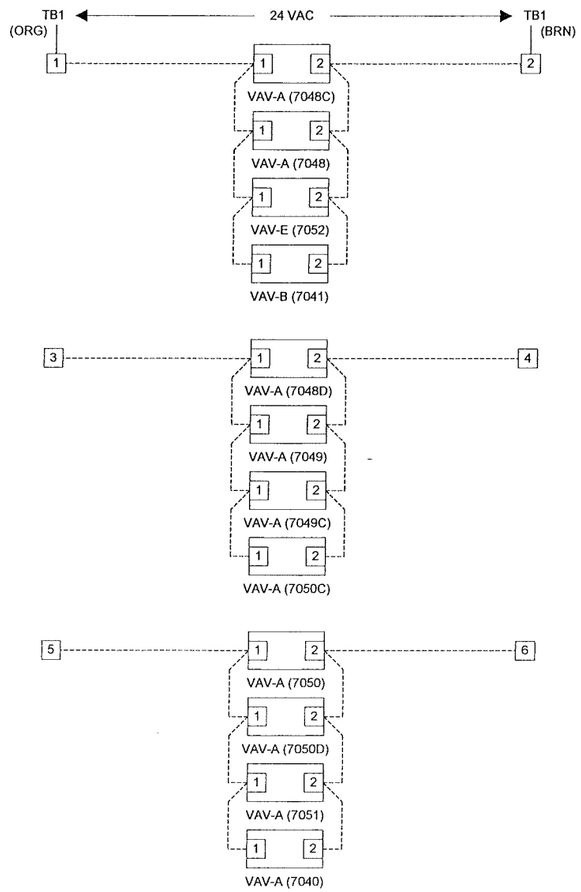
DETAIL J (CONT.)

TYPICAL OF 1

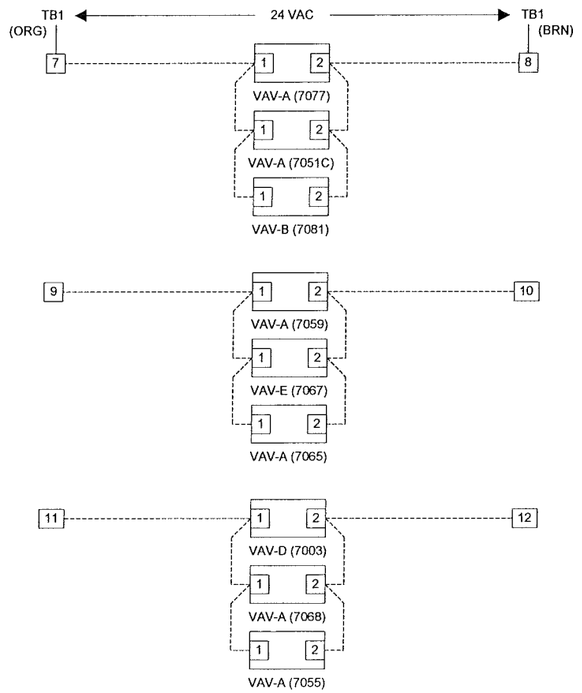
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

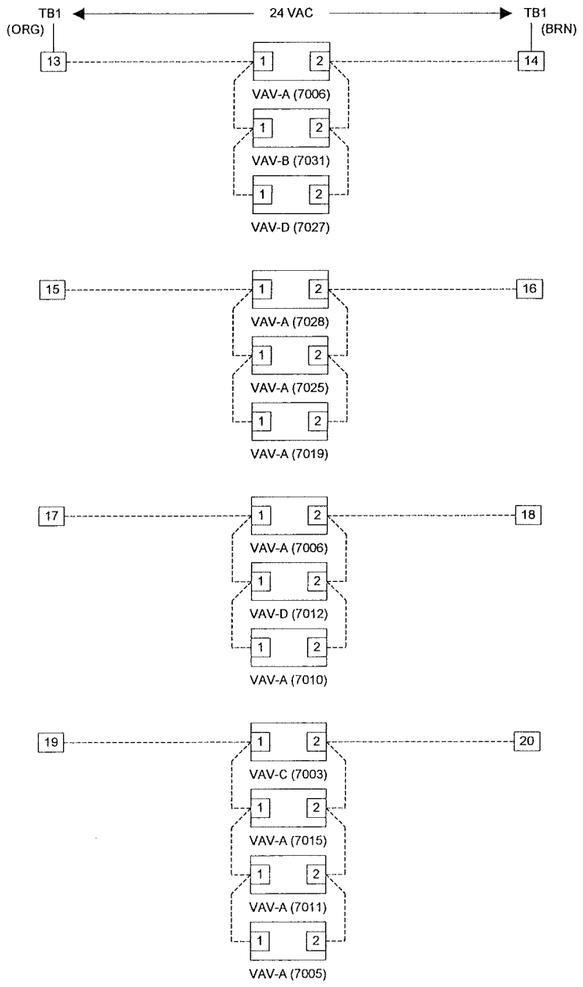
7th FLOOR VMA TRANSFORMER PANEL WIRING

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 01:28 PM	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	
FILE NAME msdetjpw1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	CONTRACT NUMBER 0 3109-0044	DRAWING NUMBER 14.28		

DETAIL J (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



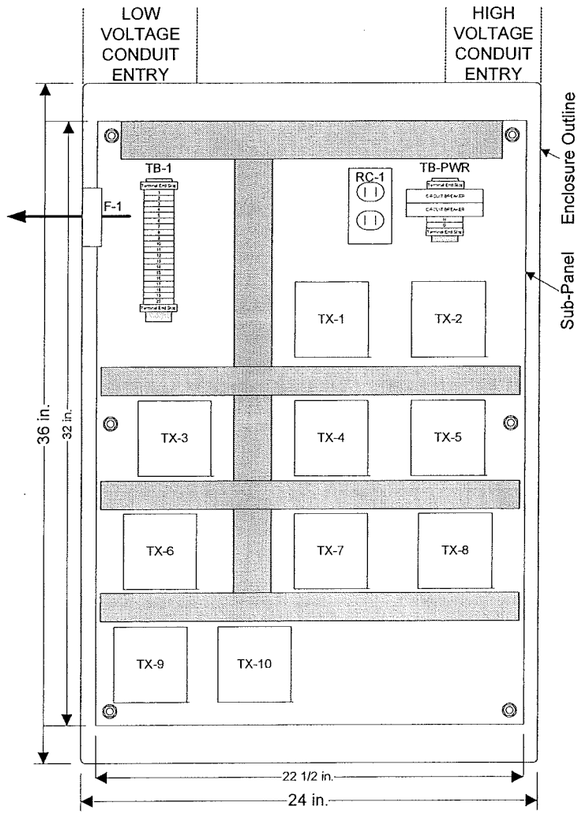
7TH FLOOR VMA TRANSFORMER PANEL WIRING

Wiring Legend

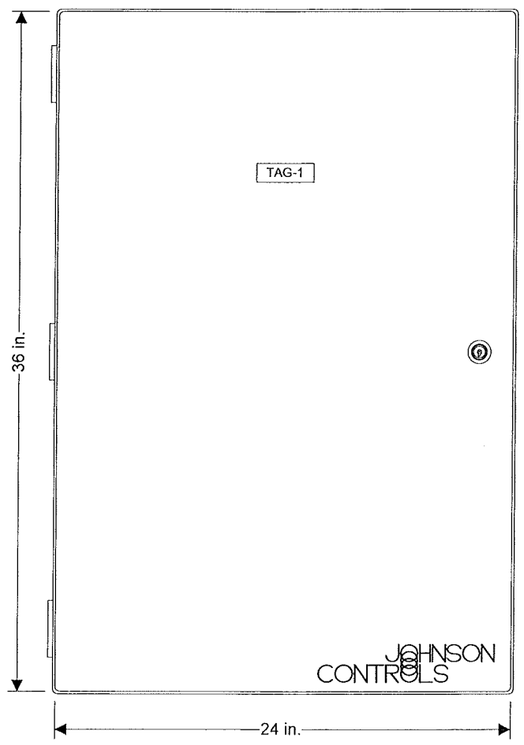
- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title						
NUMBER	MISCELLANEOUS DETAILS						
DATE 04/16/08			1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:26 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer: GLA / Project Manager: SEL / Application Engineer: RJM		DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME Msdetjpw2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044		
					DRAWING NUMBER: 14.29		

DETAIL K
TYPICAL OF 1



PANEL P-20 LOCATED IN 8045



PANEL FACE TAGS:
TAG-1: PANEL P-20
8th FLOOR VMA TX PANEL
JCI 0 3109-0044

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Panel Devices:			
F-1	1	4WT40	DAYTON-3-1/8" SQUARE AXIAL FAN-GRAINGER
	1	4YD96	AYTON-3-1/8" WIRE FAN GUARD-GRAINGER
P-20	1	PAN-ENC2436WDP	PANEL, HOFFMAN 24X36X9 PERF-SUB W/ DOOR
RC-1	1	PD-117-02	RECEPTACLE DUPLEX IVORY
	1	PD-121-01	BOX COVER RECPT,EAGLE 2510
	1	PD-121-14	HANDY BOX, 2-1/8IN DEEP
TAG-1	1	NAMETAG-CUSTOM	1"X3" TAG, 3-LINES MAX, CUSTOM PNL FACE
TB-1	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	20	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TB-PWR	2	PD-112-09	CIRCUIT BREAKER,10A,SQ-D QOU-110
	2	PD-113-44	END CLAMP, WIELAND Z5.522.8553.0
	2	PD-113-52	TERM BLK,6-SQ-MM WIRE SLOT,WIELAND
	1	PD-113-53	END PLATE F/113-52 TERM BLK,WIELAND
TX-x	10	PD-114-02	XFMR,120/24VAC,96VA

8th FLOOR VMA TRANSFORMER PANEL

REVISION INFORMATION
NUMBER
DATE 04/16/08
TIME 01:26 PM
FILE NAME msdetk.vsd

Drawing Title: MISCELLANEOUS DETAILS

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

Project Title:
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

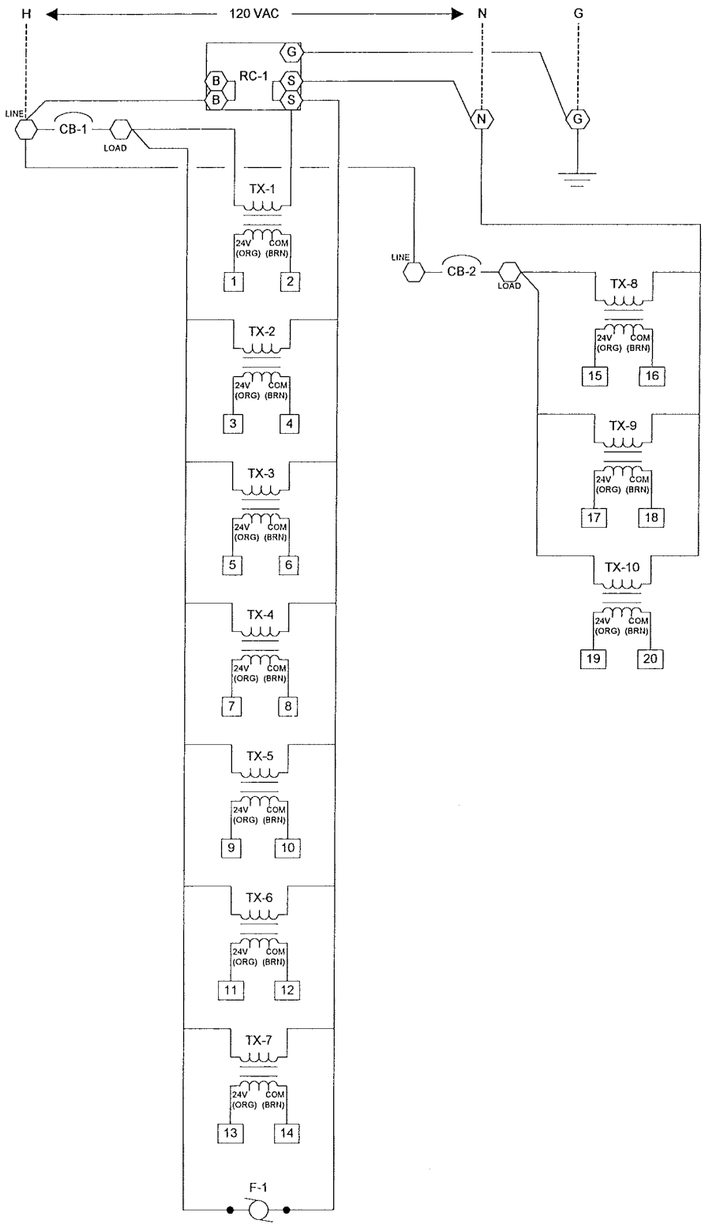
Branch Information:
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044
DRAWING NUMBER: 14.30

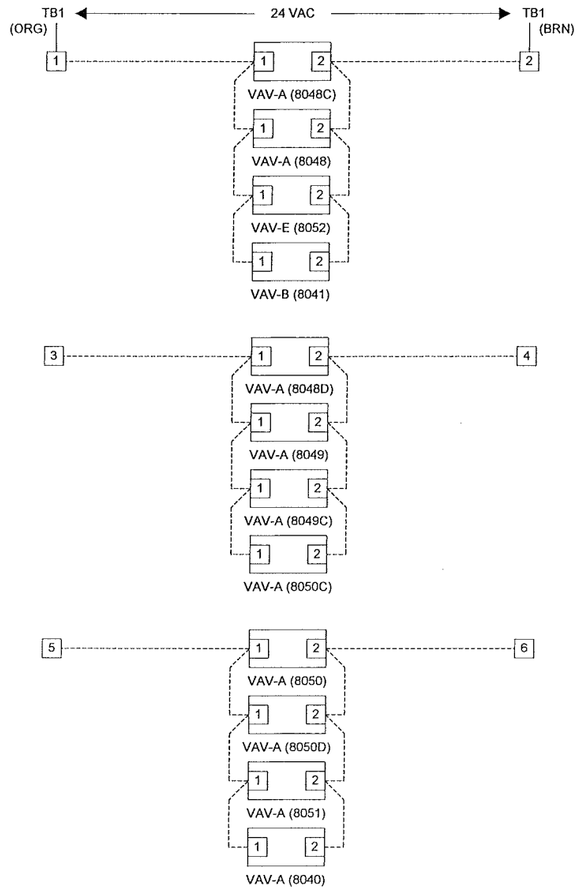
DETAIL K (CONT.)

TYPICAL OF 1

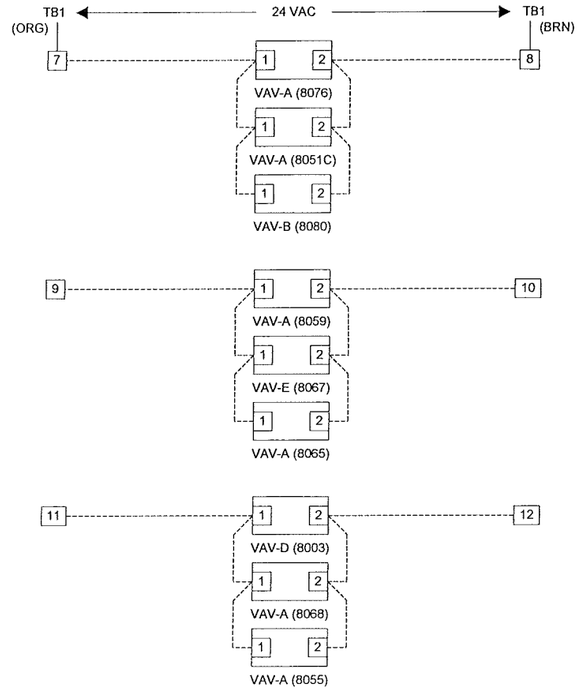
LINE VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



LOW VOLTAGE WIRING DIAGRAM



8TH FLOOR VMA TRANSFORMER PANEL WIRING

Wiring Legend

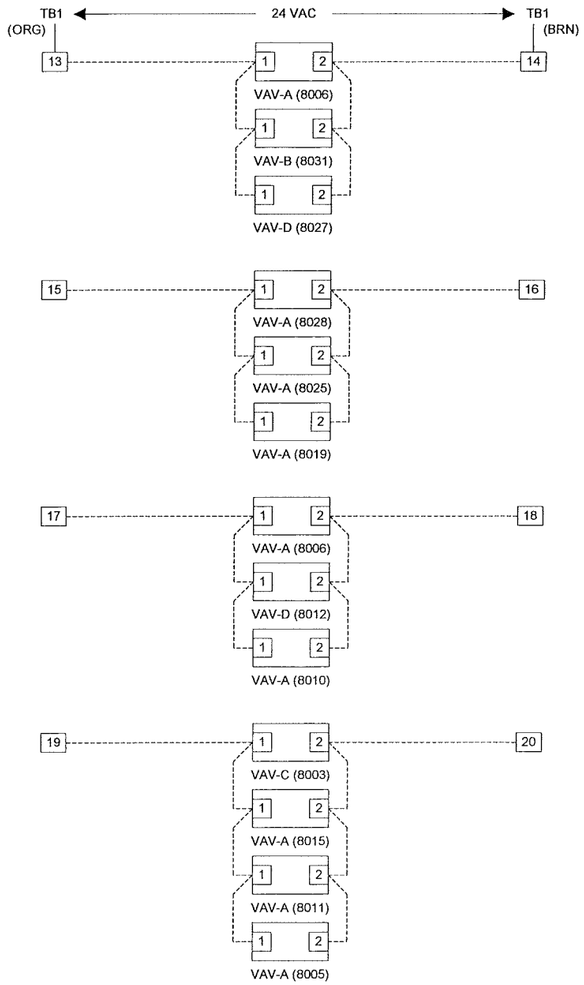
- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

REVISION INFORMATION	Drawing Title					
NUMBER	MISCELLANEOUS DETAILS					
DATE 04/16/08		1	RECORD DRAWINGS		03/30/08	WCS
TIME 01:26 PM		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE / BY
	Project Title	Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE
FILE NAME msdetkpw1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division	Branch Information: Madison Branch, 2400 Kilgust Road, Madison, WI 53713, Phone: 608-222-9100, Fax: 608-222-9490	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.31	

DETAIL K (CONT.)

TYPICAL OF 1

LOW VOLTAGE WIRING DIAGRAM



Wiring Legend

- Pneumatic Tubing
- Low Voltage Terminal
- Cable
- Line Voltage Terminal
- Panel Wiring by JCI
- Field Wiring by Others
- VAC Power

8TH FLOOR VMA TRANSFORMER PANEL WIRING

		1	RECORD DRAWINGS		03/30/08	WCS
REFERENCE DRAWING		NO.	REVISION-LOCATION		ECN	DATE	BY

Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED	
			BY	DATE	BY	DATE
GLA	SEL	RJM				

REVISION INFORMATION
NUMBER
DATE: 04/16/08
TIME: 01:25 PM
FILE NAME: Msdetkpw2.vsd

Drawing Title: MISCELLANEOUS DETAILS

Project Title:
DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

JOHNSON CONTROLS
Systems & Services Division

Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

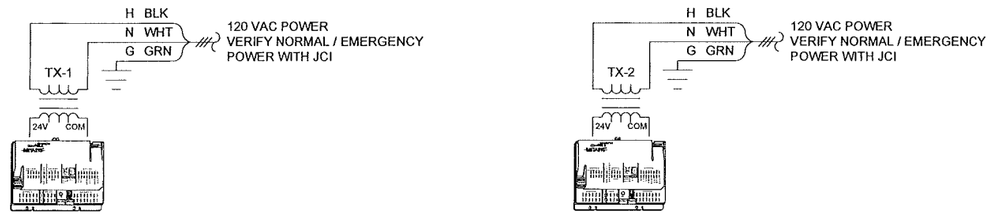
CONTRACT NUMBER: 0 3109-0044

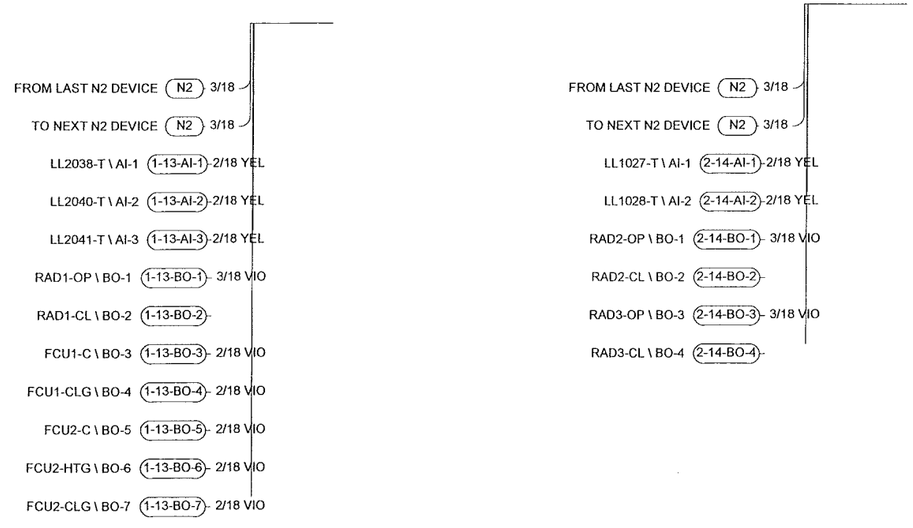
DRAWING NUMBER: 14.32

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
TX-x	2	Y63T22-0	XFMR,120-208-240/24,50VA,PLATE [Y63SJB]
UNT-13	1	AS-UNT140-1	CNTRLR,DIG,UNT,6AI,4BI,8BO,SCREW
UNT-14	1	AS-UNT141-1	CNTRLR,DIG,UNT,6AI,4BI,6BO,2AO,SCR

DETAIL L
TYPICAL OF 1



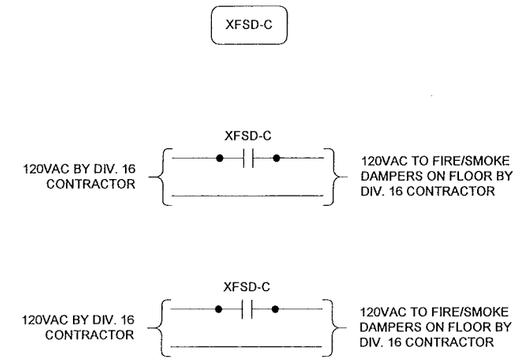


MISCELLANEOUS UNT CONTROLLERS

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
xFSD-C	1	RIB24P30	30AMP DPDT 24VAC/DC

DETAIL M
TYPICAL OF 10



REV	FLOOR	RELAY LOCATED IN ROOM #	RELAY WIRED TO
	LL 2	LL2002	VMA SERVING LL2006 (VAV-A)
	LL 1	LL1016	VMA SERVING LL1018 (VAV-B)
	1ST	1035	VMA SERVING 1034 (VAV-A)
	2ND	2053	VMA SERVING 2056 (VAV-B)
	3RD	3096	VMA SERVING 3099 (VAV-B)

REV	FLOOR	RELAY LOCATED IN ROOM #	RELAY WIRED TO
	4TH	4046	VMA SERVING 4048C (VMA-A)
	5TH	5046	VMA SERVING 5048C (VMA-A)
	6TH	6046	VMA SERVING 6048C (VMA-A)
	7TH	7046	VMA SERVING 7048C (VMA-A)
	8TH	8046	VMA SERVING 8048C (VMA-A)

FIRE / SMOKE DAMPERS CONTROL RELAYS:

A control relay will be provided on each floor by JCI. This relay will be wired to a controller to control the operation of the fire / smoke dampers on a per floor basis. Power wiring to the relay contacts and from the relay contacts to the fire / smoke dampers on the floor will be by the division 16 contractor.

