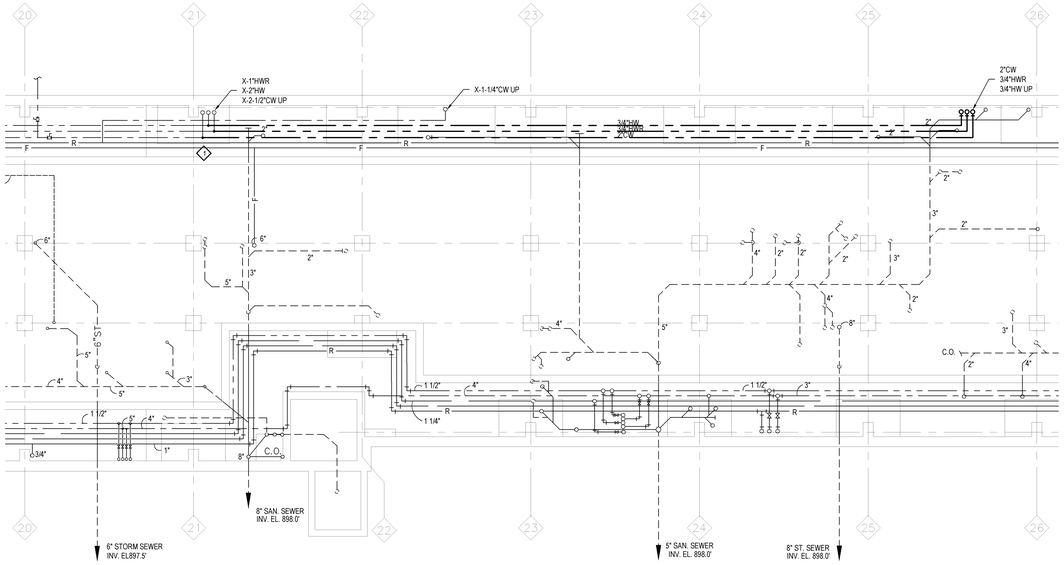


1 'B' WING – TUNNEL PLUMBING PLAN

1/8" = 1'-0"

KEY NOTES

1. CONNECT TO X-2-1/2"CW, 2"HW & 1"HWR PIPING IN TUNNEL. FIELD VERIFY EXACT LOCATION PRIOR TO CONNECTION. SCHEDULE TIE-IN DURING VA OFF HOURS.

PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	WSFU HW	WSFU CW	WSFU TOTAL	DFU VALUE
EWC-1	ELKAY	EZOSTL8C	ADA SELF-CONTAINED NO LEAD DESIGN, WALL HUNG ELECTRIC REFRIGERATED WATER COOLER. SENSOR OPERATED HANDS FREE OPERATION ON LOWER WHEELCHAIR UNIT. STAINLESS STEEL BASIN, INFUSED ANTI-MICROBIAL PLIABLE POLYSTER ELASTOMER BUBBLER GUARD AND BUILT-IN COOLING SYSTEM.	--	--	--	1.0
FD-1	JOSAM	30000-A SERIES	ADJUSTABLE CAST IRON FLOOR DRAIN, 2 PIECE BODY WITH DOUBLE DRAINAGE FLANGE, FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET, ADJUSTABLE CHROME PLATED SATIN ROUND STRAINER.	--	--	--	3.0
L-1	KOHLER	GREENWICH K-2032	WALL HUNG VITREOUS CHINA LAVATORY, WITH SINGLE FAUCET OPENING AND DRILLED FOR CONCEALED ARM CARRIER. FIXTURE AND INSTALLATION SHALL COMPLY WITH ADA REQUIREMENTS. FAUCET: SLOAN FAUCET ETF-80, SENSOR OPERATED DIRECT WIRED (24V AC TRANSFORMER REQUIRED EL-248-40), CAST BRASS SPOUT WITH CHROME PLATE FINISH, 0.5 GPM LAMINAR FLOW. DRAIN: KOHLER K-7129 BRASS GRID DRAIN AND 1 ¼"TAILPIECE, KOHLER K-8999 CAST BRASS ADJUSTABLE 'P' TRAP WITH CLEANOUT PLUG. SUPPLIES & STOPS: CHICAGO FAUCET 1006 ANGLE VALVE WITH LOOSE KEY HANDLE, ½"-FEMALE INLET, ⅜"OD x 12" RISER. MIXING VALVE: BRADLEY S59-4000A, SET TEMPERATURE TO 115°F. LAVATORY SUPPORT: JR SMITH COMMERCIAL GRADE, FLOOR MOUNTED, CONCEALED ARM CARRIER. COORDINATE MOUNTING HEIGHT WITH ARCHITECT. PROVIDE HANDI-SHIELD PIPE INSULATION FOR DRAIN AND SUPPLIES COORDINATE COLOR WITH ARCHITECT.	0.5	0.5	1.0	1.0
MB-1	STERN WILLIAMS	CORLOW SBC-1725	MOP BASIN: 32"x32"x12" PRECAST TERRAZZO MOP BASIN WITH 6" DROP FRONT, STAINLESS STEEL CAP ON THRESHOLD; STAINLESS STEEL CAST-IN DRAIN BODY FOR 3" PIPE. FAUCET: ELEVATED VACUUM BREAKER SPOUT, ¾"HOSE THREAD, WALL BRACE, PAIL HOOK & 3 FOOT HOSE WITH WALL HOOK. INCLUDE VACUUM BREAKER ON FAUCET. PROVIDE MOP BASIN WITH T-15-VB FAUCET, T-35 HOSE, T-40 MOP HANGER & BP STAINLESS STEEL PANELS	2.0	2.0	3.0	3.0
S-1	ELKAY	DLRQ191910 LUSTERTONE	19.5"LONGx19"WIDEx10.125"DEEP COUNTER MOUNTED 18 GA TYPE 304 STAINLESS STEEL WITH SINGLE BOWL AND ONE 2" DRAIN OPENING, SINGLE FAUCET OPENING. FAUCET: CHICAGO FAUCET 786-GN8AE29-319CP WITH GN8A SWING GOOSENECK SPOUT, 6" WRIST BLADE HANDLES, E29 SOFTFLOW AERATOR AND 2.2 GPM FLOW RATE. DRAIN: ELKAY LK-372 TYPE 316 STAINLESS STEEL WITH 1 ½"x1½" CAST BRASS TRAP WITH CLEANOUT PLUG SUPPLIES AND STOPS: NIBCO S-585-70-SU ½" BALL VALVES. MIXING VALVE: BRADLEY S59-4000A, SET TEMPERATURE TO 115°F. PROVIDE HANDI-SHIELD PIPE INSULATION FOR DRAIN AND SUPPLIES COORDINATE COLOR WITH ARCHITECT.	1.5	1.5	2.0	2.0
UR-1	KOHLER	K4904-ET BARDON	WALL HUNG, VITREOUS CHINA WASHOUT, 0.125 GPF URINAL WITH ¾" TOP SPUD. FLUSH VALVE: SLOAN OPTIMA 186-0.13 ES-S, 0.13 GPF DIRECT WIRED INFRARED SENSOR (24V AC TRANSFORMER REQUIRED), CHROME PLATED VALVE. CARRIER: JR SMITH COMMERCIAL GRADE, ADJUSTED FOR STANDARD HEIGHT OR ADA HEIGHT AS REQUIRED. COORDINATE COLOR WITH ARCHITECT.	--	4.0	4.0	2.0
WC-1	KOHLER	K4325 KINGSTON	ADA HEIGHT WALL MOUNTED, VITREOUS CHINA SIPHON JET WATER 1.28 GPF CLOSET WITH ELONGATED BOWL, 1 ½" TOP SPUD. FLUSH VALVE: SLOAN OPTIMA 111-1.28, 1.28 GPF, DIRECT WIRED INFRARED SENSOR (24V AC TRANSFORMER REQUIRED), CHROME PLATED VALVE. SEAT: BEMIS 1955SSFR, FIRE RETARDANT, SOLID PLASTIC OPEN FRONT WITH STAINLESS STEEL SELF-SUSTAINING CHECK HINGE AND ANTI-MICROBIAL AGENT. CARRIER: JR SMITH COMMERCIAL GRADE, COMPACT, ADJUSTED FOR STANDARD HEIGHT OR ADA HEIGHT AS REQUIRED. SEE PLANS FOR ADA LOCATIONS. COORDINATE COLOR WITH ARCHITECT.	--	6.5	6.5	6.0
WC-2	KOHLER	K4325 KINGSTON	WALL MOUNTED, VITREOUS CHINA SIPHON JET WATER 1.28 GPF CLOSET WITH ELONGATED BOWL, 1 ½"TOP SPUD. FLUSH VALVE: SLOAN OPTIMA 111-1.28, 1.28 GPF, DIRECT WIRED INFRARED SENSOR (24V AC TRANSFORMER REQUIRED), CHROME PLATED VALVE. SEAT: BEMIS 1955SSFR, FIRE RETARDANT, SOLID PLASTIC OPEN FRONT WITH STAINLESS STEEL SELF-SUSTAINING CHECK HINGE AND ANTI-MICROBIAL AGENT. CARRIER: JR SMITH COMMERCIAL GRADE, COMPACT, ADJUSTED FOR STANDARD HEIGHT OR ADA HEIGHT AS REQUIRED. SEE PLANS FOR ADA LOCATIONS. COORDINATE COLOR WITH ARCHITECT.	--	6.5	6.5	6.0