REVISION INFORMATION
NUMBER
DATE 04/16/08
TIME 01:24 PM
FILE NAME msdetlm.vsd

Drawing Title: MISCELLANEOUS DETAILS

Project Title: DANE COUNTY COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WI 53703

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	1	RECORD DRAWINGS		03/30/08	WCS

Sales Engineer	Project Manager	Application Engineer	DRAWN BY	DRAWN DATE	APPROVED BY	APPROVED DATE
GLA	SEL	RJM				

JOHNSON CONTROLS
Systems & Services Division

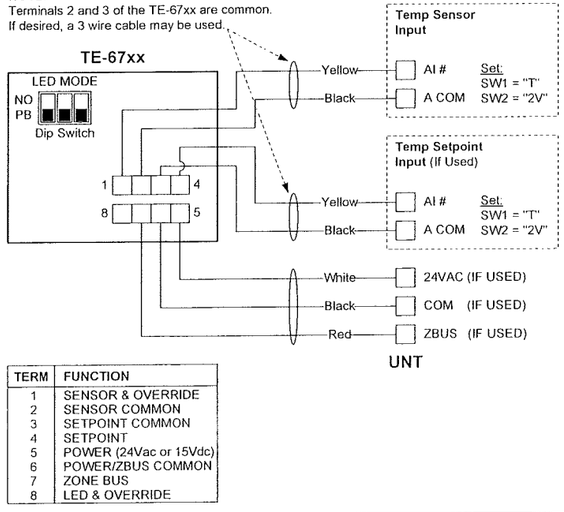
Branch Information
Madison Branch
2400 Kilgust Road
Madison
WI 53713
Phone: 608-222-9100
Fax: 608-222-9490

CONTRACT NUMBER: 0 3109-0044

DRAWING NUMBER: 14.33

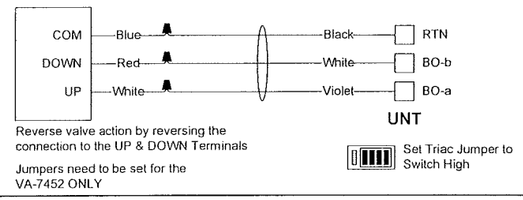
Electrician/Fitter		Point Information			Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					UNT14x						UNT-2	ABOVE LL1028									Power to Controller
					UNT14x	1	14				UNT-2	ABOVE LL1028	0								N2 Trunk
	AI-1	MISC	LL1027-T	Women's TH LL1027 Temp	UNT14x	1	14	AI-1		AI1,A COM	UNT-2	ABOVE LL1028	0		2-14-AI-1	2/18 YEL	1, 2	TE-6700-TE (TB, No PB)		UT137	
	AI-2	MISC	LL1028-T	Storage LL1028 Temp	UNT14x	1	14	AI-2		AI2,A COM	UNT-2	ABOVE LL1028	0		2-14-AI-2	2/18 YEL	1, 2	TE-6700-TE (TB, No PB)		UT137	
	AI-3				UNT14x	1	14	AI-3			UNT-2	ABOVE LL1028	0		2-14-AI-3						
	AI-4				UNT14x	1	14	AI-4			UNT-2	ABOVE LL1028	0		2-14-AI-4						
	AI-5				UNT14x	1	14	AI-5			UNT-2	ABOVE LL1028	0		2-14-AI-5						
	AI-6				UNT14x	1	14	AI-6			UNT-2	ABOVE LL1028	0		2-14-AI-6						
	BI-1				UNT14x	1	14	BI-1			UNT-2	ABOVE LL1028	0		2-14-BI-1						
	BI-2				UNT14x	1	14	BI-2			UNT-2	ABOVE LL1028	0		2-14-BI-2						
	BI-3				UNT14x	1	14	BI-3			UNT-2	ABOVE LL1028	0		2-14-BI-3						
	BI-4				UNT14x	1	14	BI-4			UNT-2	ABOVE LL1028	0		2-14-BI-4						
	BO-1	MISC	RAD2-OP	LL1027 Radiation Open	UNT14x	1	14	BO-1		BO-a,BO-b,RTN	UNT-2	ABOVE LL1028	0		2-14-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr) (Sw Hi)		UT583	
	BO-2	MISC	RAD2-CL	LL1027 Radiation Close	UNT14x	1	14	BO-2			UNT-2	ABOVE LL1028	0		2-14-BO-2						
	BO-3	MISC	RAD3-OP	LL1028 Radiation Open	UNT14x	1	14	BO-3		BO-a,BO-b,RTN	UNT-2	ABOVE LL1028	0		2-14-BO-3	3/18 VIO	White, Red, Blue	VA-7450 (Incr) (Sw Hi)		UT583	
	BO-4	MISC	RAD3-CL	LL1028 Radiation Close	UNT14x	1	14	BO-4			UNT-2	ABOVE LL1028	0		2-14-BO-4						
	BO-5				UNT14x	1	14	BO-5			UNT-2	ABOVE LL1028	0		2-14-BO-5						
	BO-6				UNT14x	1	14	BO-6			UNT-2	ABOVE LL1028	0		2-14-BO-6						
	AO-1				UNT14x	1	14	AO-1			UNT-2	ABOVE LL1028	0		2-14-AO-1						
	AO-2				UNT14x	1	14	AO-2			UNT-2	ABOVE LL1028	0		2-14-AO-2						

DETAIL UT137 — TE-6700 (Terminal Block) - NO PB



TERM	FUNCTION
1	SENSOR & OVERRIDE
2	SENSOR COMMON
3	SETPOINT COMMON
4	SETPOINT
5	POWER (24Vac or 15Vdc)
6	POWER/ZBUS COMMON
7	ZONE BUS
8	LED & OVERRIDE

DETAIL UT583 — INCREMENTAL CONTROL to VA-7450 (Switch High)



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

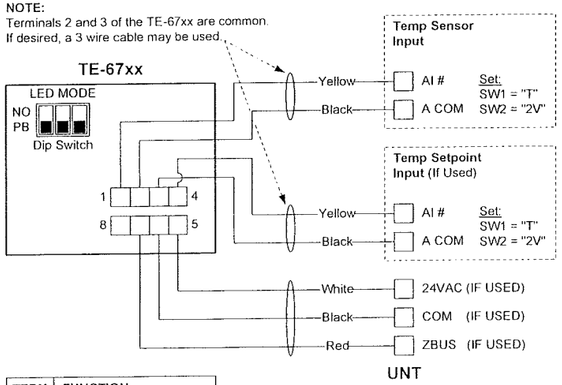
Set Triac Jumper to Switch High

REVISION INFORMATION	Drawing Title																						
NUMBER	POIJNT SCHEDULE																						
DATE 04/18/08		REFERENCE DRAWING		NO	REVISION-LOCATION											ECN	DATE	BY					
TIME 10:00 AM		Sales Engineer	Project Manager	Application Engineer	DRAWN											APPROVED							
		GLA	SEL	RJM	BY	DATE										BY	DATE						
FILE NAME msdetlps2.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division	Branch Information: Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782	CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: 14.34																		

Electrician/Fitter	Point Information				Controller Information						Panel Information				Intermedi	Field Device					
Tag	Point Type	System Name	Object Name	Expanded ID	Controller Type	Trunk Nbr	Trunk Addr.	Cable Destination Bay/Terminal	Module Type	Termination Out	Panel	Panel Location	Slot Number	Reference Drawing	Cable Number	Wiring /Tubing	Termination In	Device	Location	Ref Detail Shape	Comment
					UNT14x						UNT-1	ABOVE LL2038									Power to Controller
					UNT14x	1	13				UNT-1	ABOVE LL2038	0								N2 Trunk
	AI-1	MISC	LL2038-T	Corridor LL2038 Temp	UNT14x	1	13	AI-1		AI1,A COM	UNT-1	ABOVE LL2038	0		1-13-AI-1	2/18 YEL	1, 2	TE-6700-TE (TB, No PB)		UT137	
	AI-2	MISC	LL2040-T	Telecom LL2040 Temp	UNT14x	1	13	AI-2		AI2,A COM	UNT-1	ABOVE LL2038	0		1-13-AI-2	2/18 YEL	1, 2	TE-6700-TE (TB, No PB)		UT137	
	AI-3	MISC	LL2041-T	Recw/Screen LL2041 Temp	UNT14x	1	13	AI-3		AI3,A COM	UNT-1	ABOVE LL2038	0		1-13-AI-3	2/18 YEL	1, 2	TE-6700-TE (TB, No PB)		UT137	
	AI-4				UNT14x	1	13	AI-4			UNT-1	ABOVE LL2038	0		1-13-AI-4						
	AI-5				UNT14x	1	13	AI-5			UNT-1	ABOVE LL2038	0		1-13-AI-5						
	AI-6				UNT14x	1	13	AI-6			UNT-1	ABOVE LL2038	0		1-13-AI-6						
	BI-1				UNT14x	1	13	BI-1			UNT-1	ABOVE LL2038	0		1-13-BI-1						
	BI-2				UNT14x	1	13	BI-2			UNT-1	ABOVE LL2038	0		1-13-BI-2						
	BI-3				UNT14x	1	13	BI-3			UNT-1	ABOVE LL2038	0		1-13-BI-3						
	BI-4				UNT14x	1	13	BI-4			UNT-1	ABOVE LL2038	0		1-13-BI-4						
	BO-1	MISC	RAD1-OP	LL2038 Radiation Open	UNT14x	1	13	BO-1		BO-a,BO-b,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-1	3/18 VIO	White, Red, Blue	VA-7450 (Incr) (Sw Hi)		UT583	
	BO-2	MISC	RAD1-CL	LL2038 Radiation Close	UNT14x	1	13	BO-2			UNT-1	ABOVE LL2038	0		1-13-BO-2						
	BO-3	MISC	FCU1-C	LL2040 Fan Coil Cntl	UNT14x	1	13	BO-3		BO3,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-3	2/18 VIO	See wiring detail	24VAC OUT (Sw Hi)		UT501	
	BO-4	MISC	FCU1-CLG	Fan Coil 1 DX Clg Cntl	UNT14x	1	13	BO-4		BO4,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-4	2/18 VIO	See wiring detail	24VAC OUT (Sw Hi)		UT501	
	BO-5	MISC	FCU2-C	LL2041 Fan Coil Cntl	UNT14x	1	13	BO-5		BO5,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-5	2/18 VIO	See wiring detail	24VAC OUT (Sw Hi)		UT501	
	BO-6	MISC	FCU2-HTG	Fan Coil 2 Htg Cntl	UNT14x	1	13	BO-6		BO6,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-6	2/18 VIO	White, White	VA-7010 (On-Off) (Sw Hi)		UT592	
	BO-7	MISC	FCU2-CLG	Fan Coil 2 Clg Cntl	UNT14x	1	13	BO-7		BO7,RTN	UNT-1	ABOVE LL2038	0		1-13-BO-7	2/18 VIO	White, White	VA-7010 (On-Off) (Sw Hi)		UT592	
	BO-8				UNT14x	1	13	BO-8			UNT-1	ABOVE LL2038	0		1-13-BO-8						

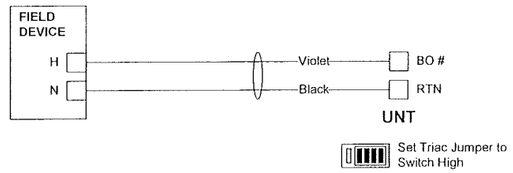
DETAIL UT137 — TE-6700 (Terminal Block) - NO PB

NOTE:
Terminals 2 and 3 of the TE-67xx are common.
If desired, a 3 wire cable may be used.

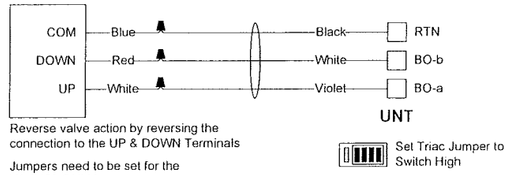


TERM	FUNCTION
1	SENSOR & OVERRIDE
2	SENSOR COMMON
3	SETPOINT COMMON
4	SETPOINT
5	POWER (24Vac or 15Vdc)
6	POWER/ZBUS COMMON
7	ZONE BUS
8	LED & OVERRIDE

DETAIL UT501 — 24 VAC BINARY OUTPUT (Switch High)



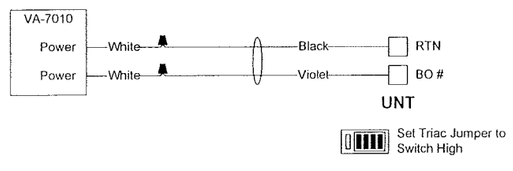
DETAIL UT583 — INCREMENTAL CONTROL to VA-7450 (Switch High)



Reverse valve action by reversing the connection to the UP & DOWN Terminals

Jumpers need to be set for the VA-7452 ONLY

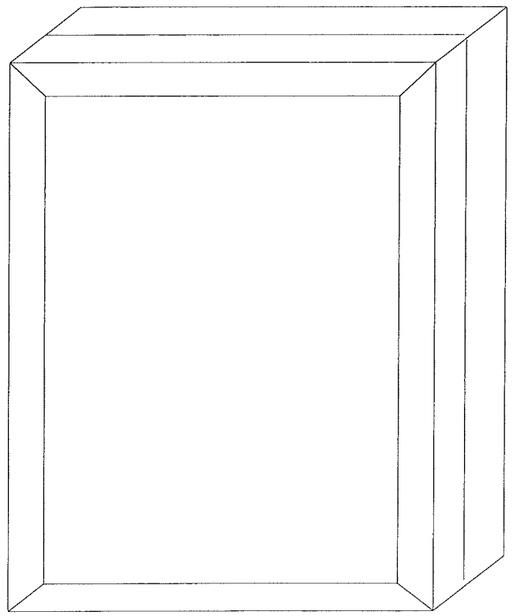
DETAIL UT592 — ON-OFF CONTROL to VA-7010 (Switch High)



REVISION INFORMATION	Drawing Title										
NUMBER	POINT SCHEDULE										
DATE 04/18/08		REFERENCE DRAWING		NO	REVISION-LOCATION		ECN	DATE	BY		
TIME 10:01 AM		Sales Engineer	Project Manager	Application Engineer	DRAWN		APPROVED				
	Project Title	GLA	SEL	RJM	BY	DATE	BY	DATE			
FILE NAME msdetlps1.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI	JOHNSON CONTROLS Systems & Services Division			Branch Information: Appleton Branch 2140 American Drive Neenah WI 54956 Phone: 920-739-2461 Fax: 920-739-4782		CONTRACT NUMBER: 0 3109-0044				
							DRAWING NUMBER: 14.35				

DETAIL N

TYPICAL OF 1



NOTE: A FIRE FIGHTER'S SMOKE CONTROL PANEL WILL BE PROVIDED BY JCI. THE BILL OF MATERIALS WILL BE REVISED AND THE PANEL RESUBMITTED WHEN RFI'S ARE ANSWERED AND UPDATED RISER DRAWINGS ARE ISSUED.

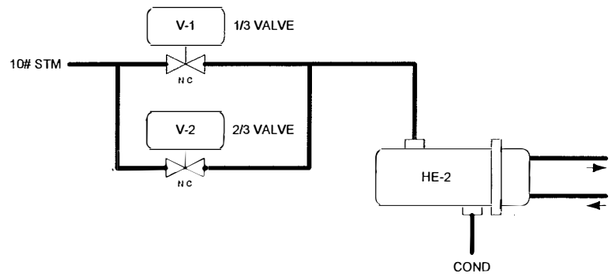
FIREMAN'S CONTROL PANEL:
Provide the following functions:
Auto/Open/Close of combination Fire/Smoke Dampers on a per floor basis.
Auto/Pressurization/Exhaust of Detention Basement level (SCF-1, EF-3, EF-8, AHU-1).
Auto/Exhaust of Parking Basement Level (SCF-2 & EF-7).
Auto/Off Control of AHU-2, 4, 5, 6, 7, 8 Supply Fan.
Auto/Off Control of RF-2, 4, 5, 6, 7, 8.

REVISION INFORMATION	Drawing Title							
NUMBER	MISCELLANEOUS DETAILS							
				1	RECORD DRAWINGS		03/30/08	WCS
DATE 04/16/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
		Sales Engineer	Project Manager	Application Engineer	DRAWN BY / DATE	APPROVED BY / DATE		
		GLA	SEL	RJM				
TIME 01:24 PM	Project Title	JOHNSON CONTROLS			Branch Information	CONTRACT NUMBER		
	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	Systems & Services Division			Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490	0 3109-0044		
FILE NAME Msdetn.vsd						DRAWING NUMBER 14.36		

BILL OF MATERIALS

Designation	Qty	Part Number	Description
Field Devices:			
SNWMLT-E	1	RIBU1S	10AMP SPST-NO+HOA 10-30VAC/DC/120VAC
V-x	0	VALVE	SEE VALVE SCHEDULE

DETAIL O
TYPICAL OF 1



NOTE: WIRING DETAILS NOT AVAILABLE AT TIME OF SUBMITTAL.

SNOWMELT SYSTEM:
All of the control components will be provided with the snowmelt system with the exception of the control valves which will be provided by JCI. JCI will enable the snowmelt system and monitor the run status.

REVISION INFORMATION	Drawing Title							
NUMBER	**MISCELLANEOUS DETAILS**							
			1	RECORD DRAWINGS		03/30/08	WCS
DATE		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
04/16/08		Sales Engineer / Project Manager / Application Engineer / DRAWN / APPROVED					
TIME		GLA / SEL / RJM / BY / DATE / BY / DATE					
01:23 PM	Project Title		Branch Information			CONTRACT NUMBER	
	DANE COUNTY COURTHOUSE **215 SOUTH HAMILTON ST.** **MADISON, WI 53703**	JOHNSON CONTROLS Systems & Services Division	Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490			**0 3109-0044**	
FILE NAME						DRAWING NUMBER	
Msdeto.vsd						**14.37**	

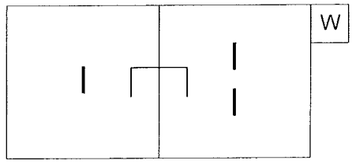
Dane County Courthouse
0 3109-0044

Damper Schedule

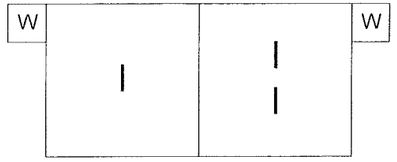
Tag					Damper Information													Actuator Information								
													Duct Size		Damper Size										
Rev	Item	System	Service	Ref. Dwg.	Qty.	Code No.	Fail Pos.	Damper Type	Damper Operation	Blade Type	Bearing Type	Seals	W (in.)	H (in.)	W (in.)*	H (in.)	Area (ft²)	Mtg.	Qty.	Code No.	Pilot	Type	Control Signal	Mtg.	Coupled Detail	Comments
	1	EF-9	OA	H1.1	1	IL35	NC	Volume	Parallel	16 Gauge Galv. Stl.	Synthetic	PVC Coated Polyester	138"	36"	138"	36"	34.5		2	M9216-BAA-2		Electric	120vac			INSULATED DAMPER
	2	EF-9	EA	H1.1	1	IL35	NC	Volume	Parallel	16 Gauge Galv. Stl.	Synthetic	PVC Coated Polyester	42"	18"	42"	18"	5.3		1	M9216-BAA-2		Electric	120vac			INSULATED DAMPER
	3	SCF-2	EA (FAN INLET)	H1.1	1	BY OTHERS	FULL FLOW	-	-	-	-	-	30.25" Dia.		30.25" Dia.		5.0		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	3	AHU-1	EA	H1.2	1	VOPAS-070X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	70"	34"	70"	34"	16.5		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	4	AHU-1	EA	H1.2	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	5	AHU-1	OA	H1.2	1	VOPAS-070X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	70"	34"	70"	34"	16.5		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	6	AHU-1	OA	H1.2	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	7	AHU-1	RA	H1.2	1	VOPAS-070X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	70"	34"	70"	34"	16.5		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	8	AHU-1	RA	H1.2	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	9	AHU-1	FACE & BYPASS	H1.2	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	10	KEF-1	EA	H1.2	1	VPPAS-020X020	NC	Volume	Parallel	Double-Piece	Acetal	Santoprene	20"	20"	20"	20"	2.8		1	M9216-BAA-2		Electric	120vac			
	11	EF-6	EA (FAN INLET)	H1.2	1	BY OTHERS	FULL FLOW	-	-	-	-	-	17.38" Dia.		17.38" Dia.		1.6		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	12	AHU-2	EA	H1.4	1	VOPAS-072X050	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	72"	50"	72"	50"	25.0		2	M9216-HGA-2		Electric	0-10vdc, 0-20mA		B	
	13	AHU-2	OA	H1.4	1	VOPAS-078X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	14	AHU-2	OA	H1.4	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	15	AHU-2	RA	H1.4	1	VOPAS-078X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	16	AHU-2	RA	H1.4	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	17	AHU-2	FACE & BYPASS	H1.4	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	18	AHU-4	EA	H1.6	1	VOPAS-034X046	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	34"	46"	34"	46"	10.9		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	19	AHU-4	OA	H1.6	1	VOPAS-078X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	20	AHU-4	OA	H1.6	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	21	AHU-4	RA	H1.6	1	VOPAS-078X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	22	AHU-4	RA	H1.6	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	23	AHU-4	FACE & BYPASS	H1.6	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	24	AHU-5	EA	H1.7	1	VOPAS-034X046	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	34"	46"	34"	46"	10.9		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	25	AHU-5	OA	H1.7	1	VOPAS-078X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	26	AHU-5	OA	H1.7	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	27	AHU-5	RA	H1.7	1	VOPAS-078X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	28	AHU-5	RA	H1.7	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	29	AHU-5	FACE & BYPASS	H1.7	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	30	AHU-6	EA	H1.8	1	VOPAS-034X046	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	34"	46"	34"	46"	10.9		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	31	AHU-6	OA	H1.8	1	VOPAS-078X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	32	AHU-6	OA	H1.8	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	33	AHU-6	RA	H1.8	1	VOPAS-078X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	34	AHU-6	RA	H1.8	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	35	AHU-6	FACE & BYPASS	H1.8	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	36	AHU-7	EA	H1.9	1	VOPAS-034X046	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	34"	46"	34"	46"	10.9		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	37	AHU-7	OA	H1.9	1	VOPAS-078X034	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	38	AHU-7	OA	H1.9	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	39	AHU-7	RA	H1.9	1	VOPAS-078X034	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	34"	78"	34"	18.4		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	40	AHU-7	RA	H1.9	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	41	AHU-7	FACE & BYPASS	H1.9	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	42	AHU-8	EA	H1.10	1	VOPAS-034X046	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	34"	46"	34"	46"	10.9		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			
	43	AHU-8	OA	H1.10	1	VOPAS-078X030	NC	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	30"	78"	30"	16.3		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	44	AHU-8	OA	H1.10	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	45	AHU-8	RA	H1.10	1	VOPAS-078X030	NO	Volume	Opposed	Double-Piece	Acetal	Santoprene	78"	30"	78"	30"	16.3		1	M9216-HGA-2		Electric	0-10vdc, 0-20mA		A	
	46	AHU-8	RA	H1.10	2	DMPR-KC151																				BLADE-TO-BLADE BRACKET
	47	AHU-8	FACE & BYPASS	H1.10	1	BY OTHERS	FACE	-	-	-	-	-							1	M9216-HGA-2		Electric	0-10vdc, 0-20mA			

*axis dimension do not mount in vertical position.