GENERAL NOTES

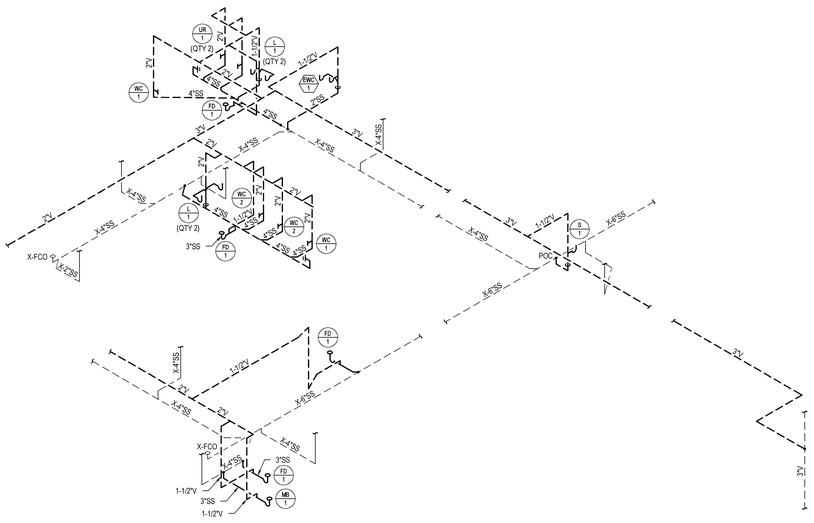
1. CONTRACTOR SHALL COORDINATE HIS WORK WITH EXISTING CONDITIONS AND WITH THE WORK OF OTHER TRADES.
2. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF WORK TO BE ACCOMPLISHED AND AS SUCH DO NOT SHOW ALL REQUIRED OFFSETS OF PIPING. CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT AS TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND MAINTAIN HEADROOM, PASSAGEWAY AND WORKING CLEARANCES.
3. THE EXISTING OR DEMOLITION PLANS ARE BASED OFF OF EXISTING AS-BUILTS, CONSTRUCTION DRAWINGS & CASUAL SITE WALK-THROUGHS. THE CONTRACTOR SHALL VISIT THE SITE, REVIEW OTHER DISCIPLINE DEMOLITION DRAWINGS & PROVIDE DISCONNECTION OR RELOCATION OF ALL NECESSARY EQUIPMENT FOR THE COMPLETION OF THIS PROJECT.
4. ALL BRANCH LINES SHALL BE ¾" UNLESS NOTED OTHERWISE.
5. KEYNOTES PERTAIN ONLY TO THE DRAWING THEY ARE LOCATED ON.
6. CONTRACTOR WILL BE RESPONSIBLE TO REMOVE ANY AND ALL ABANDONED PIPING, DUCTWORK, AND/OR CONDUIT TO BE CAPPED AT FLOOR PENETRATION OR MAIN.
7. CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF CONSTRUCTION BOUNDARY LIMITS UNLESS NOTED ON PLANS. COORDINATE SUCH WORK WITH VA.
8. EQUIPMENT SELECTIONS ARE BASED OFF NOTED MANUFACTURERS AND MODELS LISTED ON SCHEDULES. ANY ALTERNATE EQUIPMENT SUBMITTED SHALL MEET OR EXCEED ALL PERFORMANCE CAPACITIES AND FALL WITHIN PHYSICAL DIMENSIONS AND WEIGHTS OF SCHEDULED EQUIPMENT. ALTERNATE SUBMITTALS SHALL MEET ALL SYSTEM REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS (STRUCTURAL, ELECTRICAL, MECHANICAL, ETC.) NECESSARY TO ACCOMMODATE ALTERNATE EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING AND VERIFYING ALL PIPING LOCATIONS AND THE SUBSEQUENT EFFECTS OF THE SHUT OFF OF THE PIPING BEFORE PROCEEDING WITH ANY DEMOLITION OR INSTALLATION.
10. CONTRACTOR SHALL FIELD VERIFY ALL UNDERGROUND PIPING EITHER BY XRAY OR CAMERA PRIOR TO SAWCUTTING THE FLOOR.