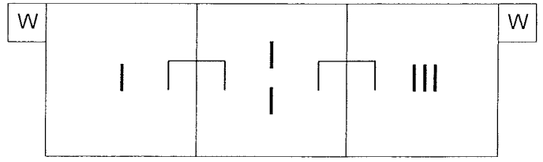
DETAIL A



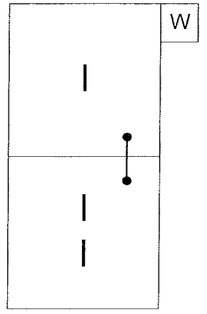
DETAIL B



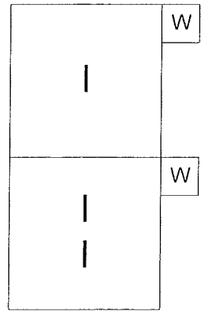
DETAIL C



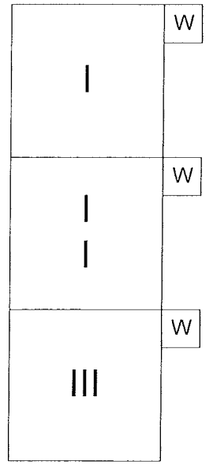
DETAIL D



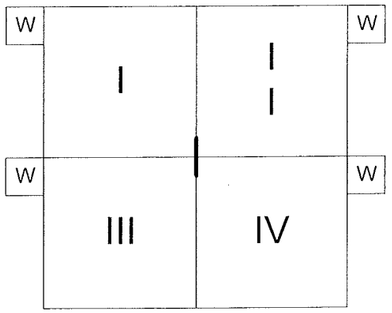
DETAIL E



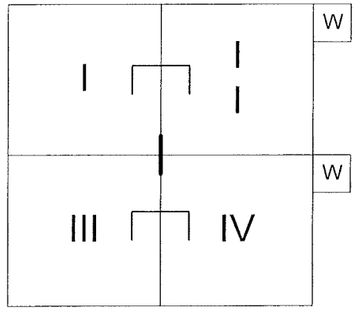
DETAIL F



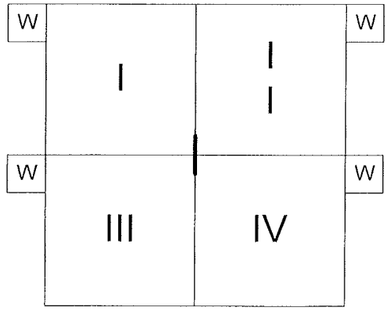
DETAIL G



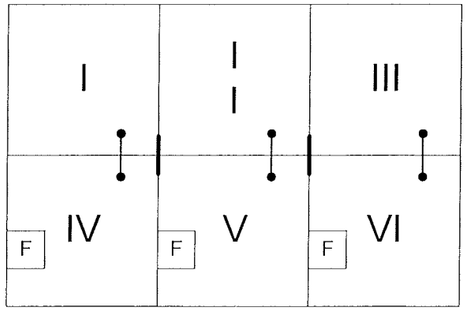
DETAIL H



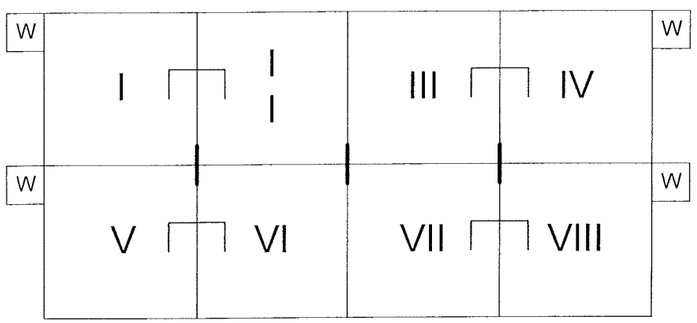
DETAIL I



DETAIL J



DETAIL K



LEGEND

DMPR-KC151 (1) REQUIRED FOR EVERY 24" OF DAMPER HEIGHT

DMPR-KC100

DMPR-KC200 (1) < = FOUR BLADES
(2) > = FOUR BLADES

W WALL MOUNTED ACTUATOR

F FRAME MOUNTED ACTUATOR

NOTE:

THE [W] AND [F] SYMBOLS ARE SHOWN ONLY TO INDICATE THE TYPE OF MOUNTING FOR ACTUATORS. SEE PRODUCT LITERATURE FOR PREFERRED DRIVING BLADES. SEE DAMPER SCHEDULE FOR QUANTITIES OF ACTUATORS REQUIRED.

REVISION INFORMATION	Drawing Title: DAMPER SCHEDULE DETAILS							
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 03/31/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 11:43 PM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division			Branch Information	CONTRACT NUMBER: 0 3109-0044		
FILE NAME: Dpr-det.vsd						DRAWING NUMBER: D1		

Flow Station Schedule

	Tag			Flow Station Information							Transducer Info.			
Rev.	Item	Service	Ref. dwg.	Qty	Model Type	W (in)	H (in)	Area (ft²)	Design Flow (CFM)	Design Velocity (ft/m)	Design VP ("wg)	VP Range ("wg)	Code No.	Comments
	1	AHU-1 (SUPPLY FAN)	H1.2	1	STA104-F	30.88" Dia.		5.198	31,600	6079.261				PLENUM FAN
	2	AHU-1 (RETURN FAN)	H1.2	1	STA104-F	42.94" Dia.		10.052	31,600	3143.653				PLENUM FAN
	3	AHU-2 (SUPPLY FAN)	H1.4	1	STA104-F	30.88" Dia.		5.198	33,600	6464.025				PLENUM FAN
	4	AHU-2 (RETURN FAN)	H1.4	1	STA104-F	35.25" Dia.		6.774	33,600	4960.142				PLENUM FAN
	5	AHU-4 (SUPPLY FAN)	H1.6	1	STA104-F	17.03" Dia.		3.162	18,850	5961.417				DWDI FAN
	6	AHU-4 (RETURN FAN)	H1.6	1	STA104-F	28.94" Dia.		4.566	18,800	4117.389				PLENUM FAN
	7	AHU-5 (SUPPLY FAN)	H1.7	1	STA104-F	17.03" Dia.		3.162	18,850	5961.417				DWDI FAN
	8	AHU-5 (RETURN FAN)	H1.7	1	STA104-F	28.94" Dia.		4.566	18,800	4117.389				PLENUM FAN
	9	AHU-6 (SUPPLY FAN)	H1.8	1	STA104-F	17.03" Dia.		3.162	18,850	5961.417				DWDI FAN
	10	AHU-6 (RETURN FAN)	H1.8	1	STA104-F	28.94" Dia.		4.566	18,800	4117.389				PLENUM FAN
	11	AHU-7 (SUPPLY FAN)	H1.9	1	STA104-F	17.03" Dia.		3.162	18,850	5961.417				DWDI FAN
	12	AHU-7 (RETURN FAN)	H1.9	1	STA104-F	28.94" Dia.		4.566	18,800	4117.389				PLENUM FAN
	13	AHU-8 (SUPPLY FAN)	H1.10	1	STA104-F	17.03" Dia.		3.162	22,100	6989.247				DWDI FAN
	14	AHU-8 (RETURN FAN)	H1.10	1	STA104-F	28.94" Dia.		4.566	22,100	4840.123				PLENUM FAN

DANE COUNTY COURTHOUSE
0 3109-0044

Room Schedule

Rev.	Location: Bldg./Flr.	Room: No.	Name	System Name	Ref. dwg.	Room Controller/Sensor: Pt Sched N2 Addr	Controller: Code No.	NAE #	N2 Trunk	N2 Addr	CS Model	Sensor: Code No.	Serves	Reheat Valve: Device Code	Valve Body Style	Size In.	Valve Cv.	Flow GPM	Delta P psi	Box Information: Box Type: Box ID	Box Type	K Factor	Inlet Size (Inches)	Inlet Size (Area)	Clg Min Flow	Clg Max Flow	Htg Flow	VMA Box Config.	Actuator Information: Code No.	Range	Type	Ref. Detail	Comments	Generate Flag
	LOWER LEVEL 2	LL2003	EMERGENCY GENERATOR		H1.12		T26S-18C						UH-10	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	LOWER LEVEL 2	LL2003	EMERGENCY GENERATOR		H1.12							TE-67NT-0N00	EF-9																			G		
	LOWER LEVEL 2	LL2004	ELEVATOR LOBBY		H1.1		T26S-18C						CUH-9	VG5240EC+7010A	2-Way	0-1/2"	1.9	2.5	1.7													E		
	LOWER LEVEL 2	LL2006	LOBBY		H1.1		T26S-18C						CUH-10	VG5240EC+7010A	2-Way	0-1/2"	1.9	2.5	1.7													E		
	LOWER LEVEL 2	LL2006	LOBBY	AHU-1	H1.1	101	AP-VMA1420-0	1	1	101		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-1	VAV	1.91	6	0.2	100	500	250	VMA-2	INTERNAL	0-1.5" WC	SM	A	LL2FSD-C WIRED TO VMA	
	LOWER LEVEL 2	LL2015	GROUP HOLDING	AHU-1	H1.1	102	AP-VMA1420-0	1	1	102		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-1	VAV	2.10	8	0.35	250	1000	500	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	LOWER LEVEL 2	LL2028	GROUP HOLDING	AHU-1	H1.1	103	AP-VMA1420-0	1	1	103		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-2	VAV	2.10	8	0.35	250	1000	500	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	LOWER LEVEL 2	LL2030	CUSTODY CONTROL	AHU-1	H1.1	104	AP-VMA1420-0	1	1	104		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-2	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 2	LL2032	EQUIPMENT	AHU-1	H1.1	105	AP-VMA1420-0	1	1	105		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-3	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 2	LL2002	ELECTRICAL EQUIPMENT		H1.1							TE-67NT-0N00	EF-10																			H		
	LOWER LEVEL 2	LL2001	ELECTRICAL EQUIPMENT		H1.1							TE-67NT-0N00	EF-11																			H		
	LOWER LEVEL 2	LL2000	SECURED PARKING		H1.1							GWVXS	SCF-2																			J		
	LOWER LEVEL 2	LL2000	SECURED PARKING		H1.1							GWVXS	SCF-2																			J		
	LOWER LEVEL 2	LL2038	CORRIDOR		H1.12							TE-67NT-0N00	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													K	SERVES ONE SECTION OF R-1, POINTS WIRED TO UNT-16, SEE MISC DET L	
	LOWER LEVEL 2	LL2041	RECEIVING/ SCREENING		H1.12							TE-67NT-0N00	FCU-2	VG5240EC+7010A	2-Way	0-1/2"	1.9	0.5	0.1													M	HOT WATER VALVE	
	LOWER LEVEL 2	LL2041	RECEIVING/ SCREENING		H1.12								FCU-2	VG5440EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													M	CHILLED WATER VALVE	
	LOWER LEVEL 2	LL2049	TELECOMMUNICATIONS		H1.12							TE-67NT-0N00	FCU-1																			N		
	LOWER LEVEL 2	LL2042	ELEVATOR EQUIPMENT		H1.12							BY OTHERS	AC-2																			L		
	LOWER LEVEL 2	ST-D	STAIR D		H1.12		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	2.0	1.1													E		
	LOWER LEVEL 1	LL1000	ELEVATOR LOBBY	AHU-1	H1.2	106	AP-VMA1420-0	1	1	106		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-4	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1000	ELEVATOR LOBBY		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1008	WOMENS STAFF SHOWER	AHU-1	H1.2	107	AP-VMA1420-0	1	1	107		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-3	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 1	LL1012	MECHANICAL ROOM		H1.13		T26S-18C						UH-9	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	LOWER LEVEL 1	LL1012	MECHANICAL ROOM		H1.13		T26S-18C						UH-10	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	LOWER LEVEL 1	LL1012	MECHANICAL ROOM		H1.2							TE-67NT-0N00	EF-6																			F		
	LOWER LEVEL 1	LL1014	JURY CHECK-IN	AHU-1	H1.2	108	AP-VMA1420-0	1	1	108		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-4	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1014	JURY CHECK-IN		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.9	1.0													B	SERVES TWELVE SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1014	JURY CHECK-IN		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES FOUR SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1018	CASUAL SEATING	AHU-1	H1.2	109	AP-VMA1420-0	1	1	109		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-5	VAV	2.10	8	0.35	250	1000	500	VMA-4	INTERNAL	0-1.5" WC	SM	B	LL1FSD-C WIRED TO VMA	
	LOWER LEVEL 1	LL1018	CASUAL SEATING		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	2.6	1.8													B	SERVES SIXTEEN SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1018	CASUAL SEATING		H1.13							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES ONE SECTION OF R-1	
	LOWER LEVEL 1	LL1019	JURY ASSEMBLY	AHU-1	H1.2	110	AP-VMA1420-0	1	1	110		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-1	VAV	2.20	14	0.96	1000	3000	1500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1019	JURY ASSEMBLY		H1.13							SERVED BY ABOVE	RP-1, R-1	VG7241GT+7150G	2-Way	0-1/2"	4.6	8.0	3.0													B	SERVES THIRTY-TWO SECTIONS OF RP-1 AND TWO SECTIONS OF R-1	
	LOWER LEVEL 1	LL1020	JURY ASSEMBLY	AHU-1	H1.2	111	AP-VMA1420-0	1	1	111		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-2	VAV	2.20	14	0.96	1000	3000	1500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1020	JURY ASSEMBLY		H1.13							SERVED BY ABOVE	RP-1, R-1	VG7241GT+7150G	2-Way	0-1/2"	4.6	8.0	3.0													B	SERVES THIRTY-TWO SECTIONS OF RP-1 AND TWO SECTIONS OF R-1	
	LOWER LEVEL 1	LL1022	STORAGE	AHU-1	H1.2	112	AP-VMA1420-0	1	1	112		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-5	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1022	STORAGE		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES SEVEN SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1032	LAW LIBRARY	AHU-1	H1.2	113	AP-VMA1420-0	1	1	113		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-1	VAV	1.89	10	0.53	500	1500	750	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1032	LAW LIBRARY		H1.13							SERVED BY ABOVE	RP-1, R-1	VG7241LT+7150G	2-Way	0-3/4"	7.3	13.7	3.5													B	SERVES FIFTY-EIGHT SECTIONS OF RP-1, AND FIVE SECTIONS OF R-1	
	LOWER LEVEL 1	LL1032	LAW LIBRARY	AHU-1	H1.2	114	AP-VMA1420-0	1	1	114		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-2	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 1	LL1033	OFFICE	AHU-1	H1.2	115	AP-VMA1420-0	1	1	115		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-6	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1033	OFFICE		H1.13							SERVED BY ABOVE	RP-1, R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES TWO SECTIONS OF RP-1, AND ONE SECTION OF R-1	
	LOWER LEVEL 1	LL1036	OPEN OFFICE	AHU-1	H1.2	116	AP-VMA1420-0	1	1	116		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-6	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1036	OPEN OFFICE		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.6	0.7													B	SERVES TEN SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1037	CONFERENCE ROOM	AHU-1	H1.2	117	AP-VMA1420-0	1	1	117		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-7	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	LOWER LEVEL 1	LL1037	CONFERENCE ROOM		H1.13							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES FIVE SECTIONS OF RP-1	
	LOWER LEVEL 1	LL1027	WOMEN'S TOILET		H1.13							TE-67NT-0N00	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.2	0.0													K	SERVES ONE SECTION OF RP-1, POINTS WIRED TO UNT-17, SEE MISC DET. L	
	LOWER LEVEL 1	LL1028	STORAGE		H1.13							TE-67NT-0N00	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.2	0.0													K	SERVES ONE SECTION OF RP-1, POINTS WIRED TO UNT-17, SEE MISC DET. L	
	LOWER LEVEL 1	LL1042	KITCHEN	AHU-1	H1.2	118	AP-VMA1420-0	1	1	118		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-7	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 1	LL1042	KITCHEN		H1.2							TE-67NT-0N00	KEF-1																			I		
	LOWER LEVEL 1	LL1045	SERVING LINE	AHU-1	H1.2	119	AP-VMA1420-0	1	1	119		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-3	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	LOWER LEVEL 1	ST-D	STAIR C LANDING		H1.2		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	LOWER LEVEL 1	ST-D	STAIR D LANDING		H1.2		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	FIRST FLOOR	1004	LOBBY	AHU-1	H1.3	120	AP-VMA1420-0	1	1	120		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVC-4	VAV	1.89	10	0.53	500	1500	750	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1004	LOBBY		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES ONE SECTION OF R-1	
	FIRST FLOOR	1005	LOBBY	AHU-1	H1.3	121	AP-VMA1420-0	1	1	121		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-5	VAV	1.89	10	0.53	500	1500	750	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1005	LOBBY		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES ONE SECTION OF R-1	
	FIRST FLOOR	1007	VESTIBULE		H1.14		T26S-18C						CUH-1	VG5240EC+7010A	2-Way	0-1/2"	1.9	2.0	1.1													E		
	FIRST FLOOR	1009	VESTIBULE		H1.14		T26S-18C						CUH-2	VG5240EC+7010A	2-Way	0-1/2"	1.9	2.0	1.1													E		
	FIRST FLOOR	1011	OFFICE	AHU-1	H1.3	122	AP-VMA1420-0	1	1	122		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-8	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1013	CORRIDOR	AHU-1	H1.3	123	AP-VMA1420-0	1	1	123		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-8	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1013	CORRIDOR		H1.14							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.0	0.3													B	SERVES SIX SECTIONS OF RP-1	
	FIRST FLOOR	1016	WORK AREA	AHU-1	H1.3	124	AP-VMA1420-0	1	1	124		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-6	VAV	1.89	10	0.53	500	1500	750	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1016	WORK AREA		H1.14							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES SEVEN SECTIONS OF RP-1	
	FIRST FLOOR	1020	RECORDS	AHU-1	H1.3	125	AP-VMA1420-0	1	1	125		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-7	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1023	CONFERENCE ROOM	AHU-1	H1.3	126	AP-VMA1420-0	1	1	126		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-9	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1024	DOCUMENT EXAM	AHU-1	H1.3	127	AP-VMA1420-0	1	1	127		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-10	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1026	MICRO / STORAGE / COPY	AHU-1	H1.3	128	AP-VMA1420-0	1	1	128		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-11	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1028	OPEN OFFICE	AHU-1	H1.3	129	AP-VMA1420-0	1	1	129		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-9	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1033	OFFICE	AHU-1	H1.3	130	AP-VMA1420-0	1	1	130		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-12	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1034	MAIL ROOM	AHU-1	H1.3	131	AP-VMA1420-0	1	1	131		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-13	VAV	1.91	6	0.2	100	500	250	VMA-2	INTERNAL	0-1.5" WC	SM	A	1FSD-C WIRED TO VMA	
	FIRST FLOOR	1037	OPEN OFFICE	AHU-1	H1.3	132	AP-VMA1420-0	1	1	132		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-10	VAV	2.10	8	0.35	250	1000	500	VMA-6	INTERNAL	0-1.5" WC	SM	D		
	FIRST FLOOR	1037	OPEN OFFICE		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													D	SERVES ONE SECTION OF R-1	
	FIRST FLOOR	1037	OPEN OFFICE	AHU-1	H1.3	133	AP-VMA1420-0	1	1	133		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-8	VAV	1.89	10	0.53	500	1500	750	VMA-6	INTERNAL	0-1.5" WC	SM	D		
	FIRST FLOOR	1037	OPEN OFFICE		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													D	SERVES TWO SECTIONS OF R-1	
	FIRST FLOOR	1037	OPEN OFFICE		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													D	SERVES TWO SECTIONS OF R-1	
	FIRST FLOOR	1044	CLERK'S COUNTER	AHU-1	H1.3	134	AP-VMA1420-0	1	1	134		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-11	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1046	SECURE ELEVATOR LOBBY	AHU-1	H1.3	135	AP-VMA1420-0	1	1	135		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-14	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1051	MEDIA ROOM	AHU-1	H1.3	136	AP-VMA1420-0	1	1	136		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-15	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1051	MEDIA ROOM		H1.14							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	FIRST FLOOR	1052	IA HEARING ROOM	AHU-1	H1.3	137	AP-VMA1420-0	1	1	137		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-3	VAV	2.20	14	0.96	1000	3000	1500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1052	IA HEARING ROOM		H1.14							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.9	1.0													B	SERVES TWELVE SECTIONS OF RP-1	
	FIRST FLOOR	1058	CONFERENCE	AHU-1	H1.3	138	AP-VMA1420-0	1	1	138		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-16	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1060	BREAK ROOM	AHU-1	H1.3	139	AP-VMA1420-0	1	1	139		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-17	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	FIRST FLOOR	1062	OFFICE	AHU-1	H1.3	140	AP-VMA1420-0	1	1	140		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-12	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1062	OFFICE		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES THREE SECTIONS OF R-1	
	FIRST FLOOR	1066	OPEN OFFICE	AHU-1	H1.3	141	AP-VMA1420-0	1	1	141		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-13	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1066	OPEN OFFICE		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	FIRST FLOOR	1067	CLERK	AHU-1	H1.3	142	AP-VMA1420-0	1	1	142		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-14	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	FIRST FLOOR	1067	CLERK		H1.14							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													B	SERVES THREE SECTIONS OF R-1	
	FIRST FLOOR	ST-A	STAIR A		H1.14		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR	2005	CORRIDOR	AHU-2	H1.4	143	AP-VMA1420-0	1	2	143		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-18	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2007	WAITING	AHU-2	H1.4	144	AP-VMA1420-0	1	2	144		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-15	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2007	WAITING		H1.15							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES FOUR SECTIONS OF RP-1	
	SECOND FLOOR	2009	OFFICE	AHU-2	H1.4	145	AP-VMA1420-0	1	2	145		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-16	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2009	OFFICE		H1.15							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													B	SERVES NINE SECTIONS OF RP-1	
	SECOND FLOOR	2011	OFFICE	AHU-2	H1.4	146	AP-VMA1420-0	1	2	146