PLUMBING LEGEND

- NEW PLUMBING EQUIPMENT
- EXISTING PLUMBING COMPONENT
- DEMOLISHED PLUMBING COMPONENT
- CW — NEW DOMESTIC COLD WATER
- X-CW — EXISTING DOMESTIC COLD WATER
- HW — NEW DOMESTIC HOT WATER
- X-HW — EXISTING DOMESTIC HOT WATER
- HWR — NEW DOMESTIC HOT WATER RETURN
- X-HWR — EXISTING DOMESTIC HOT WATER RETURN
- SS — NEW SANITARY SEWER
- X-SS — EXISTING SANITARY SEWER
- V — NEW SANITARY VENT
- X-V — EXISTING SANITARY VENT
- ST — NEW STORM SEWER
- S-ST — EXISTING STORM SEWER
- DEMOLISHED PIPING (ALL SYSTEM TYPES)
- KEY NOTE
- DEMO NOTE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- CIRCUIT SETTER
- FLOOR DRAIN/ROOF DRAIN
- PIPE BREAK
- PIPE CAPPED END
- PIPE CLEANOUT
- PIPE ELBOW/TEE DOWN
- PIPE ELBOW/TEE UP
- POINT OF CONNECTION

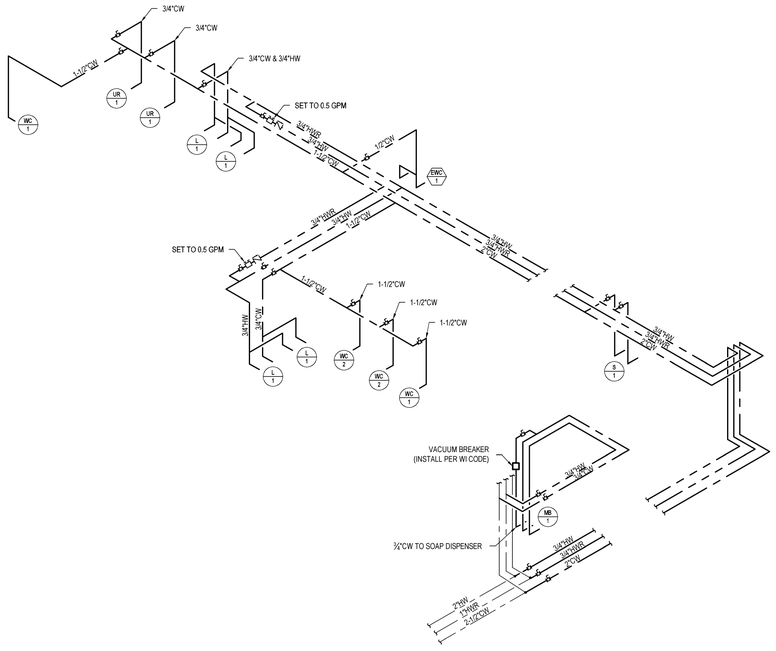
PLUMBING ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
DN	DOWN
CO	CLEANOUT
FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
EWC-*	ELECTRIC WATER COOLER
FD-*	FLOOR DRAIN
HB-*	HOSE BIBB
L-*	LAVATORY
MB-*	MOP BASIN
S-*	SINK
WC-*	WATER CLOSET
X-	EXISTING



3 'B' WING – SANITARY AND VENT ISOMETRIC

N.T.S.