Room Schedule

Location					Room Controller/Sensor						Reheat Valve						Box Information										Actuator Information					
						Controller					Sensor			Valve	Size	Valve	Flow	Delta-P	Box Type														
Rev.	Bldg./Flr.	Room No.	Name	System Name	Ref. dwg.	Rt. Sched N2 Addr	Code No.	NAE #	N2 Trunk	N2 Addr	CS Model	Code No.	Serves	Device Code	Body Style	In.	Cv	GPM	psi	Box ID	Box Type	K Factor	Inlet Size (Inches)	Inlet Size (Area)	Clg Min Flow	Clg Max Flow	Htg Flow	VMA Box Config	Code No.	Range	Type	Ref. Detail	Comments	Generate Flag
	SECOND FLOOR	2038	SECURE STORAGE	AHU-2	H1.4	156	AP-VMA1420-0	1	2	156		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-28	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2041	JUVENILLE HEARING ROOM	AHU-2	H1.4	157	AP-VMA1420-0	1	2	157		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-18	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2041	JUVENILLE HEARING ROOM		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES ONE SECTION OF R-1	
	SECOND FLOOR	2042	JUVENILLE WAITING	AHU-2	H1.4	158	AP-VMA1420-0	1	2	158		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-29	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2045	HEARING ROOM	AHU-2	H1.4	159	AP-VMA1420-0	1	2	159		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-30	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2046	CORRIDOR	AHU-2	H1.4	160	AP-VMA1420-0	1	2	160		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-19	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2056	CLERKS	AHU-2	H1.4	161	AP-VMA1420-0	1	2	161		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-20	VAV	2.10	8	0.35	250	1000	500	VMA-4	INTERNAL	0-1.5" WC	SM	B	2FSD-C WIRED TO VMA	
	SECOND FLOOR	2056	CLERKS		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES ONE SECTION OF R-1	
	SECOND FLOOR	2059	OFFICE	AHU-2	H1.4	162	AP-VMA1420-0	1	2	162		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-21	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2059	OFFICE		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	SECOND FLOOR	2062	OFFICE	AHU-2	H1.4	163	AP-VMA1420-0	1	2	163		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-22	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2062	OFFICE		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	SECOND FLOOR	2067	OFFICE	AHU-2	H1.4	164	AP-VMA1420-0	1	2	164		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-23	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2067	OFFICE		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	SECOND FLOOR	2069	CLERKS	AHU-2	H1.4	165	AP-VMA1420-0	1	2	165		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-24	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2069	CLERKS		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.0	0.3													B	SERVES ONE SECTION OF R-1	
	SECOND FLOOR	2070	OFFICE	AHU-2	H1.4	166	AP-VMA1420-0	1	2	166		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-31	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2070	OFFICE		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SECOND FLOOR	2071	OFFICE	AHU-2	H1.4	167	AP-VMA1420-0	1	2	167		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-32	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SECOND FLOOR	2071	OFFICE		H1.15							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES ONE SECTION OF R-1	
	SECOND FLOOR	2074	COURT REPORTER	AHU-2	H1.4	168	AP-VMA1420-0	1	2	168		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-33	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2076	COURT REPORTER	AHU-2	H1.4	169	AP-VMA1420-0	1	2	169		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-34	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2081	HEARING ROOM	AHU-2	H1.4	170	AP-VMA1420-0	1	2	170		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-35	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2083	CONFERENCE ROOM	AHU-2	H1.4	171	AP-VMA1420-0	1	2	171		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-36	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2086	HEARING ROOM	AHU-2	H1.4	172	AP-VMA1420-0	1	2	172		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-37	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2087	HEARING ROOM	AHU-2	H1.4	173	AP-VMA1420-0	1	2	173		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-38	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2089	CONFERENCE ROOM	AHU-2	H1.4	174	AP-VMA1420-0	1	2	174		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-39	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2091	HEARING ROOM	AHU-2	H1.4	175	AP-VMA1420-0	1	2	175		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-40	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2093	HEARING ROOM	AHU-2	H1.4	176	AP-VMA1420-0	1	2	176		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-41	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2094	MEDIATION ROOM	AHU-2	H1.4	177	AP-VMA1420-0	1	2	177		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-42	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2096	CORRIDOR	AHU-2	H1.4	178	AP-VMA1420-0	1	2	178		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-43	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2097	CHILD WORK	AHU-2	H1.4	179	AP-VMA1420-0	1	2	179		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-44	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2099	RECEPTION	AHU-2	H1.4	180	AP-VMA1420-0	1	2	180		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-9	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2100	HEARING ROOM	AHU-2	H1.4	181	AP-VMA1420-0	1	2	181		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-45	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2101	CORRIDOR	AHU-2	H1.4	182	AP-VMA1420-0	1	2	182		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-46	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2102	HEARING ROOM	AHU-2	H1.4	183	AP-VMA1420-0	1	2	183		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-47	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2105	HEARING ROOM	AHU-2	H1.4	184	AP-VMA1420-0	1	2	184		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-48	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	2107A	BREAK AREA	AHU-2	H1.4	185	AP-VMA1420-0	1	2	185		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-25	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SECOND FLOOR	ST-A	STAIR A		H1.15		T26S-18C						CUH-4	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR	ST-D	STAIR C LANDING		H1.15		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR	ST-D	STAIR D LANDING		H1.15		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-1	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-2	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-4	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-5	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	SECOND FLOOR		OPEN TO BELOW		H1.15		T26S-18C						UH-6	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	THIRD FLOOR	3109	OFFICE	AHU-2	H1.4,H1.5	186	AP-VMA1420-0	1	2	186		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-49	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A	VMA ON SECOND FLOOR	
	THIRD FLOOR	3114	OFFICE	AHU-2	H1.4,H1.5	187	AP-VMA1420-0	1	2	187		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-50	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A	VMA ON SECOND FLOOR	
	THIRD FLOOR	3126	OFFICE	AHU-2	H1.4,H1.5	188	AP-VMA1420-0	1	2	188		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-51	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A	VMA ON SECOND FLOOR	
	THIRD FLOOR	3003	PUBLIC COUNTER	AHU-2	H1.5	101	AP-VMA1420-0	2	1	101		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-52	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3008	VICTIM WITNESS	AHU-2	H1.5	102	AP-VMA1420-0	2	1	102		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-53	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3010	OFFICE	AHU-2	H1.5	103	AP-VMA1420-0	2	1	103		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-54	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3017	OFFICE	AHU-2	H1.5	104	AP-VMA1420-0	2	1	104		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-55	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3017	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES THREE SECTIONS OF R-1	
	THIRD FLOOR	3020	OFFICE	AHU-2	H1.5	105	AP-VMA1420-0	2	1	105		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-56	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3020	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES THREE SECTIONS OF R-1	
	THIRD FLOOR	3020	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES TWO SECTIONS OF R-1	
	THIRD FLOOR	3026	FILES	AHU-2	H1.5	106	AP-VMA1420-0	2	1	106		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-57	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3027	OPEN OFFICE	AHU-2	H1.5	107	AP-VMA1420-0	2	1	107		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-58	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3030	OFFICE	AHU-2	H1.5	108	AP-VMA1420-0	2	1	108		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-26	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3030	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	THIRD FLOOR	3036A	COATS	AHU-2	H1.5	109	AP-VMA1420-0	2	1	109		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-59	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3037	OPEN OFFICE	AHU-2	H1.5	110	AP-VMA1420-0	2	1	110		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-60	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3039	OFFICE	AHU-2	H1.5	111	AP-VMA1420-0	2	1	111		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-61	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3039	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.6	0.1													B	SERVES ONE SECTION OF R-1	
	THIRD FLOOR	3042	OPEN OFFICE	AHU-2	H1.5	112	AP-VMA1420-0	2	1	112		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-62	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3043	OFFICE	AHU-2	H1.5	113	AP-VMA1420-0	2	1	113		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-63	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3043	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	THIRD FLOOR	3048	OFFICE	AHU-2	H1.5	114	AP-VMA1420-0	2	1	114		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-64	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3051	OFFICE	AHU-2	H1.5	115	AP-VMA1420-0	2	1	115		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-65	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3051	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	THIRD FLOOR	3054	OFFICE	AHU-2	H1.5	116	AP-VMA1420-0	2	1	116		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-66	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3055	OFFICE	AHU-2	H1.5	117	AP-VMA1420-0	2	1	117		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-67	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3055	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES THREE SECTIONS OF R-1	
	THIRD FLOOR	3057	OFFICE	AHU-2	H1.5	118	AP-VMA1420-0	2	1	118		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-68	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3057	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.5	0.1													B	SERVES ONE SECTION OF R-1	
	THIRD FLOOR	3059	OFFICE	AHU-2	H1.5	119	AP-VMA1420-0	2	1	119		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-27	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3059	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.1	0.3													B	SERVES FOUR SECTIONS OF R-1	
	THIRD FLOOR	3062	OFFICE	AHU-2	H1.5	120	AP-VMA1420-0	2	1	120		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-69	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3067	OPEN OFFICE	AHU-2	H1.5	121	AP-VMA1420-0	2	1	121		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-70	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3068	FILE SERVER	AHU-2	H1.5	122	AP-VMA1420-0	2	1	122		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-71	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3069	BREAK ROOM	AHU-2	H1.5	123	AP-VMA1420-0	2	1	123		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-72	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3073	CONFERENCE ROOM	AHU-2	H1.5	124	AP-VMA1420-0	2	1	124		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-73	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3075	OFFICE	AHU-2	H1.5	125	AP-VMA1420-0	2	1	125		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-74	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	THIRD FLOOR	3078	OFFICE	AHU-2	H1.5	126	AP-VMA1420-0	2	1	126		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-75	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3078	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2													B	SERVES THREE SECTIONS OF R-1	
	THIRD FLOOR	3083	OFFICE	AHU-2	H1.5	127	AP-VMA1420-0	2	1	127		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-76	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	THIRD FLOOR	3083	OFFICE		H1.16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.5	0.1													B	SERVES ONE SECTION OF R-1	
	THIRD FLOOR	3084	OFFICE	AHU-2	H1.5	128	AP-VMA1420-0	2	1	128		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8

Room Schedule

Location			Room Controller/Sensor								Reheat Valve						Box Information										Actuator Information					
						Controller					Sensor			Valve	Size	Valve	Flow	Delta P	Box Type														
Rev.	Bldg/Flr	Room No.	Name	System Name	Ref. dwg.	Pt Sched N2 Addr	Code No.	NAE #	N2 Trunk	N2 Addr	CS Model	Code No.	Serves	Device Code	Body Style	In.	Cv	GPM	psi	Box ID	Box Type	K Factor	Inlet Size (Inches)	Inlet Size (Area)	Clg Min Flow	Clg Max Flow	Htg Flow	VMA Box Config	Code No.	Range	Type	Ref. Detail	Comments	Generate Flag
	THIRD FLOOR	3125	OFFICE	AHU-2	H1 5	140	AP-VMA1420-0	2	1	140		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-83	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	THIRD FLOOR	3125	OFFICE		H1 16							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way		1 9	0 6	0 1													B	SERVES ONE SECTION OF R-1	
	THIRD FLOOR	3200	FILE MEZZANINE	AHU-2	H1 5	141	AP-VMA1420-0	2	1	141		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-33	VAV	2 10	8	0 35	250	1000	500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4003	LOBBY	AHU-4	H1.6	142	AP-VMA1420-0	2	1	142		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	2 0	1 1	VAVC-11	VAV	1 89	10	0 53	500	1500	750	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4003	LOBBY	AHU-4	H1.6	155	AP-VMA1420-0	2	2	155		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-1	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4005	CORRIDOR	AHU-4	H1.6	143	AP-VMA1420-0	2	1	143		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-84	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4006	CORRIDOR	AHU-4	H1.6	144	AP-VMA1420-0	2	1	144		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-85	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4006	CORRIDOR	AHU-4	H1.6	145	AP-VMA1420-0	2	1	145		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-86	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4010	JURY DELIBERATIONS	AHU-4	H1.6	146	AP-VMA1420-0	2	1	146		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-87	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4011	MEDIA ROOM	AHU-4	H1 6	147	AP-VMA1420-0	2	1	147		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-88	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4012	COURT ROOM	AHU-4	H1 6	148	AP-VMA1420-0	2	1	148		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-2	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4015	CONFERENCE ROOM	AHU-4	H1 6	149	AP-VMA1420-0	2	1	149		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-89	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4019	CONFERENCE ROOM	AHU-4	H1 6	150	AP-VMA1420-0	2	1	150		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-90	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4025	HOLDING	AHU-4	H1.6	151	AP-VMA1420-0	2	1	151		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-91	VAV	1 91	6	0 2	100	500	250	VMA-5	INTERNAL	0-1 5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	FOURTH FLOOR	4027	COURT ROOM	AHU-4	H1.6	152	AP-VMA1420-0	2	1	152		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-3	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4028	CONFERENCE ROOM	AHU-4	H1 6	153	AP-VMA1420-0	2	1	153		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-92	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4031	JURY DELIBERATIONS	AHU-4	H1.6	154	AP-VMA1420-0	2	1	154		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-34	VAV	2 10	8	0 35	250	1000	500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4040	CORRIDOR	AHU-4	H1.6	156	AP-VMA1420-0	2	2	156		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-93	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4041	OFFICE	AHU-4	H1.6	157	AP-VMA1420-0	2	2	157		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-35	VAV	2 10	8	0 35	250	1000	500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4048	JUDGES SUITE	AHU-4	H1.6	158	AP-VMA1420-0	2	2	158		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-94	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4048	JUDGES SUITE		H1.17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FOURTH FLOOR	4048C	JUDGES CHAMBER	AHU-4	H1.6	159	AP-VMA1420-0	2	2	159		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-95	VAV	1 91	6	0 2	100	500	250	VMA-4	INTERNAL	0-1 5" WC	SM	B	4FSD-C WIRED TO VMA	
	FOURTH FLOOR	4048C	JUDGES CHAMBER		H1.17							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way		1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FOURTH FLOOR	4048D	COURT REPORTER	AHU-4	H1.6	160	AP-VMA1420-0	2	2	160		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-96	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4048D	COURT REPORTER		H1.17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way		1 9	0 7	0 1													B	SERVES TWO SECTIONS OF R-1	
	FOURTH FLOOR	4049	JUDGES SUITE	AHU-4	H1.6	161	AP-VMA1420-0	2	2	161		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-97	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4049	JUDGES SUITE		H1 17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way		1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FOURTH FLOOR	4049C	JUDGES CHAMBER	AHU-4	H1 6	162	AP-VMA1420-0	2	2	162		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-98	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4049C	JUDGES CHAMBER		H1.17							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way		1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FOURTH FLOOR	4050	FUTURE JUDGES SUITE	AHU-4	H1 6	163	AP-VMA1420-0	2	2	163		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-99	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4050	FUTURE JUDGES SUITE		H1.17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way		1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FOURTH FLOOR	4051A	STORAGE	AHU-4	H1.6	164	AP-VMA1420-0	2	2	164		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-100	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4051A	STORAGE		H1 17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FOURTH FLOOR	4051C	JUDGES CHAMBER	AHU-4	H1 6	165	AP-VMA1420-0	2	2	165		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-101	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4051C	JUDGES CHAMBER		H1 17							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FOURTH FLOOR	4052	FUTURE COURT ROOM	AHU-4	H1.6	166	AP-VMA1420-0	2	2	166		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-102	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4052	FUTURE COURT ROOM	AHU-4	H1.6	167	AP-VMA1420-0	2	2	167		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVE-4	VAV	2 20	14	0 96	1000	3000	1500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4060	CORRIDOR	AHU-4	H1.6	168	AP-VMA1420-0	2	2	168		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-103	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4065	HOLDING	AHU-4	H1.6	169	AP-VMA1420-0	2	2	169		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-104	VAV	1 91	6	0 2	100	500	250	VMA-5	INTERNAL	0-1 5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	FOURTH FLOOR	4067	COURT ROOM	AHU-4	H1.6	170	AP-VMA1420-0	2	2	170		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVE-5	VAV	2 20	14	0 96	1000	3000	1500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4068	CONFERENCE ROOM	AHU-4	H1.6	171	AP-VMA1420-0	2	2	171		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-105	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4075	OFFICE	AHU-4	H1.6	172	AP-VMA1420-0	2	2	172		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-106	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FOURTH FLOOR	4079	JURY DELIBERATIONS	AHU-4	H1.6	173	AP-VMA1420-0	2	2	173		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-36	VAV	2 10	8	0 35	250	1000	500	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FOURTH FLOOR	4079	JURY DELIBERATIONS		H1.17							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way		1 9	1 2	0 4													B	SERVES TWO SECTIONS OF R-1	
	FOURTH FLOOR	ST-A	STAIR A		H1.17		T26S-18C						CUH-4	VG5240EC+7010A	2-Way	0-1/2"	1 9	1 0	0 3													E		
	FOURTH FLOOR	ST-D	STAIR C LANDING		H1.17		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1 9	1 0	0 3													E		
	FOURTH FLOOR	ST-D	STAIR D LANDING		H1.17		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1 9	1 0	0 3													E		
	IFTH FLOOR	5003	LOBBY	AHU-5	H1.7	174	AP-VMA1420-0	2	2	174		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	2 0	1 1	VAVC-12	VAV	1 89	10	0 53	500	1500	750	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FTH FLOOR	5003	LOBBY	AHU-5	H1.7	175	AP-VMA1420-0	2	2	175		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-4	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	IFTH FLOOR	5005	CORRIDOR	AHU-5	H1.7	176	AP-VMA1420-0	2	2	176		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-107	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5006	CORRIDOR	AHU-5	H1.7	177	AP-VMA1420-0	2	2	177		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-108	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5006	CORRIDOR	AHU-5	H1.7	178	AP-VMA1420-0	2	2	178		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-109	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5010	JURY DELIBERATIONS	AHU-5	H1.7	179	AP-VMA1420-0	2	2	179		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-110	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5011	MEDIA ROOM	AHU-5	H1.7	180	AP-VMA1420-0	2	2	180		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-111	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5012	COURT ROOM	AHU-5	H1.7	181	AP-VMA1420-0	2	2	181		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-5	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5015	CONFERENCE ROOM	AHU-5	H1.7	182	AP-VMA1420-0	2	2	182		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-112	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5019	CONFERENCE ROOM	AHU-5	H1.7	183	AP-VMA1420-0	2	2	183		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-113	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5025	HOLDING	AHU-5	H1.7	184	AP-VMA1420-0	2	2	184		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-114	VAV	1 91	6	0 2	100	500	250	VMA-5	INTERNAL	0-1 5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	FIFTH FLOOR	5027	COURT ROOM	AHU-5	H1.7	185	AP-VMA1420-0	2	2	185		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVD-6	VAV	2 38	12	0 77	700	2100	1050	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5028	CONFERENCE ROOM	AHU-5	H1.7	186	AP-VMA1420-0	2	2	186		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-115	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5031	JURY DELIBERATIONS	AHU-5	H1.7	187	AP-VMA1420-0	2	2	187		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-37	VAV	2 10	8	0 35	250	1000	500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5040	CORRIDOR	AHU-5	H1.7	188	AP-VMA1420-0	2	2	188		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-116	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5041	OFFICE	AHU-5	H1.7	189	AP-VMA1420-0	2	2	189		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	1 4	0 5	VAVB-38	VAV	2 10	8	0 35	250	1000	500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5048	JUDGES SUITE	AHU-5	H1.7	190	AP-VMA1420-0	2	2	190		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-117	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5048	JUDGES SUITE		H1.18							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FIFTH FLOOR	5048C	JUDGES CHAMBER	AHU-5	H1.7	191	AP-VMA1420-0	2	2	191		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-118	VAV	1 91	6	0 2	100	500	250	VMA-4	INTERNAL	0-1 5" WC	SM	B	5FSD-C WIRED TO VMA	
	FIFTH FLOOR	5048C	JUDGES CHAMBER		H1.18							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FIFTH FLOOR	5048D	COURT REPORTER	AHU-5	H1.7	192	AP-VMA1420-0	2	2	192		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-119	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5048D	COURT REPORTER		H1.18							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 7	0 1													B	SERVES TWO SECTIONS OF R-1	
	FIFTH FLOOR	5049	JUDGES SUITE	AHU-5	H1 7	193	AP-VMA1420-0	2	2	193		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-120	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5049	JUDGES SUITE		H1 18							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FIFTH FLOOR	5049C	JUDGES CHAMBER	AHU-5	H1.7	194	AP-VMA1420-0	2	2	194		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-121	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5049C	JUDGES CHAMBER		H1.18							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FIFTH FLOOR	5050	FUTURE JUDGES SUITE	AHU-5	H1.7	195	AP-VMA1420-0	2	2	195		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-122	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5050	FUTURE JUDGES SUITE		H1.18							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FIFTH FLOOR	5051	JUDGES SUITE	AHU-5	H1.7	196	AP-VMA1420-0	2	2	196		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-123	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5051	JUDGES SUITE		H1.18							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES ONE SECTION OF R-1	
	FIFTH FLOOR	5051C	JUDGES CHAMBER	AHU-5	H1.7	197	AP-VMA1420-0	2	2	197		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-124	VAV	1 91	6	0 2	100	500	250	VMA-3	INTERNAL	0-1 5" WC	SM	B		
	FIFTH FLOOR	5051C	JUDGES CHAMBER		H1.18							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1 9	0 3	0 0													B	SERVES TWO SECTIONS OF RP-1	
	FIFTH FLOOR	5052	FUTURE COURT ROOM	AHU-5	H1.7	198	AP-VMA1420-0	2	2	198		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-125	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5052	FUTURE COURT ROOM	AHU-5	H1.7	199	AP-VMA1420-0	2	2	199		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVE-6	VAV	2 20	14	0 96	1000	3000	1500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5059	CONFERENCE ROOM	AHU-5	H1.7	200	AP-VMA1420-0	2	2	200		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-126	VAV	1 91	6	0 2	100	500	250	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5065	HOLDING	AHU-5	H1.7	201	AP-VMA1420-0	2	2	201		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-127	VAV	1 91	6	0 2	100	500	250	VMA-5	INTERNAL	0-1 5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	FIFTH FLOOR	5067	COURT ROOM	AHU-5	H1.7	202	AP-VMA1420-0	2	2	202		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	3 0	2 5	VAVE-7	VAV	2 20	14	0 96	1000	3000	1500	VMA-1	INTERNAL	0-1 5" WC	SM	A		
	FIFTH FLOOR	5068	CONFERENCE ROOM	AHU-5	H1.7	203	AP-VMA1420-0	2	2	203		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1 9	0 8	0 2	VAVA-128	VAV	1 91	6	0 2	100

DANE COUNTY COURTHOUSE
0 3109-0044

Room Schedule

Location					Room Controller/Sensor						Reheat Valve					Box Information										Actuator Information					
		Room				Controller					Sensor			Valve	Size	Valve	Flow	Delta P	Box Type													
Rev.	Bldg./Flr.	No.	Name	System Name	Ref. dwg.	Pt Sched N2 Addr	Code No.	NAE #	N2 Trunk	N2 Addr	CS Model	Code No.	Serves	Device Code	Body Style	In.	Cv	GPM	psi	Box ID	Box Type	K Factor	Inlet Size (inches)	Inlet Size (Area)	Ctg Min Flow	Ctg Max Flow	Htg Flow	VMA Box Config	Code No.	Range	Type	Ref. Detail	Comments	Generate Flag
	SIXTH FLOOR	6048D	COURT REPORTER	AHU-6	H1.8	119	AP-VMA1420-0	3	1	119		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-142	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6048D	COURT REPORTER		H1.19							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES TWO SECTIONS OF R-1	
	SIXTH FLOOR	6049	JUDGES SUITE	AHU-6	H1.8	120	AP-VMA1420-0	3	1	120		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-143	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6049	JUDGES SUITE		H1.19							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SIXTH FLOOR	6049C	JUDGES CHAMBER	AHU-6	H1.8	121	AP-VMA1420-0	3	1	121		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-144	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6049C	JUDGES CHAMBER		H1.19							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SIXTH FLOOR	6050	FUTURE JUDGES SUITE	AHU-6	H1.8	122	AP-VMA1420-0	3	1	122		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-145	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6050	FUTURE JUDGES SUITE		H1.19							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SIXTH FLOOR	6051	JUDGES SUITE	AHU-6	H1.8	123	AP-VMA1420-0	3	1	123		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-146	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6051	JUDGES SUITE		H1.19							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SIXTH FLOOR	6051C	JUDGES CHAMBER	AHU-6	H1.8	124	AP-VMA1420-0	3	1	124		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-147	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6051C	JUDGES CHAMBER		H1.19							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SIXTH FLOOR	6052	FUTURE COURT ROOM	AHU-6	H1.8	125	AP-VMA1420-0	3	1	125		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-148	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6052	FUTURE COURT ROOM	AHU-6	H1.8	126	AP-VMA1420-0	3	1	126		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-8	VAV	2.20	14	0.96	1000	3000	1500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6059	CONFERENCE ROOM	AHU-6	H1.8	127	AP-VMA1420-0	3	1	127		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-149	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6065	HOLDING	AHU-6	H1.8	128	AP-VMA1420-0	3	1	128		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-150	VAV	1.91	6	0.2	100	500	250	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	SIXTH FLOOR	6067	COURT ROOM	AHU-6	H1.8	129	AP-VMA1420-0	3	1	129		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-9	VAV	2.20	14	0.96	1000	3000	1500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6068	CONFERENCE ROOM	AHU-6	H1.8	130	AP-VMA1420-0	3	1	130		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-151	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6075	JURY DELIBERATIONS	AHU-6	H1.8	131	AP-VMA1420-0	3	1	131		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-152	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SIXTH FLOOR	6080	OFFICE	AHU-6	H1.8	132	AP-VMA1420-0	3	1	132		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-42	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SIXTH FLOOR	6080	OFFICE		H1.19							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													B	SERVES TWO SECTIONS OF R-1	
	SIXTH FLOOR	ST-A	STAIR A		H1.19		T26S-18C						CUH-4	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3											E		
	SIXTH FLOOR	ST-D	STAIR C LANDING		H1.19		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3											E		
	SIXTH FLOOR	ST-D	STAIR D LANDING		H1.19		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3											E		
	SEVENTH FLOOR	7003	LOBBY	AHU-7	H1.9	133	AP-VMA1420-0	3	1	133		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-14	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7003	LOBBY	AHU-7	H1.9	146	AP-VMA1420-0	3	2	146		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-10	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7005	CORRIDOR	AHU-7	H1.9	134	AP-VMA1420-0	3	1	134		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-153	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7006	CORRIDOR	AHU-7	H1.9	135	AP-VMA1420-0	3	1	135		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-154	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7006	CORRIDOR	AHU-7	H1.9	136	AP-VMA1420-0	3	1	136		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-155	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7010	JURY DELIBERATIONS	AHU-7	H1.9	137	AP-VMA1420-0	3	1	137		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-156	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7011	MEDIA ROOM	AHU-7	H1.9	138	AP-VMA1420-0	3	1	138		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-157	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7012	COURT ROOM	AHU-7	H1.9	139	AP-VMA1420-0	3	1	139		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-11	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7015	CONFERENCE ROOM	AHU-7	H1.9	140	AP-VMA1420-0	3	1	140		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-158	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7019	CONFERENCE ROOM	AHU-7	H1.9	141	AP-VMA1420-0	3	1	141		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-159	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7025	HOLDING	AHU-7	H1.9	142	AP-VMA1420-0	3	1	142		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-160	VAV	1.91	6	0.2	100	500	250	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	SEVENTH FLOOR	7027	COURT ROOM	AHU-7	H1.9	143	AP-VMA1420-0	3	1	143		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-12	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7028	CONFERENCE ROOM	AHU-7	H1.9	144	AP-VMA1420-0	3	1	144		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-161	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7031	JURY DELIBERATIONS	AHU-7	H1.9	145	AP-VMA1420-0	3	1	145		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-43	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7040	CORRIDOR	AHU-7	H1.9	147	AP-VMA1420-0	3	2	147		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-162	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7041	OFFICE	AHU-7	H1.9	148	AP-VMA1420-0	3	2	148		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-44	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7048	JUDGES SUITE	AHU-7	H1.9	149	AP-VMA1420-0	3	2	149		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-163	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7048	JUDGES SUITE		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SEVENTH FLOOR	7048C	JUDGES CHAMBER	AHU-7	H1.9	150	AP-VMA1420-0	3	2	150		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-164	VAV	1.91	6	0.2	100	500	250	VMA-4	INTERNAL	0-1.5" WC	SM	B	7FSD-C WIRED TO VMA	
	SEVENTH FLOOR	7048C	JUDGES CHAMBER		H1.20							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SEVENTH FLOOR	7048D	COURT REPORTER	AHU-7	H1.9	151	AP-VMA1420-0	3	2	151		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-165	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7048D	COURT REPORTER		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES TWO SECTIONS OF R-1	
	SEVENTH FLOOR	7049	JUDGES SUITE	AHU-7	H1.9	152	AP-VMA1420-0	3	2	152		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-166	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7049	JUDGES SUITE		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SEVENTH FLOOR	7049C	JUDGES CHAMBER	AHU-7	H1.9	153	AP-VMA1420-0	3	2	153		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-167	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7049C	JUDGES CHAMBER		H1.20							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SEVENTH FLOOR	7050	JUDGES SUITE	AHU-7	H1.9	154	AP-VMA1420-0	3	2	154		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-168	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7050	JUDGES SUITE		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SEVENTH FLOOR	7050C	JUDGES CHAMBER	AHU-7	H1.9	155	AP-VMA1420-0	3	2	155		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-169	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7050C	JUDGES CHAMBER		H1.20							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SEVENTH FLOOR	7050D	COURT REPORTER	AHU-7	H1.9	156	AP-VMA1420-0	3	2	156		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-170	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7050D	COURT REPORTER		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.7	0.1													B	SERVES TWO SECTIONS OF R-1	
	SEVENTH FLOOR	7051	JUDGES SUITE	AHU-7	H1.9	157	AP-VMA1420-0	3	2	157		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-171	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7051	JUDGES SUITE		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES ONE SECTION OF R-1	
	SEVENTH FLOOR	7051C	JUDGES CHAMBER	AHU-7	H1.9	158	AP-VMA1420-0	3	2	158		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-172	VAV	1.91	6	0.2	100	500	250	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7051C	JUDGES CHAMBER		H1.20							SERVED BY ABOVE	RP-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	0.3	0.0													B	SERVES TWO SECTIONS OF RP-1	
	SEVENTH FLOOR	7052	COURT ROOM	AHU-7	H1.9	159	AP-VMA1420-0	3	2	159		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-173	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7052	COURT ROOM	AHU-7	H1.9	160	AP-VMA1420-0	3	2	160		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-10	VAV	2.20	14	0.96	1000	3000	1500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7055	CONFERENCE ROOM	AHU-7	H1.9	161	AP-VMA1420-0	3	2	161		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-174	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7059	CONFERENCE ROOM	AHU-7	H1.9	162	AP-VMA1420-0	3	2	162		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-175	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7065	HOLDING	AHU-7	H1.9	163	AP-VMA1420-0	3	2	163		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-176	VAV	1.91	6	0.2	100	500	250	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	SEVENTH FLOOR	7067	COURT ROOM	AHU-7	H1.9	164	AP-VMA1420-0	3	2	164		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-11	VAV	2.20	14	0.96	1000	3000	1500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7077	WAITING ROOM	AHU-7	H1.9	165	AP-VMA1420-0	3	2	165		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-177	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	SEVENTH FLOOR	7081	JURY DELIBERATIONS	AHU-7	H1.9	166	AP-VMA1420-0	3	2	166		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-45	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	SEVENTH FLOOR	7081	JURY DELIBERATIONS		H1.20							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.2	0.4													B	SERVES TWO SECTIONS OF R-1	
	EIGHTH FLOOR	8003	LOBBY	AHU-8	H1.10	167	AP-VMA1420-0	3	2	167		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	2.0	1.1	VAVC-15	VAV	1.89	10	0.53	500	1500	750	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8003	LOBBY	AHU-8	H1.10	168	AP-VMA1420-0	3	2	168		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-13	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8005	CORRIDOR	AHU-8	H1.10	169	AP-VMA1420-0	3	2	169		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-178	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8006	CORRIDOR	AHU-8	H1.10	170	AP-VMA1420-0	3	2	170		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-179	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8006	CORRIDOR	AHU-8	H1.10	171	AP-VMA1420-0	3	2	171		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-180	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8010	JURY DELIBERATIONS	AHU-8	H1.10	172	AP-VMA1420-0	3	2	172		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-181	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8011	MEDIA ROOM	AHU-8	H1.10	173	AP-VMA1420-0	3	2	173		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-182	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8012	COURT ROOM	AHU-8	H1.10	174	AP-VMA1420-0	3	2	174		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-14	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8015	CONFERENCE ROOM	AHU-8	H1.10	175	AP-VMA1420-0	3	2	175		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-183	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8019	CONFERENCE ROOM	AHU-8	H1.10	176	AP-VMA1420-0	3	2	176		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-184	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8025	HOLDING	AHU-8	H1.10	177	AP-VMA1420-0	3	2	177		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-185	VAV	1.91	6	0.2	100	500	250	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	EIGHTH FLOOR	8027	COURT ROOM	AHU-8	H1.10	178	AP-VMA1420-0	3	2	178		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVD-15	VAV	2.38	12	0.77	700	2100	1050	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8028	CONFERENCE ROOM	AHU-8	H1.10	179	AP-VMA1420-0	3	2	179		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-186	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8031	JURY DELIBERATIONS	AHU-8	H1.10	180	AP-VMA1420-0	3	2	180		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-46	VAV	2.10	8	0.35	250	1000	500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8040	CORRIDOR	AHU-8	H1.10	181	AP-VMA1420-0	3	2	181		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-187	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8041	OFFICE	AHU-8	H1.10	182	AP-VMA1420-0	3	2	182		TE-67NP-2N00		VG5240EC+7450

Room Schedule

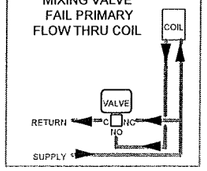
	Location					Room Controller/Sensor								Reheat Valve						Box Information									Actuator Information					
		Room					Controller					Sensor			Valve	Size	Valve	Flow	Delta P	Box Type														
Rev.	Bldg./Flr.	No.	Name	System Name	Ref. dwg.	Pt Sched N2 Addr	Code No.	NAE #	N2 Trunk	N2 Addr	CS Model	Code No.	Serves	Device Code	Body Style	In.	Cv	GPM	psi	Box ID	Box Type	K Factor	Inlet Size (Inches)	Inlet Size (Area)	Clg Min Flow	Clg Max Flow	Htg Flow	VMA Box Config	Code No.	Range	Type	Ref. Detail	Comments	Generate Flag
	EIGHTH FLOOR	8065	HOLDING	AHU-8	H1.10	196	AP-VMA1420-0	3	2	196		TE-6311P-1		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-200	VAV	1.91	6	0.2	100	500	250	VMA-5	INTERNAL	0-1.5" WC	SM	C	TEMP SENSOR LOCATED IN EXHAUST DUCT	
	EIGHTH FLOOR	8067	COURT ROOM	AHU-8	H1.10	197	AP-VMA1420-0	3	2	197		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-201	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8068	CONFERENCE ROOM	AHU-8	H1.10	198	AP-VMA1420-0	3	2	198		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	3.0	2.5	VAVE-13	VAV	2.20	14	0.96	1000	3000	1500	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8076	WAITING ROOM	AHU-8	H1.10	199	AP-VMA1420-0	3	2	199		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	0.8	0.2	VAVA-202	VAV	1.91	6	0.2	100	500	250	VMA-1	INTERNAL	0-1.5" WC	SM	A		
	EIGHTH FLOOR	8080	JURY DELIBERATIONS	AHU-8	H1.10	200	AP-VMA1420-0	3	2	200		TE-67NP-2N00		VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5	VAVB-48	VAV	2.10	8	0.35	250	1000	500	VMA-3	INTERNAL	0-1.5" WC	SM	B		
	EIGHTH FLOOR	8080	JURY DELIBERATIONS		H1.21							SERVED BY ABOVE	R-1	VG5240EC+7450G	2-Way	0-1/2"	1.9	1.4	0.5													B	SERVES TWO SECTIONS OF R-1	
	EIGHTH FLOOR	ST-A	STAIR A		H1.21		T26S-18C						CUH-4	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	EIGHTH FLOOR	ST-D	STAIR C LANDING		H1.21		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	EIGHTH FLOOR	ST-D	STAIR D LANDING		H1.21		T26S-18C						CUH-3	VG5240EC+7010A	2-Way	0-1/2"	1.9	1.0	0.3													E		
	ROOF	EL-ER	ELEVATOR 'E' MACHINE ROOM		H1.11							BY OTHERS	AC-1																			L		
	ROOF	EL-FR	ELEVATOR 'F' MACHINE ROOM		H1.11							BY OTHERS	AC-2																			L		
	ROOF	EL-AR	ELEVATOR 'A-D' MACHINE ROOM		H1.11							BY OTHERS	AC-3																			L		
	ROOF	EL-AR	ELEVATOR 'A-D' MACHINE ROOM		H1.11							BY OTHERS	AC-4																			L		
	ROOF	EL-GR	ELEVATOR 'G' MACHINE ROOM		H1.11							BY OTHERS	AC-5																			L		

Dane County Courthouse
0 3109-0044

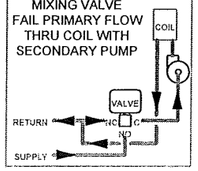
Valve Schedule

Rev	Item	Tag: System	Tag: Service	Tag: Ref. Dwg.	Valve Information: Qty.	Code Number	Cfg.	Fail Pos.	Pipe Size	Valve Size	Body Cfg.	Close Off	Flow	Valve Coefficient	Design Coefficient	Design Delta P	Valve Delta P	Actuator Information: Code No.	Pilot	Type	Control Signal	Piping Detail	Comments
	1	HE-1 (1/3 Valve) Heating	Steam	H3.2	1	VG2231UM+926GGA	2-Way	NO	5-0/0"	3-0/0"	Flanged	20 psi	2280.0 lb/hr	Cv = 83	Cv = 62.72	7.0 psi	3.7 psi	M9216-GGA-2	None	Electric	0-10vdc		Linkage: M9000-531, sized for 10 psi entering steam
	2	HE-1 (2/3 Valve) Heating	Steam	H3.2	1	VG2231VM2926GGA	2-Way	NO	5-0/0"	4-0/0"	Flanged	23 psi	4560.0 lb/hr	Cv = 150	Cv = 125.44	7.0 psi	4.6 psi	M9216-GGA-2	None	Electric	0-10vdc		Linkage: M9000-532, sized for 10 psi entering steam
	3	HE-2 (1/3 Valve) Snowmelt	Steam	H3.2	1	VG7241LT+946HGA	2-Way	NC	5-0/0"	0-3/4"	Threaded	289 psi	209.0 lb/hr	Cv = 7.3	Cv = 5.75	7.0 psi	4.1 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500, sized for 10 psi entering steam
	4	HE-2 (2/3 Valve) Snowmelt	Steam	H3.2	1	VG7241NT+946HGA	2-Way	NC	5-0/0"	1-0/0"	Threaded	182 psi	418.0 lb/hr	Cv = 11.6	Cv = 11.50	7.0 psi	6.9 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500, sized for 10 psi entering steam
	5	CH-1	Condenser Water	H3.2	1	VF4831DE+926GGA	3-Way E	Bypass Tower	6-0/0"	4-0/0"	Flanged	175 psi	720.0 gpm	Cv = 390	Cv = 321.99	5 psi	3.4 psi	M9216-GGA-2	None	Electric	0-10 VDC, 0(4)-20 mA	BFLY STYLE E	
	6	CH-2	Condenser Water	H3.2	1	5RL3/DM24-280	3-Way E	Bypass Tower	8-0/0"	5-0/0"	Flanged	50 psi	1200.0 gpm	Cv = 561.1	Cv = 536.66	5 psi	4.6 psi	DM24-280	None	Electric	0-10 VDC, 0(4)-20 mA	BFLY STYLE E	Battery back-up for fail safe return
	7	AHU-1	Steam	H3.2	1	VG7241RT+926HGA	2-Way	NO	4-0/0"	1-1/2"	Threaded	71 psi	921.9 lb/hr	Cv = 28.9	Cv = 25.36	7.0 psi	5.2 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	8	AHU-1	Chilled Water	H3.2	1	VG2231VM2924GGA	2-Way	Last Position	4-0/0"	4-0/0"	Flanged	49 psi	225.9 gpm	Cv = 150	Cv = 101.03	5 psi	2.3 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-532
	9	AHU-2	Steam	H1.15	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	781.3 lb/hr	Cv = 28.9	Cv = 21.49	7.0 psi	3.6 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	10	AHU-2	Chilled Water	H1.15	1	VG2231VM2924GGA	2-Way	Last Position		4-0/0"	Flanged	49 psi	270.8 gpm	Cv = 150	Cv = 121.11	5 psi	3.3 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-532
	11	AHU-4	Steam	H1.17	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	750.6 lb/hr	Cv = 28.9	Cv = 20.65	7.0 psi	3.3 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	12	AHU-4	Chilled Water	H1.17	1	VG2231UM+924GGA	2-Way	Last Position		3-0/0"	Flanged	43 psi	143.2 gpm	Cv = 83	Cv = 64.04	5 psi	3.0 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-531
	13	AHU-5	Steam	H1.18	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	750.6 lb/hr	Cv = 28.9	Cv = 20.65	7.0 psi	3.3 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	14	AHU-5	Chilled Water	H1.18	1	VG2231UM+924GGA	2-Way	Last Position		3-0/0"	Flanged	43 psi	143.2 gpm	Cv = 83	Cv = 64.04	5 psi	3.0 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-531
	15	AHU-6	Steam	H1.19	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	750.6 lb/hr	Cv = 28.9	Cv = 20.65	7.0 psi	3.3 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	16	AHU-6	Chilled Water	H1.19	1	VG2231UM+924GGA	2-Way	Last Position		3-0/0"	Flanged	43 psi	143.2 gpm	Cv = 83	Cv = 64.04	5 psi	3.0 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-531
	17	AHU-7	Steam	H1.20	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	750.6 lb/hr	Cv = 28.9	Cv = 20.65	7.0 psi	3.3 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	18	AHU-7	Chilled Water	H1.20	1	VG2231UM+924GGA	2-Way	Last Position		3-0/0"	Flanged	43 psi	143.2 gpm	Cv = 83	Cv = 64.04	5 psi	3.0 psi	M9124-GGA-2	None	Electric	0-10vdc		Linkage: M9000-531
	19	AHU-8	Steam	H1.21	1	VG7241RT+926HGA	2-Way	NO	3-0/0"	1-1/2"	Threaded	71 psi	750.6 lb/hr	Cv = 28.9	Cv = 20.65	7.0 psi	3.3 psi	M9216-HGA-2	None	Electric	0-10vdc		Linkage: M9000-500
	20	AHU-8	Chilled Water	H1.21	1	VG2831UM2924GGA	3-Way Mix	Last Position		3-0/0"	Flanged	53 psi	171.9 gpm	Cv = 80	Cv = 76.88	5 psi	4.6 psi	M9124-GGA-2	None	Electric	0-10vdc	E	Linkage: M9000-532
	21	VAV-A	Hot Water		202	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	0.8 gpm	Cv = 1.9	Cv = 0.36	5 psi	0.2 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	22	VAV-B	Hot Water		48	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	1.4 gpm	Cv = 1.9	Cv = 0.63	5 psi	0.5 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	23	VAV-C	Hot Water		15	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	2.0 gpm	Cv = 1.9	Cv = 0.89	5 psi	1.1 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	24	VAV-D	Hot Water		15	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	3.0 gpm	Cv = 1.9	Cv = 1.34	5 psi	2.5 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	25	VAV-E	Hot Water		13	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	3.0 gpm	Cv = 1.9	Cv = 1.34	5 psi	2.5 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	26	R-1, RP-1	Hot Water		107	VG5240EC+7450G	2-Way	Last Position		0-1/2"	Threaded	30 psi	4.0 gpm	Cv = 1.9	Cv = 1.79	5 psi	4.4 psi	VA-7450-10011	None	Electric	24vac		Room Schedule Valves
	27	R-1, RP-1	Hot Water		2	VG7241GT+7150G	2-Way	Last Position		0-1/2"	Threaded	216 psi	8.0 gpm	Cv = 4.6	Cv = 3.58	5 psi	3.0 psi	VA-7150-1001	None	Electric	24vac		Room Schedule Valves
	28	R-1, RP-1	Hot Water		1	VG7241LT+7150G	2-Way	Last Position		0-3/4"	Threaded	138 psi	13.7 gpm	Cv = 7.3	Cv = 6.13	5 psi	3.5 psi	VA-7150-1001	None	Electric	24vac		Room Schedule Valve
	29	CUH, UH	Hot Water		29	VG5240EC+7010A	2-Way	NO		0-1/2"	Threaded	30 psi	2.5 gpm	Cv = 1.9	Cv = 1.12	5 psi	1.7 psi	VA-7010-8002	None	Electric	120vac		Room Schedule Valves
	30	FCU-2	Hot Water		1	VG5240EC+7010G	2-Way	NO		0-1/2"	Threaded	30 psi	0.5 gpm	Cv = 1.9	Cv = 0.22	5 psi	0.1 psi	VA-7010-8001	None	Electric	24vac		Room Schedule Valve
	31	FCU-2	Chilled Water		1	VG5440EC+7010G	2-Way	NC		0-1/2"	Threaded	30 psi	1.0 gpm	Cv = 1.9	Cv = 0.45	5 psi	0.3 psi	VA-7010-8001	None	Electric	24vac		Room Schedule Valve

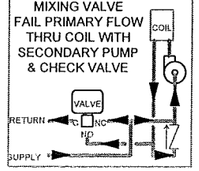
DETAIL A
MIXING VALVE
FAIL PRIMARY
FLOW THRU COIL



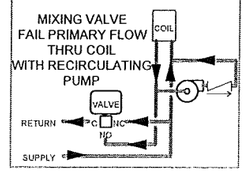
DETAIL B
MIXING VALVE
FAIL PRIMARY FLOW
THRU COIL WITH
SECONDARY PUMP



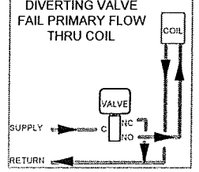
DETAIL C
MIXING VALVE
FAIL PRIMARY FLOW
THRU COIL WITH
SECONDARY PUMP
& CHECK VALVE



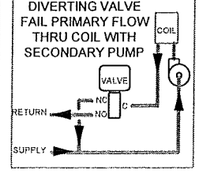
DETAIL D
MIXING VALVE
FAIL PRIMARY FLOW
THRU COIL
WITH RECIRCULATING
PUMP



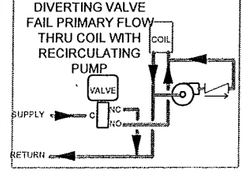
DETAIL I
DIVERTING VALVE
FAIL PRIMARY FLOW
THRU COIL



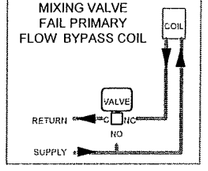
DETAIL J
DIVERTING VALVE
FAIL PRIMARY FLOW
THRU COIL WITH
SECONDARY PUMP



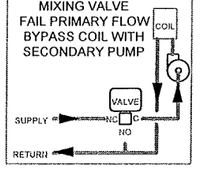
DETAIL K
DIVERTING VALVE
FAIL PRIMARY FLOW
THRU COIL WITH
RECIRCULATING
PUMP



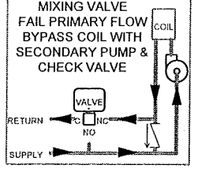
DETAIL E
MIXING VALVE
FAIL PRIMARY
FLOW BYPASS COIL



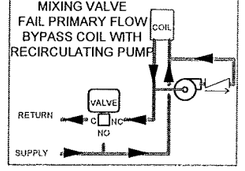
DETAIL F
MIXING VALVE
FAIL PRIMARY FLOW
BYPASS COIL WITH
SECONDARY PUMP



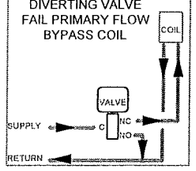
DETAIL G
MIXING VALVE
FAIL PRIMARY FLOW
BYPASS COIL WITH
SECONDARY PUMP &
CHECK VALVE



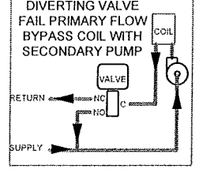
DETAIL H
MIXING VALVE
FAIL PRIMARY FLOW
BYPASS COIL WITH
RECIRCULATING PUMP



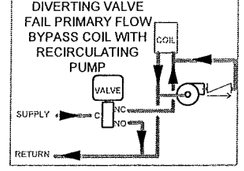
DETAIL L
DIVERTING VALVE
FAIL PRIMARY FLOW
BYPASS COIL



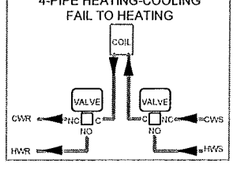
DETAIL M
DIVERTING VALVE
FAIL PRIMARY FLOW
BYPASS COIL WITH
SECONDARY PUMP



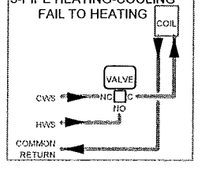
DETAIL N
DIVERTING VALVE
FAIL PRIMARY FLOW
BYPASS COIL WITH
RECIRCULATING
PUMP



DETAIL O
4-PIPE HEATING-COOLING
FAIL TO HEATING



DETAIL Q
3-PIPE HEATING-COOLING
FAIL TO HEATING



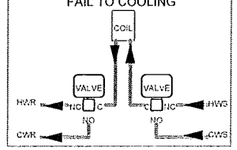
DETAIL S

DETAIL T

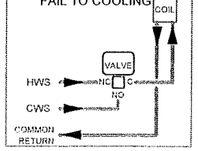
DETAIL U

DETAIL V

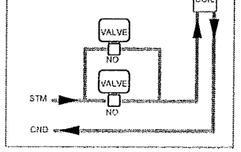
DETAIL P
4-PIPE HEATING-COOLING
FAIL TO COOLING



DETAIL R
3-PIPE HEATING-COOLING
FAIL TO COOLING



DETAIL W



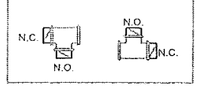
DETAIL X

DETAIL Y

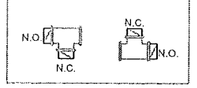
DETAIL Z

BUTTERFLY VALVE CONFIGURATIONS

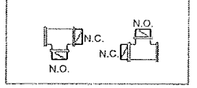
BFLY STYLE D
STYLE D
BUTTERFLY VALVE



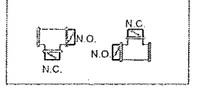
BFLY STYLE E
STYLE E
BUTTERFLY VALVE



BFLY STYLE F
STYLE F
BUTTERFLY VALVE



BFLY STYLE G
STYLE G
BUTTERFLY VALVE



NOTE: THE BUTTERFLY VALVE CONFIGURATIONS SHOWN REPRESENT A VIEW FROM THE ACTUATOR SIDE OF THE VALVE BODY

REVISION INFORMATION	Drawing Title						
NUMBER	VALVE SCHEDULE DETAILS						
			1	RECORD DRAWINGS		03/30/08	WCS
DATE 03/31/08		REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
TIME 11:45 PM	Project Title	Sales Engineer: GLA / Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE	APPROVED BY / DATE	Branch Information	CONTRACT NUMBER 0 3109-0044
FILE NAME Vlv-det.vsd	DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division					DRAWING NUMBER D2