2 'B' WING – DOMESTIC WATER ISOMETRIC

N.T.S.

100% BID DOCUMENTS

Revisions: Date

MEP ENGINEERS:

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nagel architects

Approved: Project Director

Drawing Title: PLUMBING NOTES, LEGEND, SCHEDULE & TUNNEL PLAN ISOMETRICS

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Project Number: 607-11-109

Building Number: 1

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Drawing Number: PG001

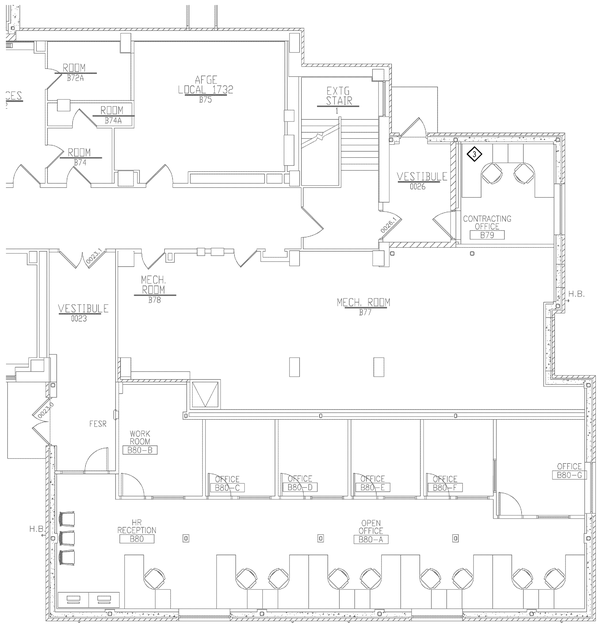
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