Dane County Courthouse
0 3109-0044

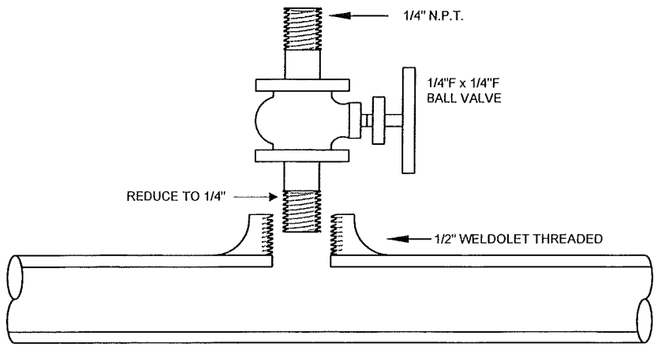
Well/Tap/Meter Schedule

	Tag Information				Well Information							Sensor Information			
Rev.	Item	System	Service	Ref. Sensor	Ref. dwg.	Line Size (in.)	Location	Code No.	Material	Stem Length (in.)	Thread Type	Ref. Detail	Tag	Code No.	Detail	Comments
		WELL														
	1	Hot Water	Hot Water Supply Temperature		H3.1	6-0/0"	LL1012	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		HWS-T	TE-631AP-1	F	
	2	Chilled Water	Chilled Water Supply Temperature		H3.1	8-0/0"	LL1012	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CHS-T	TE-631AP-1	F	
	3	Chilled Water	Chilled Water Return Temperature		H3.1	8-0/0"	LL1012	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CHR-T	TE-631AP-1	F	
	4	Condenser Water	Common Condenser Water Supply Temperature		H3.1	10-0/0"	LL1012	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CWS-T	TE-631AP-1	F	
	5	Condenser Water	CT-1 Condenser Water Supply Temperature		H3.1	6-0/0"	Above 8031	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CT1S-T	TE-631AP-1	F	
	6	Condenser Water	CT-1 Condenser Water Return Temperature		H3.1	6-0/0"	Above 8031	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CT1R-T	TE-631AP-1	F	
	7	Condenser Water	CT-2A Condenser Water Supply Temperature		H3.1	6-0/0"	Above 8032	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CT2AS-T	TE-631AP-1	F	
	8	Condenser Water	CT-2B Condenser Water Supply Temperature		H3.1	6-0/0"	Above 8037	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CT2BS-T	TE-631AP-1	F	
	9	Condenser Water	CT-2A & CT-2B Common Condenser Water Return Temperature		H3.1	8-0/0"	Above 8033	WZ-1000-5	Brass	2-3/8"	0-1/2" NPT		CT2ABR-T	TE-631AP-1	F	
		METER														
	10	Chilled Water	Bypass Loop Flow		H3.1	6-0/0"	LL1012	-	-	-	1" NPT		CH-FLOW	FB-1211	-	RANGE: 0-1400 GPM, SEE INSTALLATION INSTRUCTIONS WITH METER

DETAIL A

PRESSURE TAP

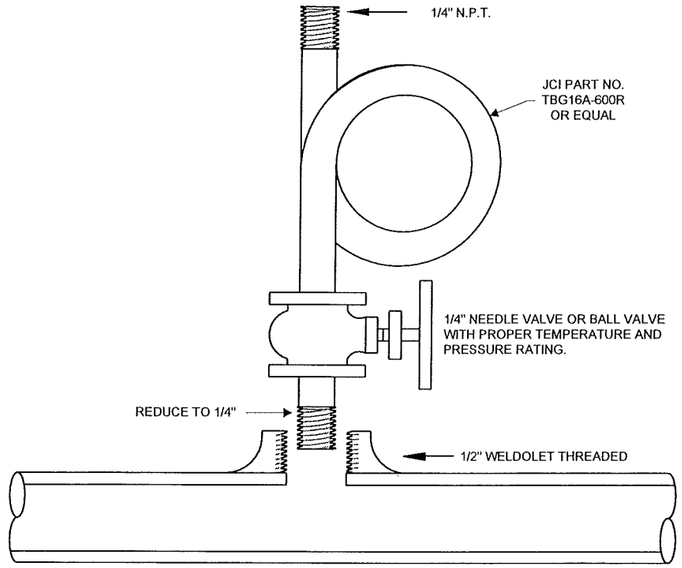
FOR WATER APPLICATIONS



DETAIL B

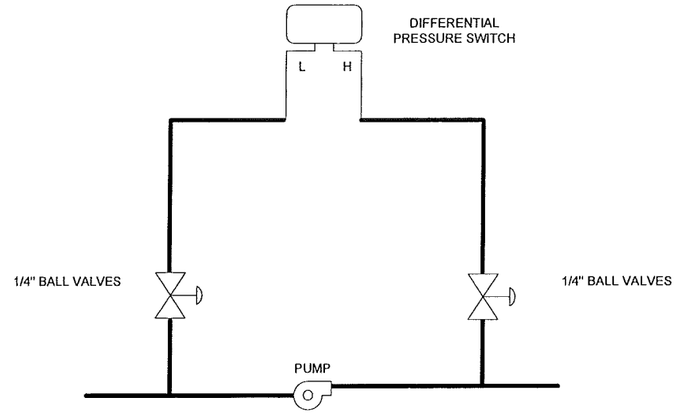
PRESSURE TAP

FOR STEAM APPLICATIONS



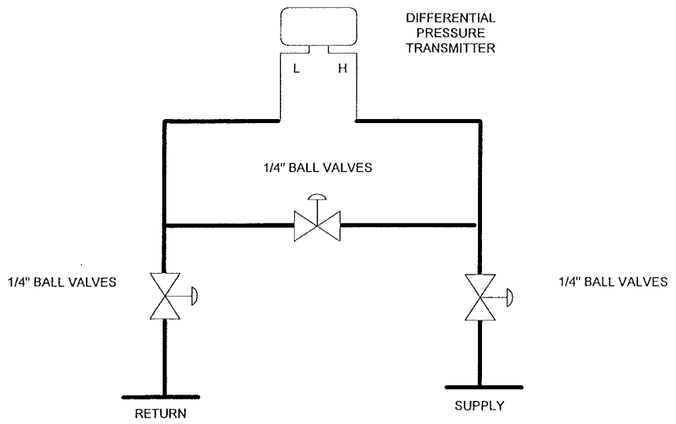
DETAIL C

DIFFERENTIAL PRESSURE



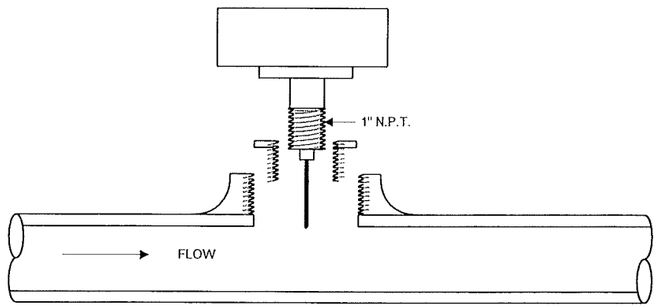
DETAIL D

DIFFERENTIAL PRESSURE



DETAIL E

FLOW SWITCH



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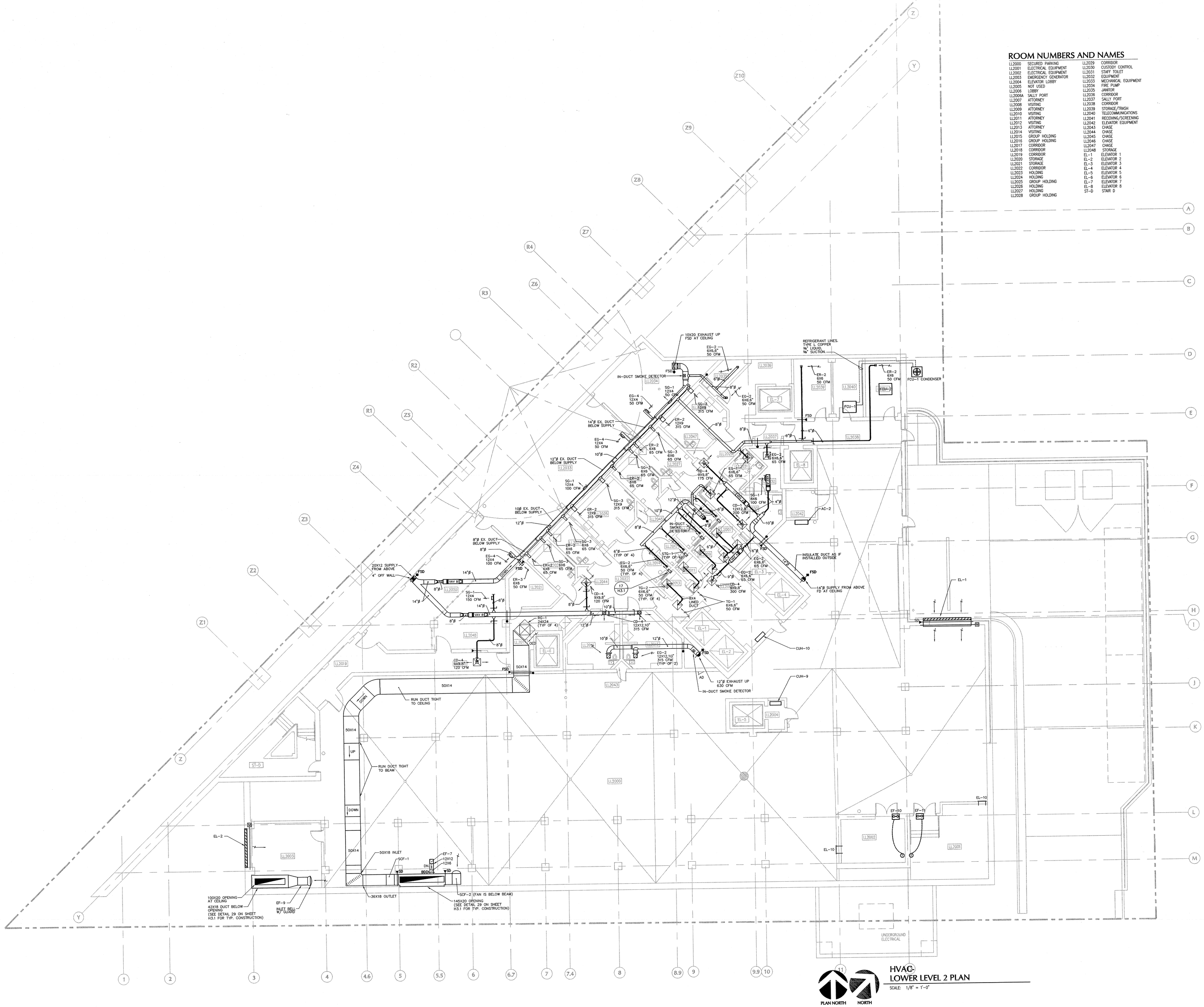
NUMBER				1	RECORD DRAWINGS		03/30/08	WCS
DATE: 03/31/08		REFERENCE DRAWING		NO.	REVISION-LOCATION	ECN	DATE	BY
TIME: 11:48 PM		Sales Engineer: GLA	Project Manager: SEL	Application Engineer: RJM	DRAWN BY / DATE		APPROVED BY / DATE	
FILE NAME: Tap-det.vsd	Project Title: DANE COUNTY COURTHOUSE 215 SOUTH HAMILTON ST. MADISON, WI 53703	JOHNSON CONTROLS Systems & Services Division		Branch Information: Madison Branch 2400 Kilgust Road Madison WI 53713 Phone: 608-222-9100 Fax: 608-222-9490		CONTRACT NUMBER: 0 3109-0044	DRAWING NUMBER: D3	

ROOM NUMBERS AND NAMES

LL2000	SECURED PARKING	LL2029	CORRIDOR
LL2001	ELECTRICAL EQUIPMENT	LL2030	CUSTODY CONTROL
LL2002	ELECTRICAL EQUIPMENT	LL2031	STAFF TOILET
LL2003	EMERGENCY GENERATOR	LL2032	EQUIPMENT
LL2004	ELEVATOR LOBBY	LL2033	MECHANICAL EQUIPMENT
LL2005	NOT USED	LL2034	FIRE PUMP
LL2006	LOBBY	LL2035	JANITOR
LL2006A	SALLY PORT	LL2036	CORRIDOR
LL2007	ATTORNEY	LL2037	SALLY PORT
LL2008	VISITING	LL2038	CORRIDOR
LL2009	ATTORNEY	LL2039	STORAGE/TRASH
LL2010	VISITING	LL2040	TELECOMMUNICATIONS
LL2011	ATTORNEY	LL2041	RECEIVING/SCREENING
LL2012	VISITING	LL2042	ELEVATOR EQUIPMENT
LL2013	ATTORNEY	LL2043	CHASE
LL2014	VISITING	LL2044	CHASE
LL2015	GROUP HOLDING	LL2045	CHASE
LL2016	GROUP HOLDING	LL2046	CHASE
LL2017	CORRIDOR	LL2047	CHASE
LL2018	CORRIDOR	LL2048	STORAGE
LL2019	CORRIDOR	EL-1	ELEVATOR 1
LL2020	STORAGE	EL-2	ELEVATOR 2
LL2021	STORAGE	EL-3	ELEVATOR 3
LL2022	CORRIDOR	EL-4	ELEVATOR 4
LL2023	HOLDING	EL-5	ELEVATOR 5
LL2024	HOLDING	EL-6	ELEVATOR 6
LL2025	GROUP HOLDING	EL-7	ELEVATOR 7
LL2026	HOLDING	EL-8	ELEVATOR 8
LL2027	HOLDING	ST-D	STAIR D
LL2028	GROUP HOLDING		



DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO.	00304.00
DATE	12/6/02
DRAWN BY	DER
CHECKED BY	CJF

SHEET CONTENTS

HVAC–
LOWER LEVEL 2 PLAN

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SHEET

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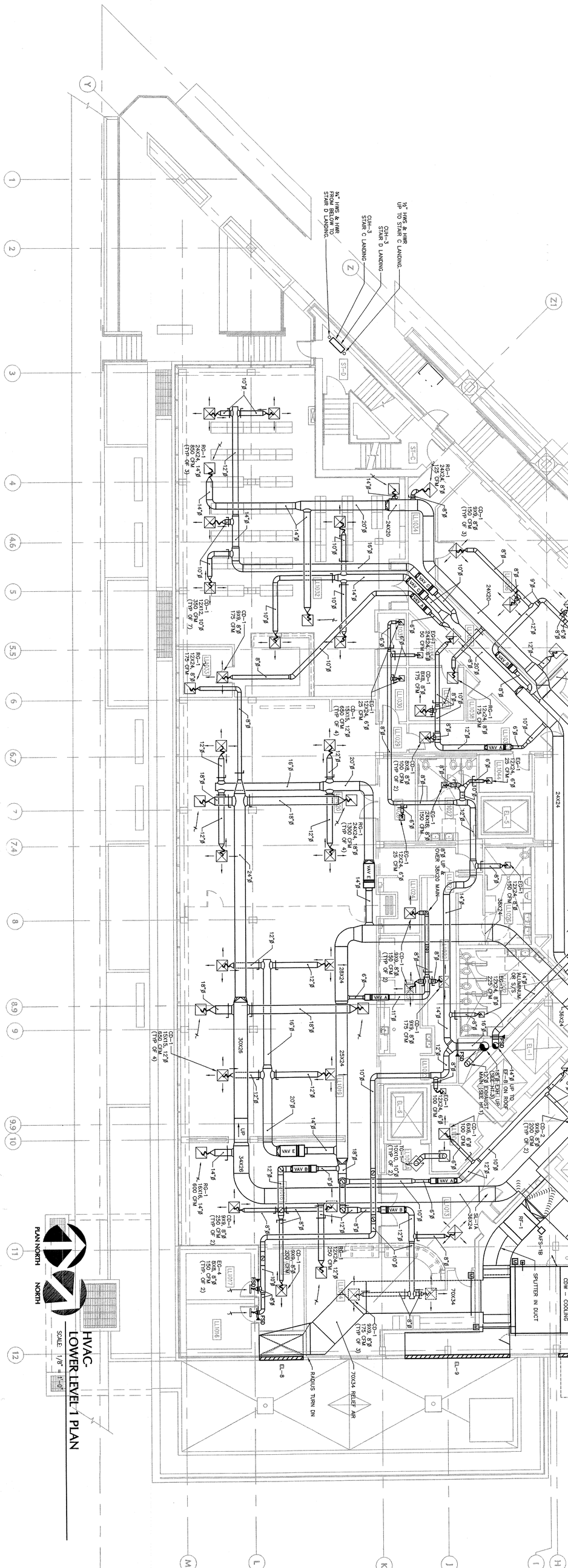
HVAC–
LOWER LEVEL 2 PLAN

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

Durrant Engineers Inc
Mechanical Department
Madison Wisconsin

PATH:P:\Projects\00\0030400\HVAC\
DATE:January 30 2002 10:28:00am
VERSION:15.06



PLAN NORTH

NORTH

HVAC- LOWER LEVEL 1 PLAN

SCALE 1/8" = 1'-0"

Durrant

ARCHITECTURE ENGINEERING INTERIORS

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS, INC.

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. 00304.00
DATE 12/6/02
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SHEET CONTENTS
HVAC
LOWER LEVEL 1
PLAN

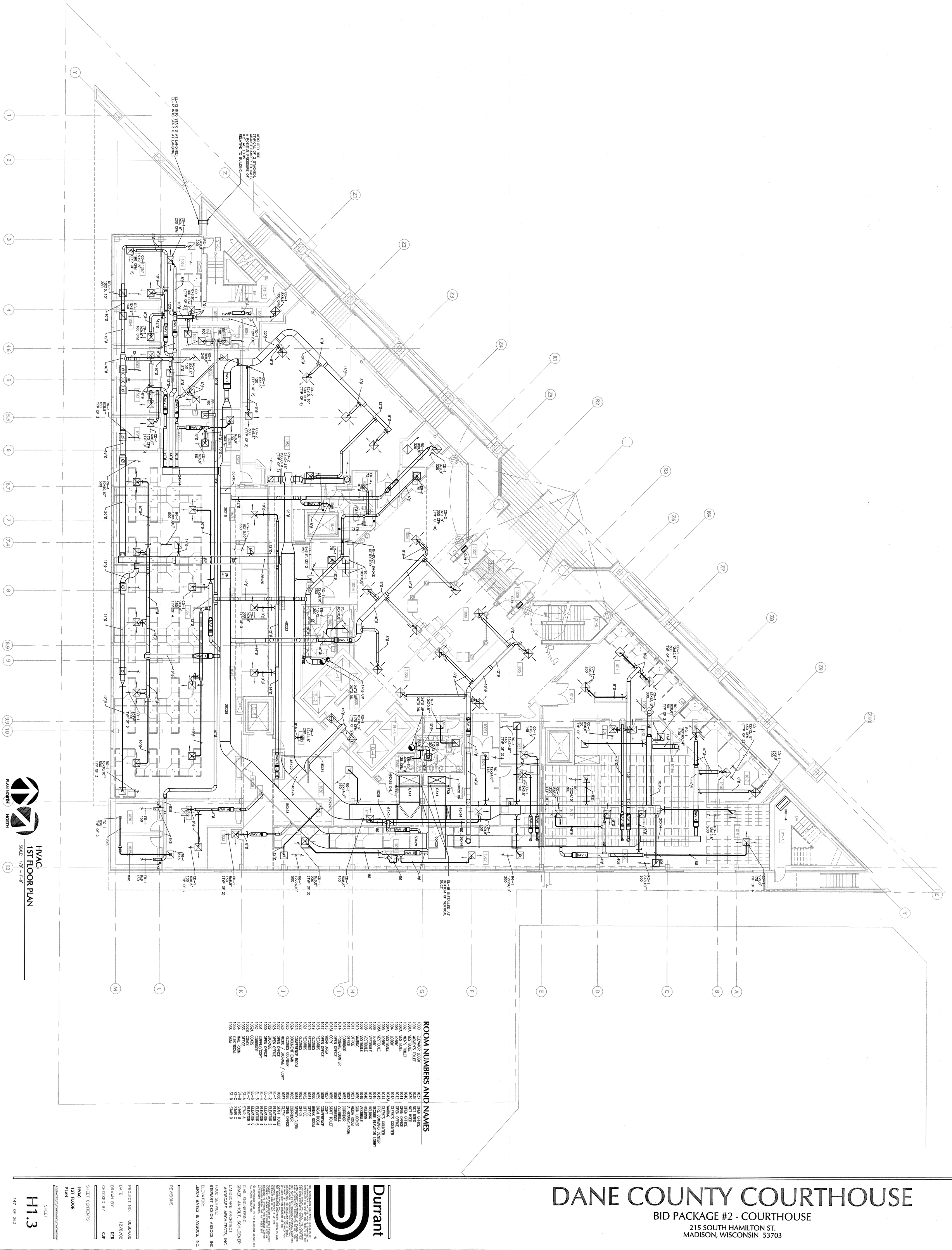
P:\PROJECTS\00\0030400\HVAC\0030400-H1.02.DWG

SHEET
H1.2

DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703



HVAC
1ST FLOOR PLAN

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

ROOM NUMBERS AND NAMES

1000	ELEVATOR LOBBY
1001	WOMEN'S TOILET
1001A	VESTIBULE
1002	MEN'S TOILET
1002A	VESTIBULE
1003	LOBBY
1004	LOBBY
1004A	VESTIBULE
1005	LOBBY
1005A	VESTIBULE
1006	LOBBY
1007	VESTIBULE
1008	VESTIBULE
1009	VESTIBULE
1010	WAITING
1011	OFFICE
1012	OFFICE
1013	CORRIDOR
1014	PROBATE COUNTER
1015	OPEN OFFICE
1015A	COPY
1016	WORK AREA
1017	OPEN OFFICE
1018	RECORDS
1019	RECORDS
1020	RECORDS
1021	RECORDS
1022	RECORDS
1023	CONFERENCE ROOM
1024	DOCUMENT EXAM
1025	RECORDS COUNTER
1026	MICRO / STORAGE / COPY
1027	OPEN OFFICE
1028	OPEN OFFICE
1029	STORAGE
1030	OPEN OFFICE
1031	SUPPLY/COPY
1032	CORRIDOR
1032A	COATS
1032B	COATS
1033	OFFICE
1034	MAIL ROOM
1035	ELECTRICAL
1036	DATA
1037	OPEN OFFICE
1038	NOT USED
1039	NOT USED
1040	OPEN OFFICE
1041	OPEN OFFICE
1042	OPEN OFFICE
1043	CLERK'S COUNTER
1043A	WAITING
1044	CLERK'S COUNTER
1045	SECURITY
1046	FIRE COMMAND CENTER
1047	SECURE ELEVATOR LOBBY
1048	HOLDING
1049	VESTIBULE
1050	GUN LOCKER
1051	MEDIA ROOM
1052	IA HEARING ROOM
1053	CORRIDOR
1054	VESTIBULE
1055	CORRIDOR
1056	STAFF TOILET
1057	COPY
1058	CONFERENCE
1059	CASH ROOM
1060	BREAK ROOM
1061	OFFICE
1062	OFFICE
1063	OFFICE
1064	DEPUTY CLERK
1065	CORRIDOR
1066	CLERK OFFICE
1067	STAFF TOILET
EL-1	ELEVATOR 1
EL-2	ELEVATOR 2
EL-3	ELEVATOR 3
EL-4	ELEVATOR 4
EL-5	ELEVATOR 5
EL-6	ELEVATOR 6
EL-7	ELEVATOR 7
ST-A	STAIR A
ST-B	STAIR B
ST-C	STAIR C
ST-D	STAIR D

DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. 00304.00
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SHEET CONTENTS
HVAC
1ST FLOOR
PLAN

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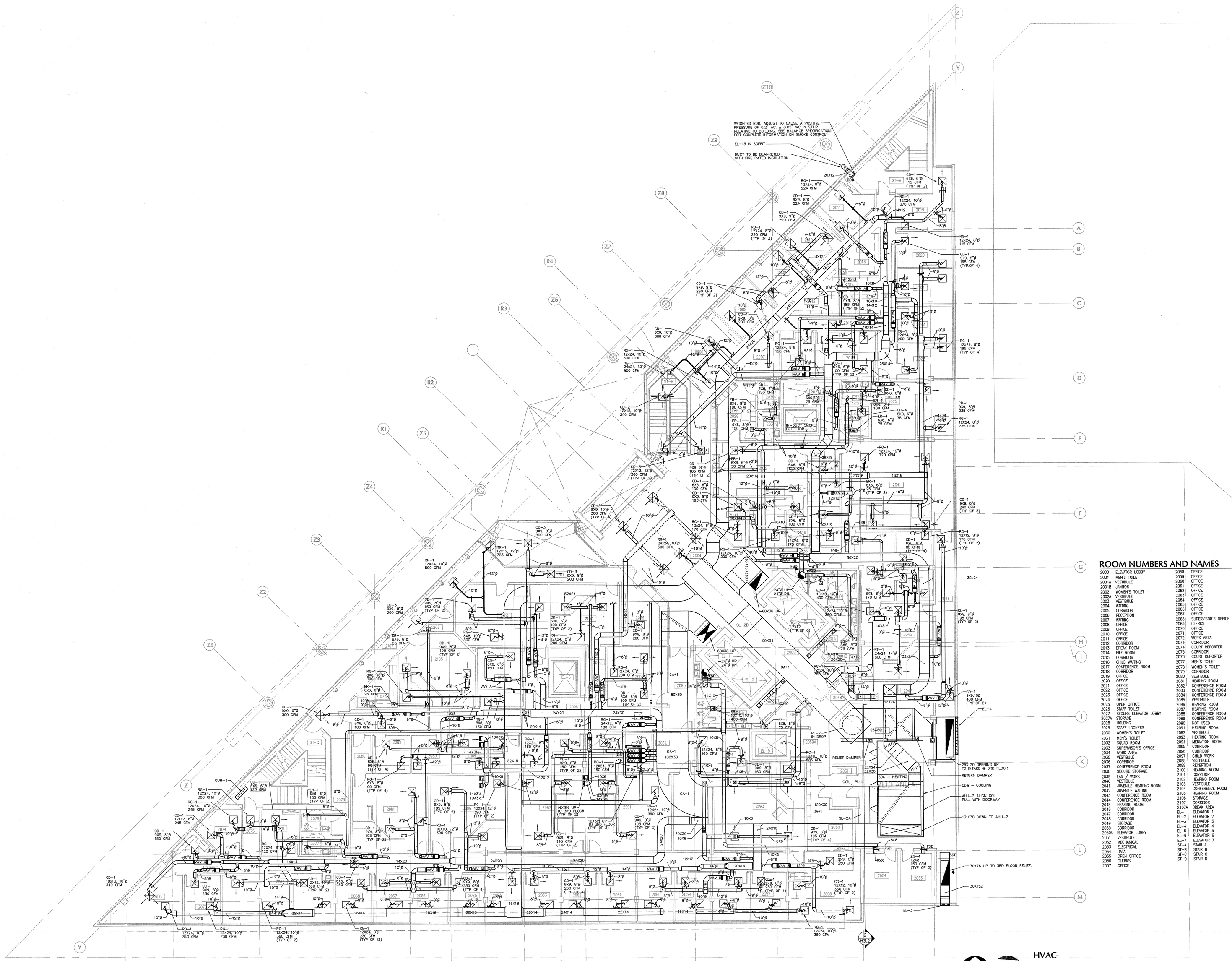
H1.3

DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703



ROOM NUMBERS AND NAMES

2000	ELEVATOR LOBBY	2058	OFFICE
2001	MEN'S TOILET	2059	OFFICE
2001A	VESTIBULE	2060	OFFICE
2001B	JANITOR	2061	OFFICE
2002	WOMEN'S TOILET	2062	OFFICE
2002A	VESTIBULE	2063	OFFICE
2003	VESTIBULE	2064	OFFICE
2004	WAITING	2065	OFFICE
2005	CORRIDOR	2066	OFFICE
2006	RECEPTION	2067	OFFICE
2007	WAITING	2068	SUPERVISOR'S OFFICE
2008	OFFICE	2069	CLERKS
2009	OFFICE	2070	OFFICE
2010	OFFICE	2071	OFFICE
2011	OFFICE	2072	WORK AREA
2012	CORRIDOR	2073	CORRIDOR
2013	BREAK ROOM	2074	COURT REPORTER
2014	FILE ROOM	2075	CORRIDOR
2015	CORRIDOR	2076	COURT REPORTER
2016	CHILD WAITING	2077	MEN'S TOILET
2017	CONFERENCE ROOM	2078	WOMEN'S TOILET
2018	CORRIDOR	2079	CORRIDOR
2019	OFFICE	2080	VESTIBULE
2020	OFFICE	2081	HEARING ROOM
2021	OFFICE	2082	CONFERENCE ROOM
2022	OFFICE	2083	CONFERENCE ROOM
2023	OFFICE	2084	CONFERENCE ROOM
2024	OFFICE	2085	VESTIBULE
2025	OPEN OFFICE	2086	HEARING ROOM
2026	STAFF TOILET	2087	HEARING ROOM
2027	SECURE ELEVATOR LOBBY	2088	CONFERENCE ROOM
2027A	STORAGE	2089	CONFERENCE ROOM
2028	HOLDING	2090	NOT USED
2029	STAFF LOCKERS	2091	HEARING ROOM
2030	WOMEN'S TOILET	2092	VESTIBULE
2031	MEN'S TOILET	2093	HEARING ROOM
2032	SQUAD ROOM	2094	MEDIATION ROOM
2033	SUPERVISOR'S OFFICE	2095	CORRIDOR
2034	WORK AREA	2096	CORRIDOR
2035	VESTIBULE	2097	CHILD WORK
2036	CORRIDOR	2098	VESTIBULE
2037	CONFERENCE ROOM	2099	RECEPTION
2038	SECURE STORAGE	2100	HEARING ROOM
2039	LAN / WORK	2101	CORRIDOR
2040	VESTIBULE	2102	HEARING ROOM
2041	JUVENILE HEARING ROOM	2103	VESTIBULE
2042	JUVENILE WAITING	2104	CONFERENCE ROOM
2043	CONFERENCE ROOM	2105	HEARING ROOM
2044	CONFERENCE ROOM	2106	STORAGE
2045	HEARING ROOM	2107	CORRIDOR
2046	CORRIDOR	2107A	BREAK AREA
2047	CORRIDOR	EL-1	ELEVATOR 1
2048	CORRIDOR	EL-2	ELEVATOR 2
2049	STORAGE	EL-3	ELEVATOR 3
2050	CORRIDOR	EL-4	ELEVATOR 4
2050A	ELEVATOR LOBBY	EL-5	ELEVATOR 5
2051	VESTIBULE	EL-6	ELEVATOR 6
2052	MECHANICAL	EL-7	ELEVATOR 7
2053	ELECTRICAL	ST-A	STAIR A
2054	DATA	ST-B	STAIR B
2055	OPEN OFFICE	ST-C	STAIR C
2056	CLERKS	ST-D	STAIR D
2057	OFFICE		

HVAC- 2ND FLOOR PLAN

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

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO.	00304.00
DATE	12/6/02
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SHEET CONTENTS

HVAC
2ND FLOOR
PLAN

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SHEET

H1.4

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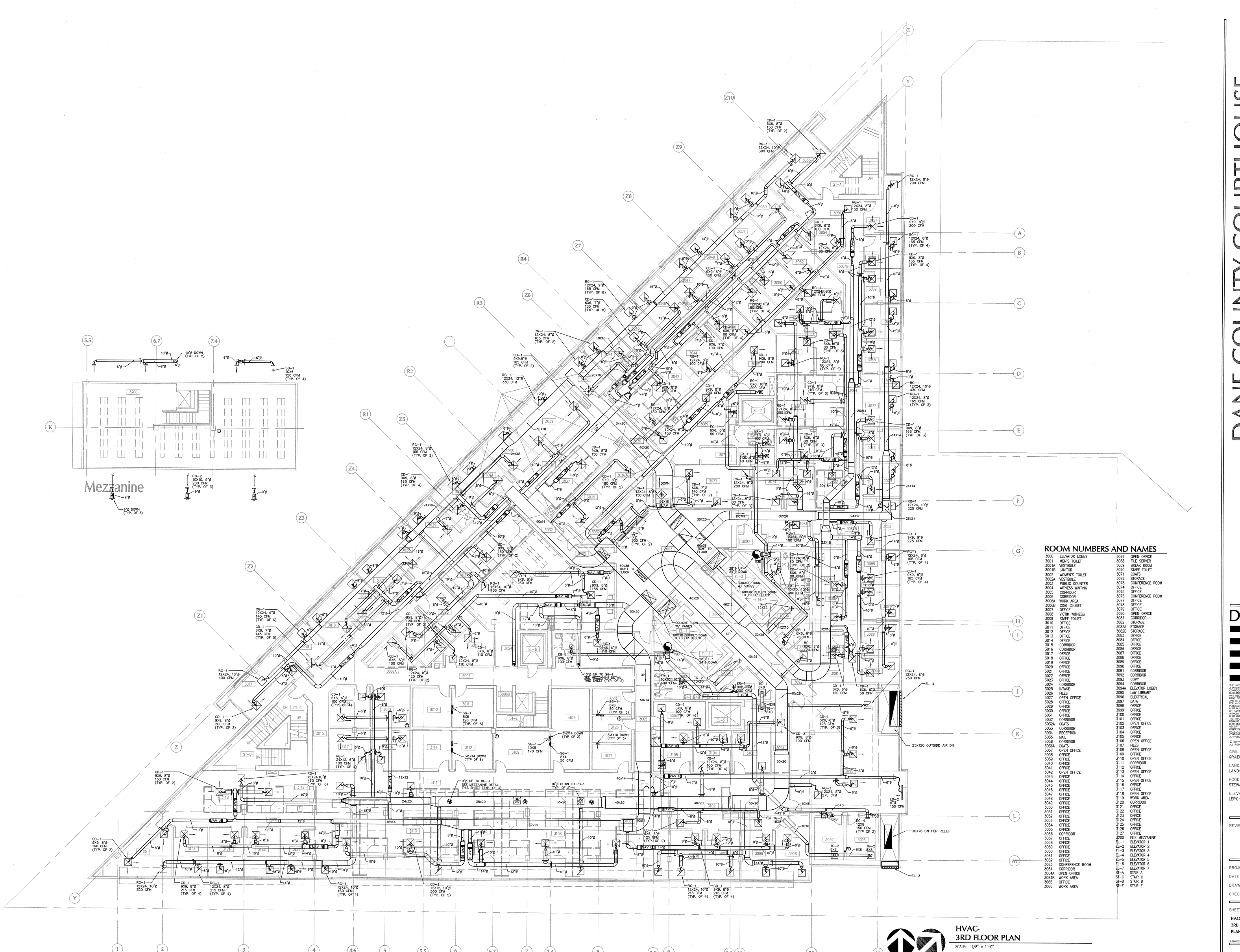

ROOM NUMBERS AND NAMES

3000	ELEVATOR LOBBY	3067	OPEN OFFICE
3001	MEN'S TOILET	3068	FILE SERVER
3001A	VESTIBULE	3069	BREAK ROOM
3001B	JANITOR	3070	STAFF TOILET
3002	WOMEN'S TOILET	3071	COATS
3002A	VESTIBULE	3072	STORAGE
3003	PUBLIC COUNTER	3073	CONFERENCE ROOM
3004	WITNESS WAITING	3074	OFFICE
3005	CORRIDOR	3075	OFFICE
3006	CORRIDOR	3076	CONFERENCE ROOM
3006A	WORK AREA	3077	OFFICE
3006B	COAT CLOSET	3078	OFFICE
3007	OFFICE	3079	OFFICE
3008	VICTIM WITNESS	3080	OPEN OFFICE
3009	STAFF TOILET	3081	CORRIDOR
3010	OFFICE	3082	STORAGE
3011	OFFICE	3082A	STORAGE
3012	OFFICE	3082B	STORAGE
3013	OFFICE	3083	OFFICE
3014	OFFICE	3084	OFFICE
3015	CORRIDOR	3085	OFFICE
3016	CORRIDOR	3086	OFFICE
3017	OFFICE	3087	OFFICE
3018	OFFICE	3088	OFFICE
3019	OFFICE	3089	OFFICE
3020	OFFICE	3090	OFFICE
3021	OFFICE	3091	CORRIDOR
3022	OFFICE	3092	CORRIDOR
3023	OFFICE	3093	COPY
3024	CORRIDOR	3094	CORRIDOR
3025	INTAKE	3094A	ELEVATOR LOBBY
3026	FILES	3095	LAW LIBRARY
3027	OPEN OFFICE	3096	ELECTRICAL
3028	OFFICE	3097	DATA
3029	OFFICE	3098	OFFICE
3030	OFFICE	3099	OFFICE
3031	OFFICE	3100	OFFICE
3032	CORRIDOR	3101	OFFICE
3032A	COATS	3102	OPEN OFFICE
3033	CORRIDOR	3103	OFFICE
3034	RECEPTION	3104	OFFICE
3035	MAIL	3105	OFFICE
3036	CORRIDOR	3106	OPEN OFFICE
3036A	COATS	3107	FILES
3037	OPEN OFFICE	3108	OPEN OFFICE
3038	OFFICE	3109	OFFICE
3039	OFFICE	3110	OPEN OFFICE
3040	OFFICE	3111	CORRIDOR
3041	OFFICE	3112	OFFICE
3042	OPEN OFFICE	3113	OPEN OFFICE
3043	OFFICE	3114	OFFICE
3044	OFFICE	3115	OPEN OFFICE
3045	OFFICE	3116	OFFICE
3046	OFFICE	3117	OFFICE
3047	OFFICE	3118	OPEN OFFICE
3048	OFFICE	3119	WORK AREA
3049	OFFICE	3120	CORRIDOR
3050	OFFICE	3121	OFFICE
3051	OFFICE	3122	OFFICE
3052	OFFICE	3123	OFFICE
3053	OFFICE	3124	OFFICE
3054	OFFICE	3125	OFFICE
3055	OFFICE	3126	OFFICE
3056	CORRIDOR	3127	OFFICE
3057	OFFICE	3200	FILE MEZZANINE
3058	OFFICE	EL-1	ELEVATOR 1
3059	OFFICE	EL-2	ELEVATOR 2
3060	OFFICE	EL-3	ELEVATOR 3
3061	OFFICE	EL-4	ELEVATOR 4
3062	OFFICE	EL-5	ELEVATOR 5
3063	CONFERENCE ROOM	EL-6	ELEVATOR 6
3064	CORRIDOR	EL-7	ELEVATOR 7
3064A	OPEN OFFICE	ST-A	STAIR A
3064B	WORK AREA	ST-C	STAIR C
3065	OFFICE	ST-D	STAIR D
3066	WORK AREA	ST-E	STAIR E

HVAC- 3RD FLOOR PLAN

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

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DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC.

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. 00304.00
DATE 12/6/02
DRAWN BY DER
CHECKED BY CJF

SHEET CONTENTS
HVAC
3RD FLOOR
PLAN

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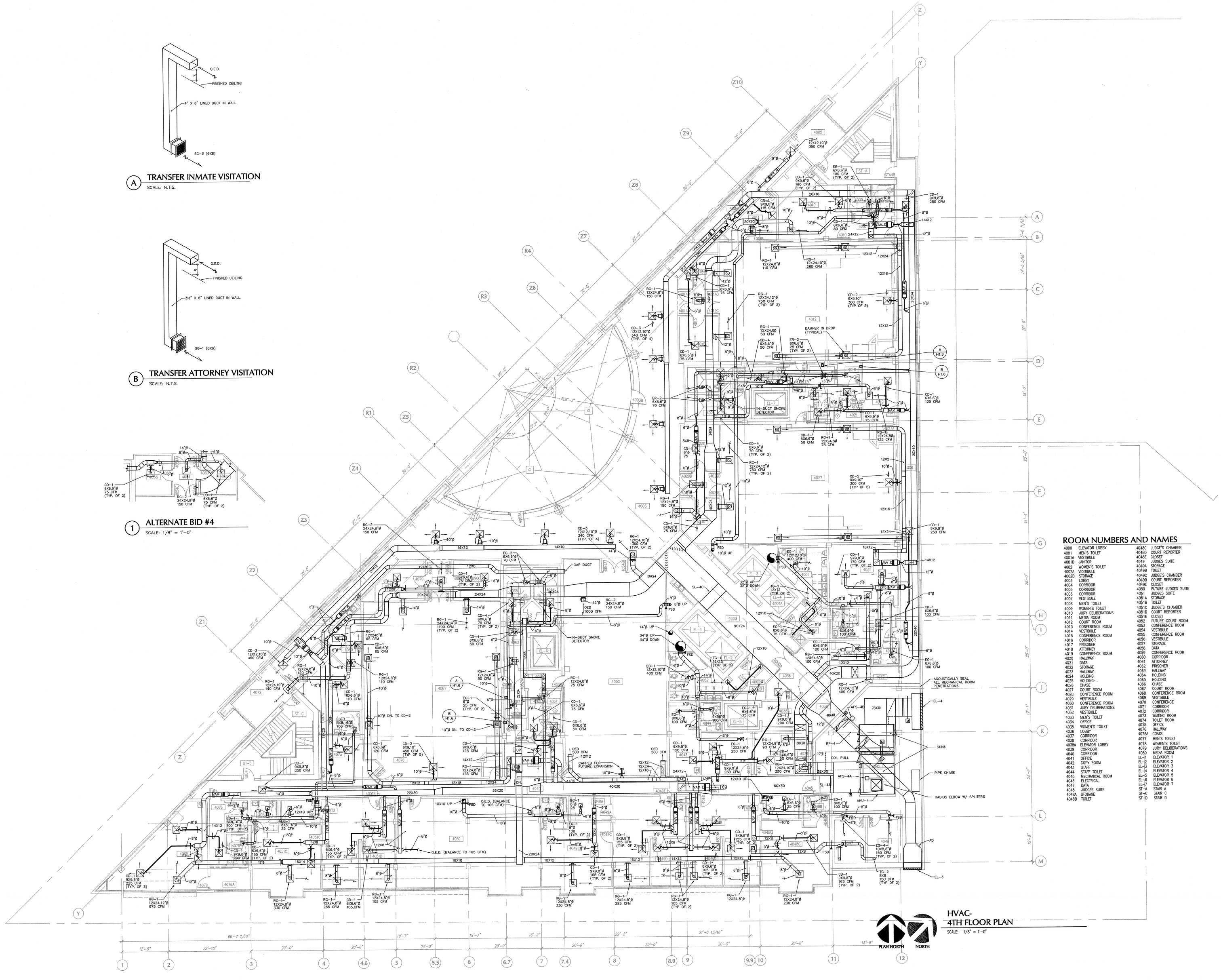
SHEET
H1.5

A TRANSFER INMATE VISITATION
SCALE: N.T.S.

B TRANSFER ATTORNEY VISITATION
SCALE: N.T.S.

1 ALTERNATE BID #4
SCALE: 1/8" = 1'-0"



HVAC-
4TH FLOOR PLAN
SCALE: 1/8" = 1'-0"

ROOM NUMBERS AND NAMES

4000	ELEVATOR LOBBY	4048C	JUDGE'S CHAMBER
4001	MEN'S TOILET	4048D	COURT REPORTER
4001A	VESTIBULE	4048E	CLOSET
4001B	JANITOR	4049	JUDGES SUITE
4002	WOMEN'S TOILET	4049A	STORAGE
4002A	VESTIBULE	4049B	TOILET
4002B	STORAGE	4049C	JUDGE'S CHAMBER
4003	LOBBY	4049D	COURT REPORTER
4004	CORRIDOR	4049E	CLOSET
4005	CORRIDOR	4050	FUTURE JUDGES SUITE
4006	CORRIDOR	4051	JUDGES SUITE
4007	VESTIBULE	4051A	STORAGE
4008	MEN'S TOILET	4051B	TOILET
4009	WOMEN'S TOILET	4051C	JUDGE'S CHAMBER
4010	JURY DELIBERATIONS	4051D	COURT REPORTER
4011	MEDIA ROOM	4051E	CLOSET
4012	COURT ROOM	4052	FUTURE COURT ROOM
4013	CONFERENCE ROOM	4053	CONFERENCE ROOM
4014	VESTIBULE	4054	VESTIBULE
4015	CONFERENCE ROOM	4055	CONFERENCE ROOM
4016	CORRIDOR	4056	VESTIBULE
4017	PRISONER	4057	STORAGE
4018	ATTORNEY	4058	DATA
4019	CONFERENCE ROOM	4059	CONFERENCE ROOM
4020	HALLWAY	4060	CORRIDOR
4021	DATA	4061	ATTORNEY
4022	STORAGE	4062	PRISONER
4023	HALLWAY	4063	HALLWAY
4024	HOLDING	4064	HOLDING
4025	HOLDING -	4065	HOLDING
4026	CHASE	4066	CHASE
4027	COURT ROOM	4067	COURT ROOM
4028	CONFERENCE ROOM	4068	CONFERENCE ROOM
4029	VESTIBULE	4069	VESTIBULE
4030	CONFERENCE ROOM	4070	CONFERENCE
4031	JURY DELIBERATIONS	4071	CORRIDOR
4032	VESTIBULE	4072	CORRIDOR
4033	MEN'S TOILET	4073	WAITING ROOM
4034	OFFICE	4074	TOILET ROOM
4035	WOMEN'S TOILET	4075	OFFICE
4036	LOBBY	4076	HALLWAY
4037	CORRIDOR	4076A	COATS
4038	CORRIDOR	4077	MEN'S TOILET
4038A	ELEVATOR LOBBY	4078	WOMEN'S TOILET
4039	CORRIDOR	4079	JURY DELIBERATIONS
4040	CORRIDOR	4080	MEDIA ROOM
4041	OFFICE	EL-1	ELEVATOR 1
4042	COPY ROOM	EL-2	ELEVATOR 2
4043	STAFF	EL-3	ELEVATOR 3
4044	STAFF TOILET	EL-4	ELEVATOR 4
4045	MECHANICAL ROOM	EL-5	ELEVATOR 5
4046	ELECTRICAL	EL-6	ELEVATOR 6
4047	DATA	EL-7	ELEVATOR 7
4048	JUDGES SUITE	ST-A	STAIR A
4048A	STORAGE	ST-C	STAIR C
4048B	TOILET	ST-D	STAIR D

DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. 00304.00
DATE 12/6/02
DRAWN BY SCK
CHECKED BY CJF

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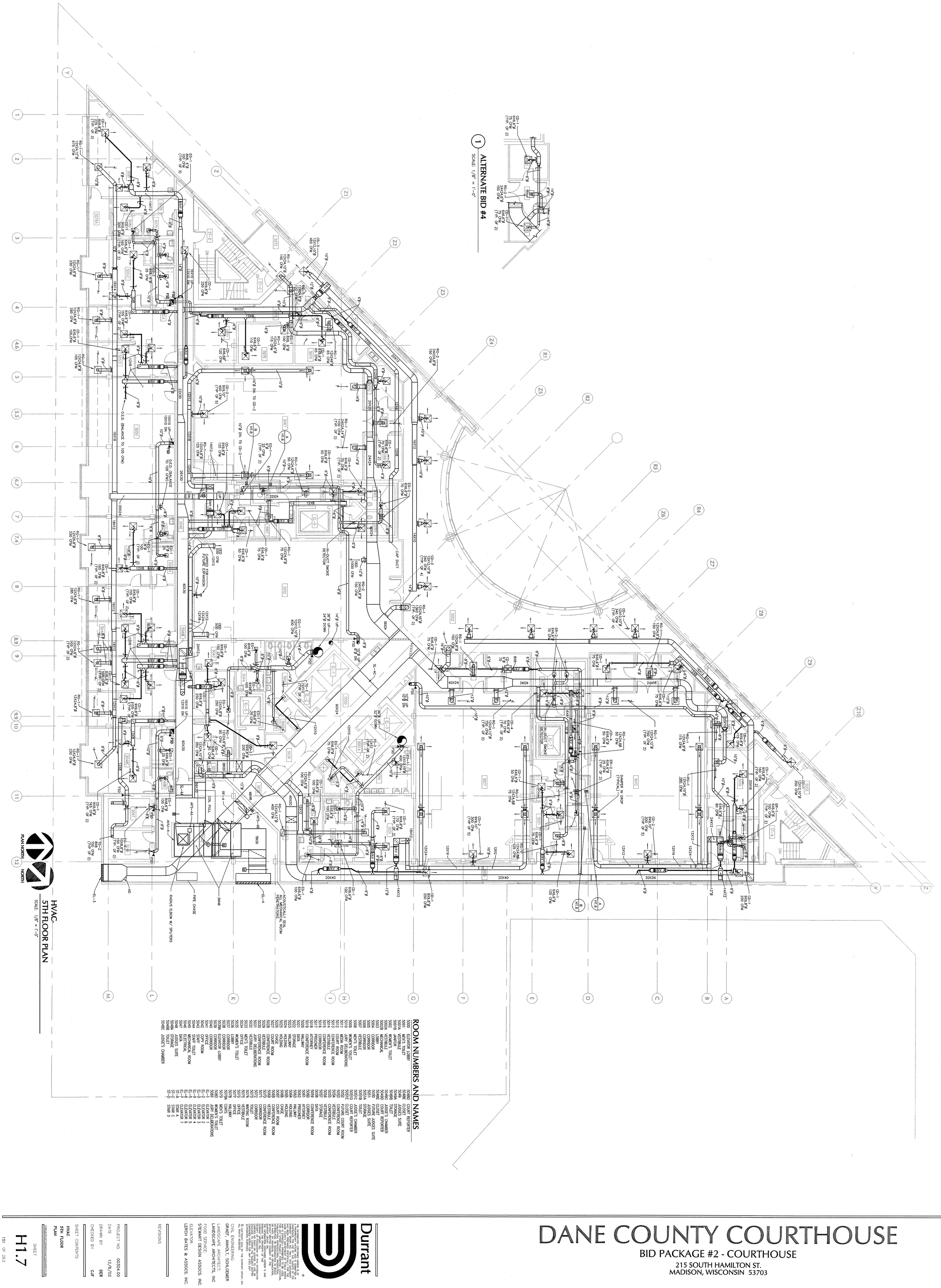