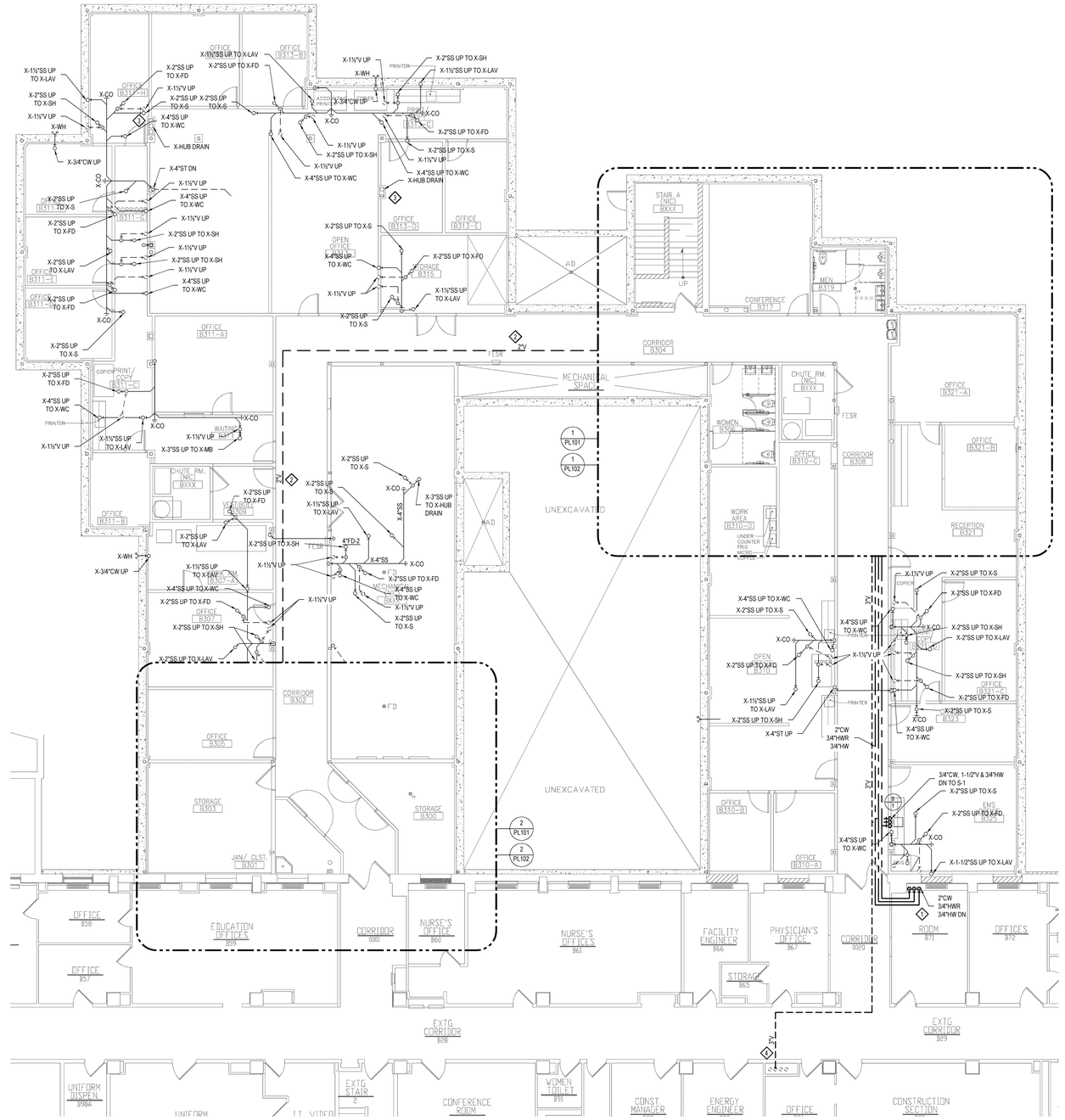
KEY NOTES

1. CONNECT TO X-2-1/2"CW, 2"HW & 1"HWR PIPING IN TUNNEL. FIELD VERIFY EXACT LOCATION PRIOR TO CONNECTION. SCHEDULE TIE-IN DURING VA OFF HOURS. PROVIDE NEW PIPE ENCLOSURE.
2. COORDINATE EXACT ROUTING WITH DIVISION 23 CONTRACTOR. PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH DUCTWORK AND MECHANICAL PIPING.
3. PROVIDE 12x12 ACCESS PANEL FOR EXISTING HUB DRAIN. COORDINATE COLOR WITH ARCHITECT.
4. CONNECT TO 3"V TO X-3"V STACK. FIELD VERIFY EXACT LOCATION PRIOR TO INSTALLATION.



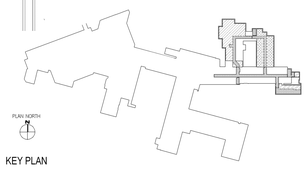
2 'B' WING – HUMAN RESOURCES OFFICE PLUMBING PLAN

1/8" = 1'-0"



1 'B' WING – PLUMBING PLAN

1/8" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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nagel architects

Drawing Title: 'B' WING GROUND FLOOR – PLUMBING PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: PL100

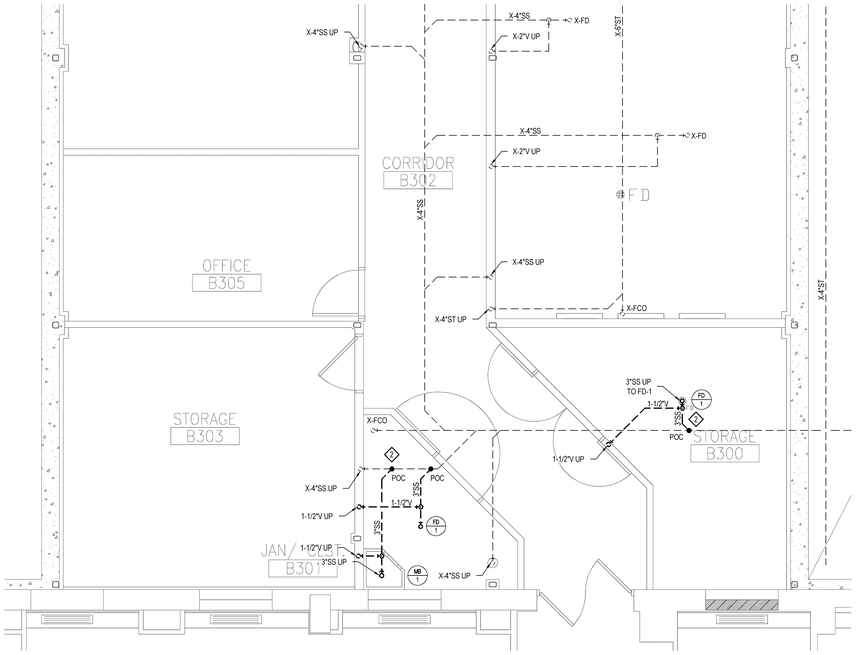
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