ROOM NUMBERS AND NAMES

5000	ELEVATOR LOBBY
5001	MEN'S TOILET
5001A	VESTIBULE
5001B	JANITOR
5002	WOMEN'S TOILET
5002A	VESTIBULE
5002B	MECHANICAL
5003	CORRIDOR
5004	CORRIDOR
5005	CORRIDOR
5006	CORRIDOR
5007	VESTIBULE
5008	MEN'S TOILET
5009	WOMEN'S TOILET
5010	JURY DELIBERATIONS
5011	MEDIA ROOM
5012	COURT ROOM
5013	CONFERENCE ROOM
5014	VESTIBULE
5015	CONFERENCE ROOM
5016	CORRIDOR
5017	PRISONER
5018	ATTORNEY
5019	CONFERENCE ROOM
5020	HALLWAY
5021	DATA
5022	STORAGE
5023	HALLWAY
5024	HOLDING
5025	HOLDING
5026	CHASE
5027	COURT ROOM
5028	CONFERENCE ROOM
5029	VESTIBULE
5030	CONFERENCE ROOM
5031	JURY DELIBERATIONS
5032	VESTIBULE
5033	MEN'S TOILET
5034	OFFICE
5035	WOMEN'S TOILET
5036	LOBBY
5037	CORRIDOR
5038	CORRIDOR
5039	ELEVATOR LOBBY
5040	CORRIDOR
5041	OFFICE
5042	COPY ROOM
5043	OFFICE
5044	STAFF TOILET
5045	MECHANICAL ROOM
5046	ELECTRICAL
5047	DATA
5048	JUDGES SUITE
5048A	STORAGE
5048B	TOILET
5048C	JUDGE'S CHAMBER
5048D	COURT REPORTER
5048E	JUDGES SUITE
5048F	STORAGE
5048G	JANITOR
5049	JUDGES SUITE
5049A	STORAGE
5049B	TOILET
5049C	JUDGE'S CHAMBER
5049D	COURT REPORTER
5049E	CLOSET
5050	FUTURE JUDGES SUITE
5051	JUDGES SUITE
5051A	STORAGE
5051B	TOILET
5051C	JUDGE'S CHAMBER
5051D	COURT REPORTER
5051E	CLOSET
5052	FUTURE COURT ROOM
5053	CONFERENCE ROOM
5054	VESTIBULE
5055	CONFERENCE ROOM
5056	VESTIBULE
5057	STORAGE
5058	TOILET
5059	CONFERENCE ROOM
5060	CORRIDOR
5061	ATTORNEY
5062	PRISONER
5063	HALLWAY
5064	HOLDING
5065	HOLDING
5066	CHASE
5067	COURT ROOM
5068	CONFERENCE ROOM
5069	VESTIBULE
5070	CONFERENCE ROOM
5071	CORRIDOR
5072	CORRIDOR
5073	TOILET
5074	WAITING ROOM
5075	VESTIBULE
5076	OFFICE
5077	OFFICE
5078	HALLWAY
5078A	COATS
5079	MEN'S TOILET
5080	WOMEN'S TOILET
5081	JURY DELIBERATIONS
EL-1	ELEVATOR 1
EL-2	ELEVATOR 2
EL-3	ELEVATOR 3
EL-4	ELEVATOR 4
EL-5	ELEVATOR 5
EL-6	ELEVATOR 6
EL-7	ELEVATOR 7
ST-A	STAIR A
ST-C	STAIR C
ST-D	STAIR D

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC.

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. **00304.00**
DATE **12/6/02**
DRAWN BY **DER**
CHECKED BY **CJF**

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DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

1 **ALTERNATE BID #4**

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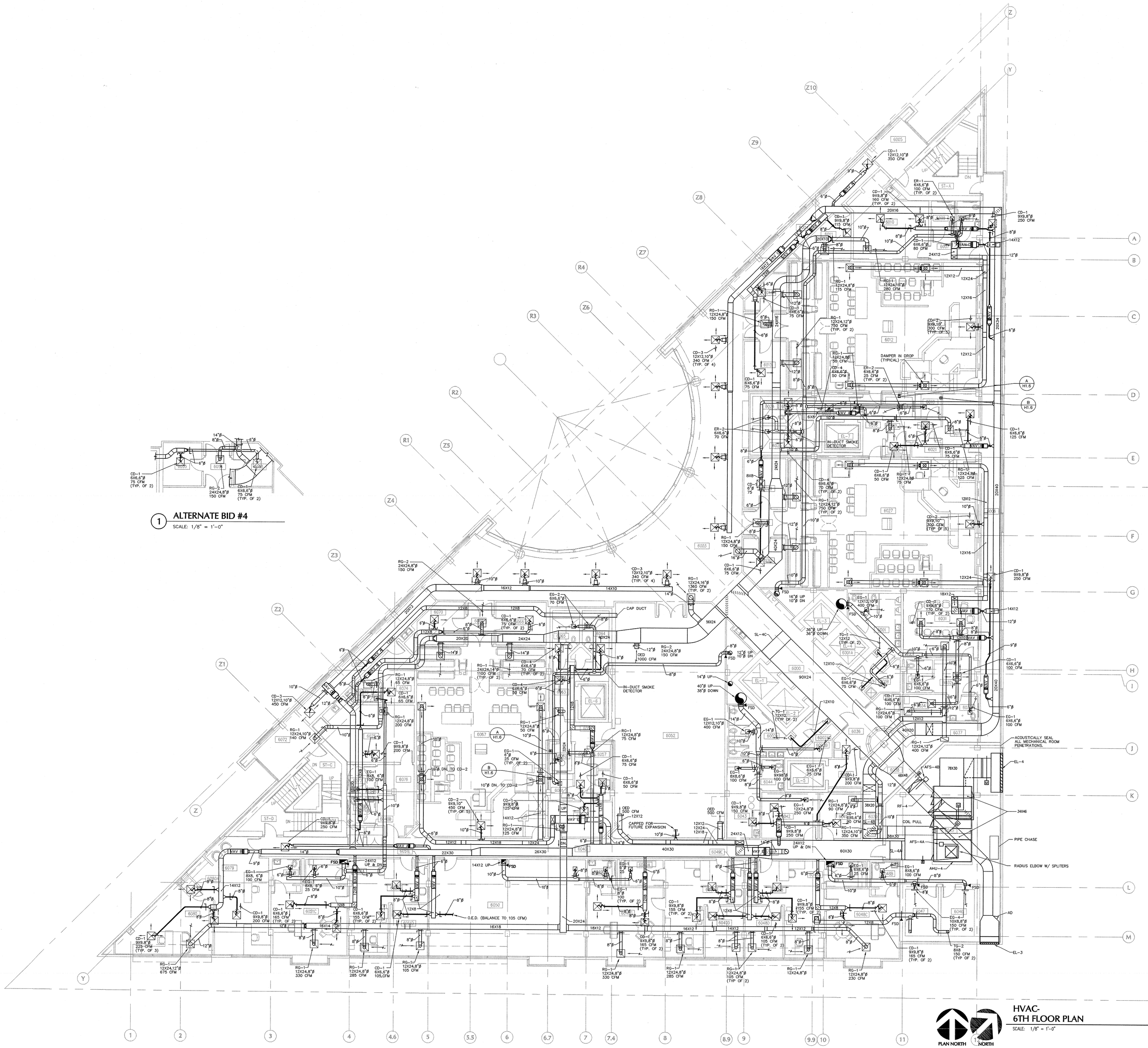
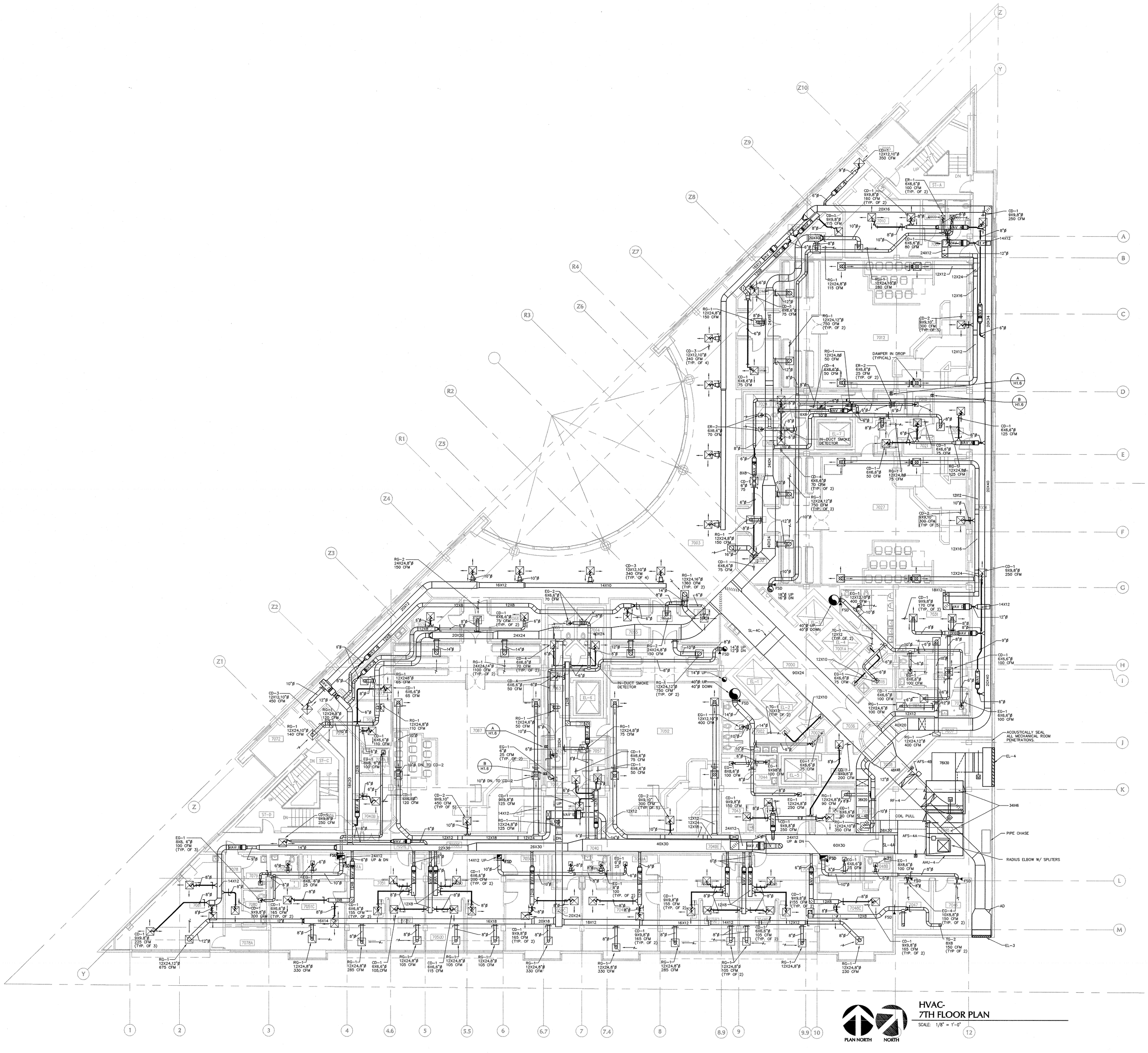


DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703



Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC.

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO.	00304.00
DATE	12/6/02
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CHECKED BY	CJF

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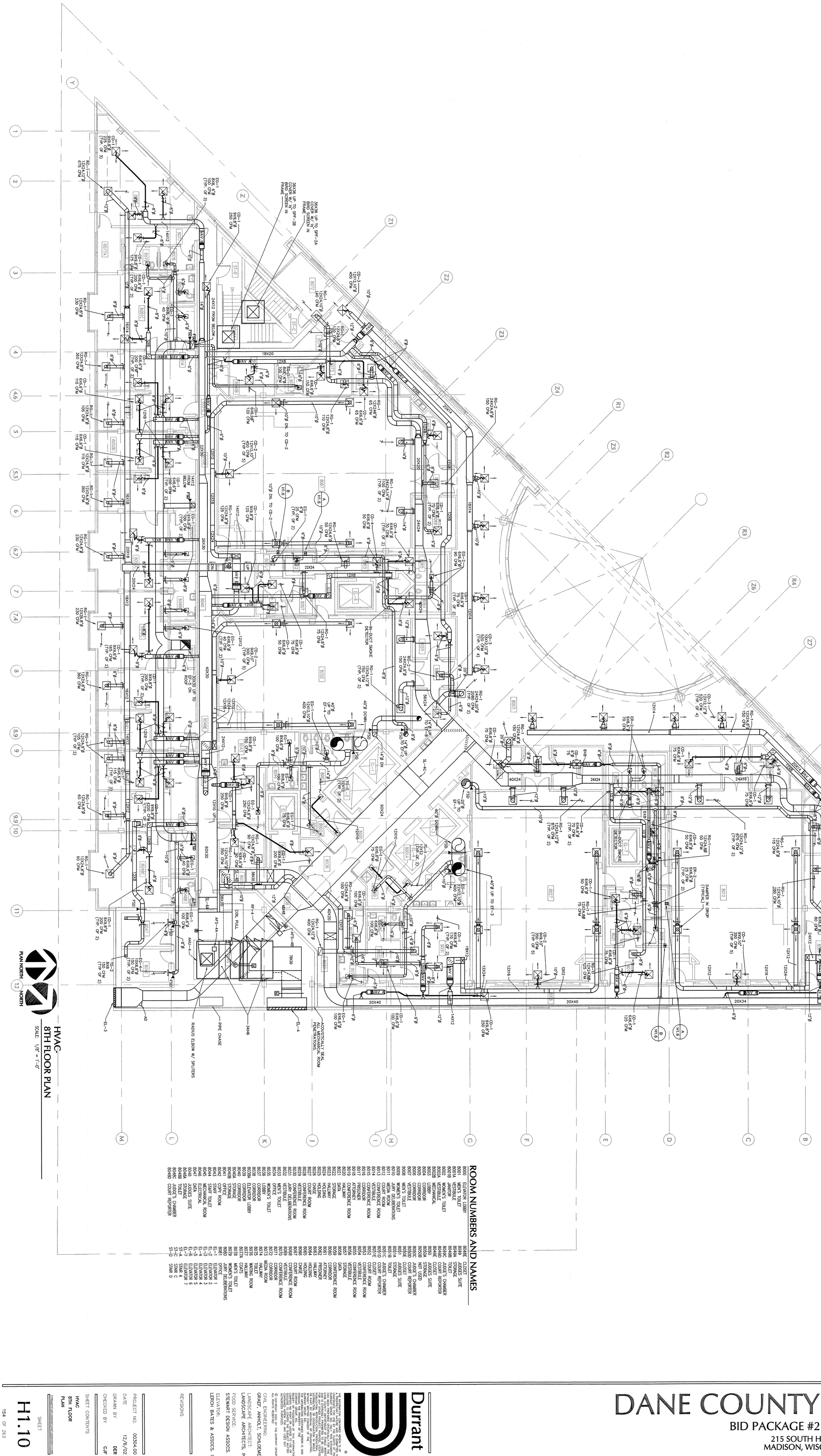

HVAC- 8TH FLOOR PLAN

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

ROOM NUMBERS AND NAMES

8000	ELEVATOR LOBBY
8001	MEN'S TOILET
8001A	VESTIBULE
8001B	JANITOR
8002	WOMEN'S TOILET
8002A	VESTIBULE
8002B	MECHANICAL
8003	LOBBY
8004	CORRIDOR
8005	CORRIDOR
8006	CORRIDOR
8007	VESTIBULE
8008	MEN'S TOILET
8009	WOMEN'S TOILET
8010	JURY DELIBERATIONS
8011	MEDIA ROOM
8013	CONFERENCE ROOM
8014	VESTIBULE
8015	CONFERENCE ROOM
8016	CORRIDOR
8017	RECORDER
8018	ATTORNEY
8019	CONFERENCE ROOM
8020	HALLWAY
8021	STORAGE
8023	HALLWAY
8024	HOLDING
8025	HOLDING
8027	CHASE
8028	CONFERENCE ROOM
8029	VESTIBULE
8030	CONFERENCE ROOM
8031	JURY DELIBERATIONS
8033	MEN'S TOILET
8034	OFFICE
8035	WOMEN'S TOILET
8036	LOBBY
8037	CORRIDOR
8039	CORRIDOR
8040	CORRIDOR
8040A	STORAGE
8040B	STORAGE
8041	OFFICE
8042	COPY ROOM
8043	STAFF TOILET
8045	MECHANICAL ROOM
8046	ELECTRICAL
8047	DATA
8048	JUDGES SUITE
8048A	STORAGE
8048B	TOILET
8048C	JUDGE'S CHAMBER
8048D	COURT REPORTER
8048E	CLOSET
8049	JUDGES SUITE
8049A	STORAGE
8049B	TOILET
8049C	JUDGE'S CHAMBER
8049D	COURT REPORTER
8049E	CLOSET
8050	JUDGES SUITE
8050A	STORAGE
8050B	WAITING
8050C	JUDGE'S CHAMBER
8050D	COURT REPORTER
8050E	CLOSET
8051	JUDGES SUITE
8051A	STORAGE
8051C	JUDGE'S CHAMBER
8051D	COURT REPORTER
8051E	CLOSET
8052	COURT ROOM
8053	CONFERENCE ROOM
8054	VESTIBULE
8055	CONFERENCE ROOM
8056	VESTIBULE
8057	STORAGE
8058	JURY ROOM
8059	CONFERENCE ROOM
8060	CORRIDOR
8061	ATTORNEY
8062	PRISONER
8063	HALLWAY
8064	HOLDING
8065	HOLDING
8066	CHASE
8067	COURT ROOM
8068	CONFERENCE ROOM
8069	VESTIBULE
8070	CONFERENCE ROOM
8071	CORRIDOR
8072	CORRIDOR
8073	MEDIA ROOM
8074	HALLWAY
8075	TOILET
8076	WAITING ROOM
8077	HALLWAY
8077A	LOBBY
8078	MEN'S TOILET
8079	WOMEN'S TOILET
8080	JURY DELIBERATIONS
8081	OFFICE 1
EL-1	ELEVATOR 2
EL-2	ELEVATOR 3
EL-3	ELEVATOR 4
EL-4	ELEVATOR 5
EL-5	ELEVATOR 6
EL-6	ELEVATOR 7
ST-A	STAIR A
ST-C	STAIR C
ST-D	STAIR D

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC.

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO. 00304.00
DATE 12/6/02
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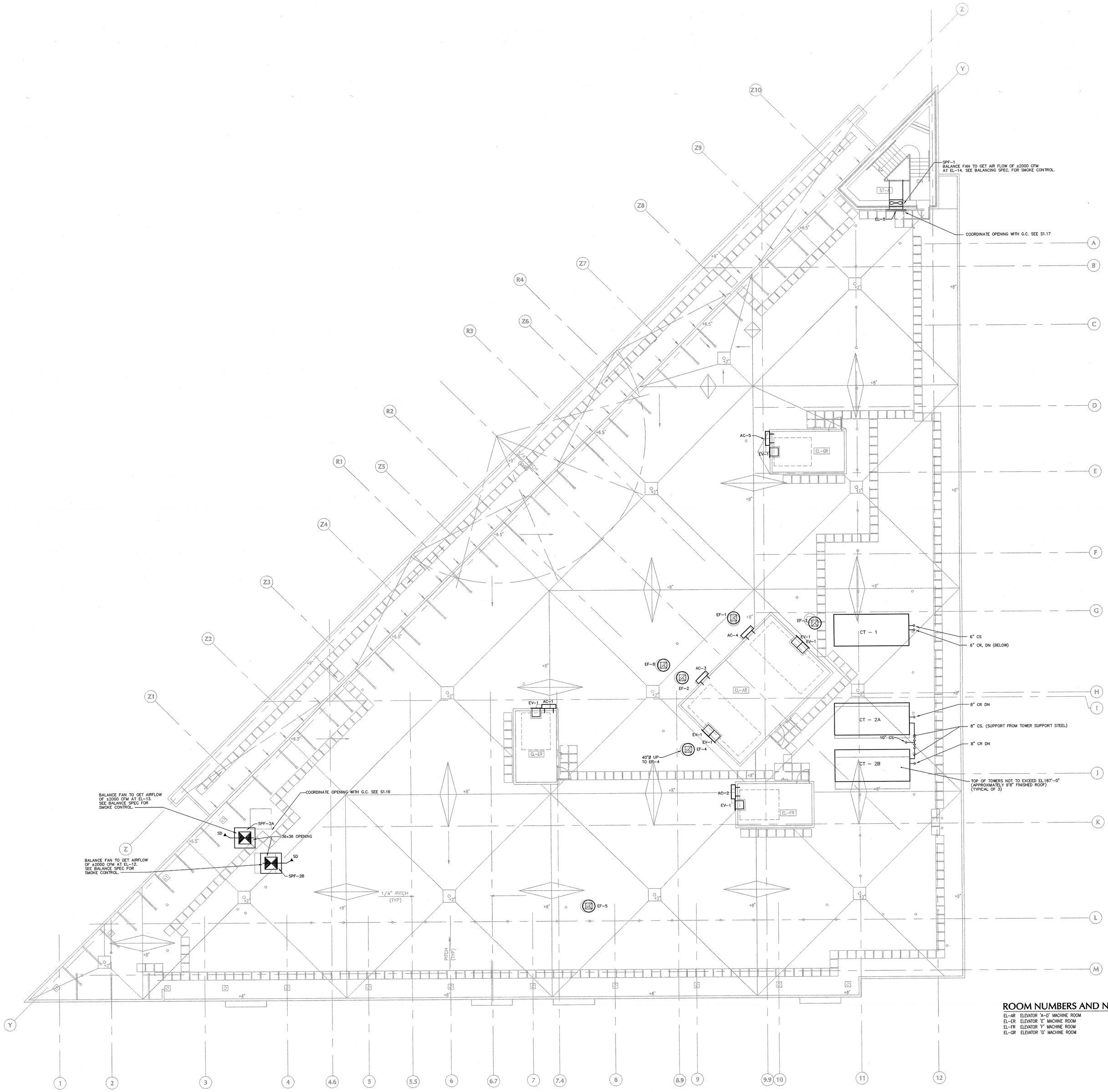
DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE

215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703



ROOM NUMBERS AND NAMES

EL-AR ELEVATOR 'A-D' MACHINE ROOM
EL-ER ELEVATOR 'E' MACHINE ROOM
EL-FR ELEVATOR 'F' MACHINE ROOM
EL-GR ELEVATOR 'G' MACHINE ROOM

DANE COUNTY COURTHOUSE

BID PACKAGE #2 - COURTHOUSE
215 SOUTH HAMILTON ST.
MADISON, WISCONSIN 53703

Durrant

CIVIL ENGINEERING:
GRAEF, ANHOLT, SCHLOEMER

LANDSCAPE ARCHITECT:
LANDSCAPE ARCHITECTS, INC

FOOD SERVICE:
STEWART DESIGN ASSOCS. INC

ELEVATOR:
LERCH BATES & ASSOCS. INC.

REVISIONS

PROJECT NO.	00304.00
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ROOF PLAN

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