KEY NOTES

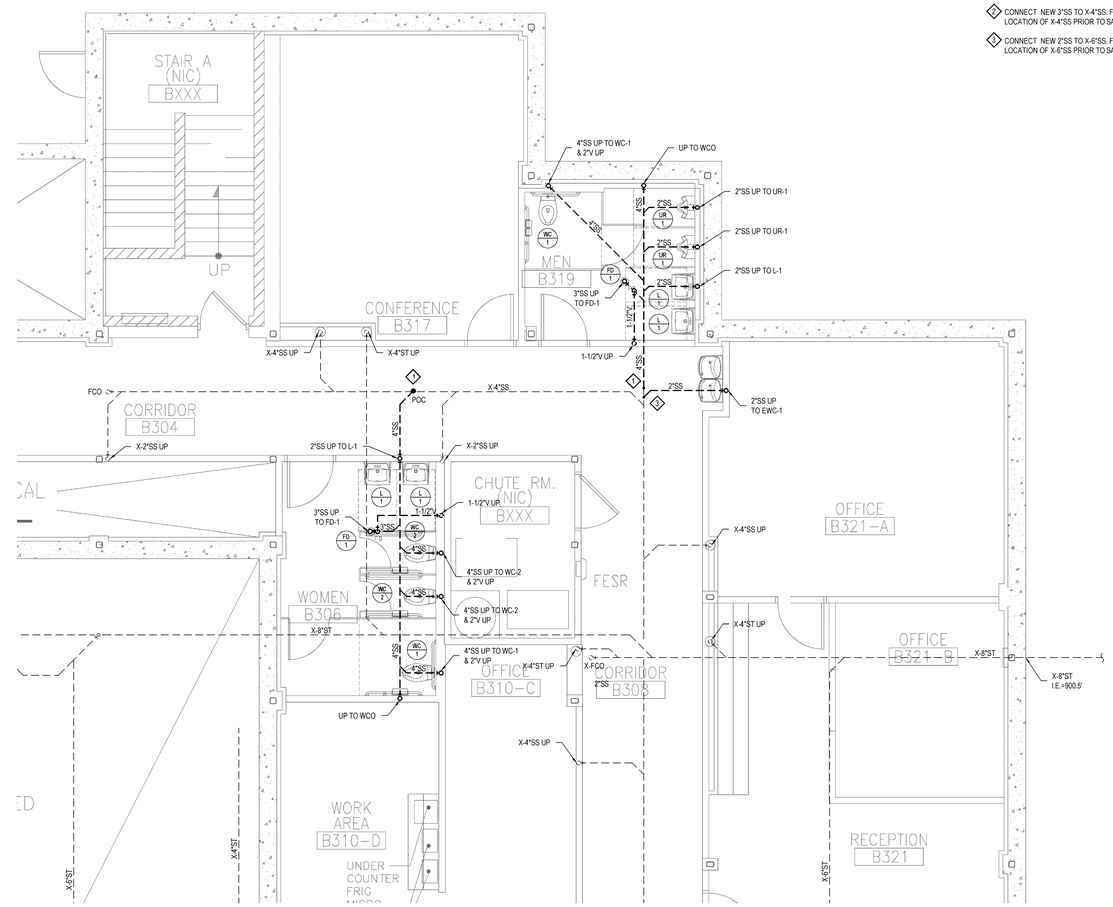
1. CONNECT NEW 4"SS TO X-4"SS. FIELD VERIFY EXACT LOCATION OF X-4"SS PRIOR TO SAWCUTTING THE FLOOR.
2. CONNECT NEW 3"SS TO X-4"SS. FIELD VERIFY EXACT LOCATION OF X-4"SS PRIOR TO SAWCUTTING THE FLOOR.
3. CONNECT NEW 2"SS TO X-6"SS. FIELD VERIFY EXACT LOCATION OF X-6"SS PRIOR TO SAWCUTTING THE FLOOR.



JANITOR'S CLOSET AND STORAGE ROOM UNDERGROUND PLUMBING PLAN

2

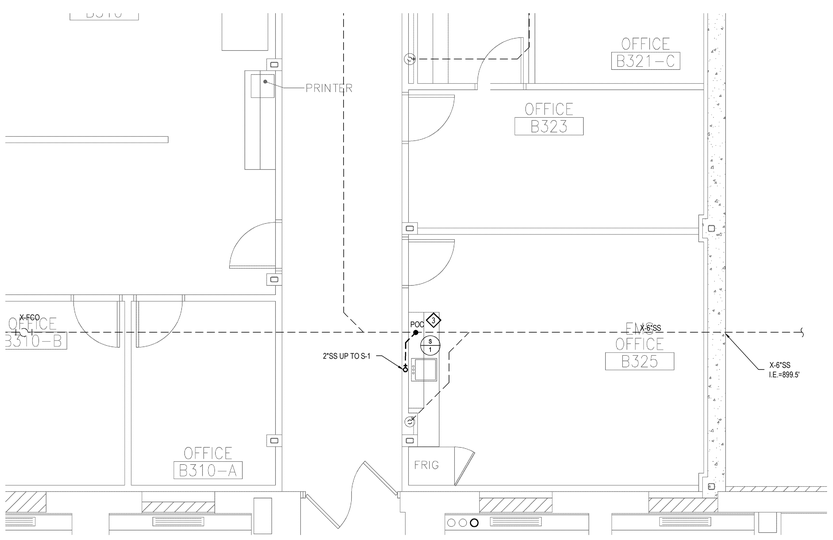
1/4" = 1'-0"



MEN'S AND WOMEN'S RESTROOM UNDERGROUND PLUMBING PLAN

1

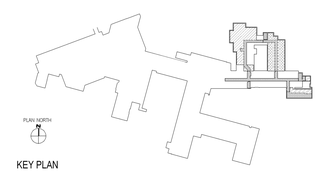
1/4" = 1'-0"



EMS OFFICE SINK UNDERGROUND PLUMBING PLAN

3

1/4" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

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nagel architects

Drawing Title: 'B' WING GROUND FLOOR – UNDERGROUND PLUMBING PLANS

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: PL101

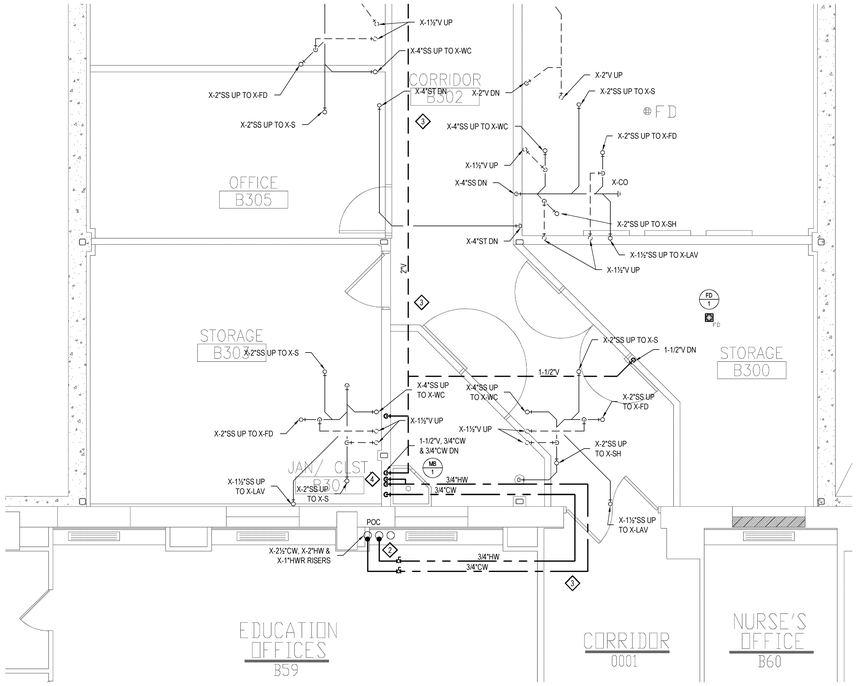
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

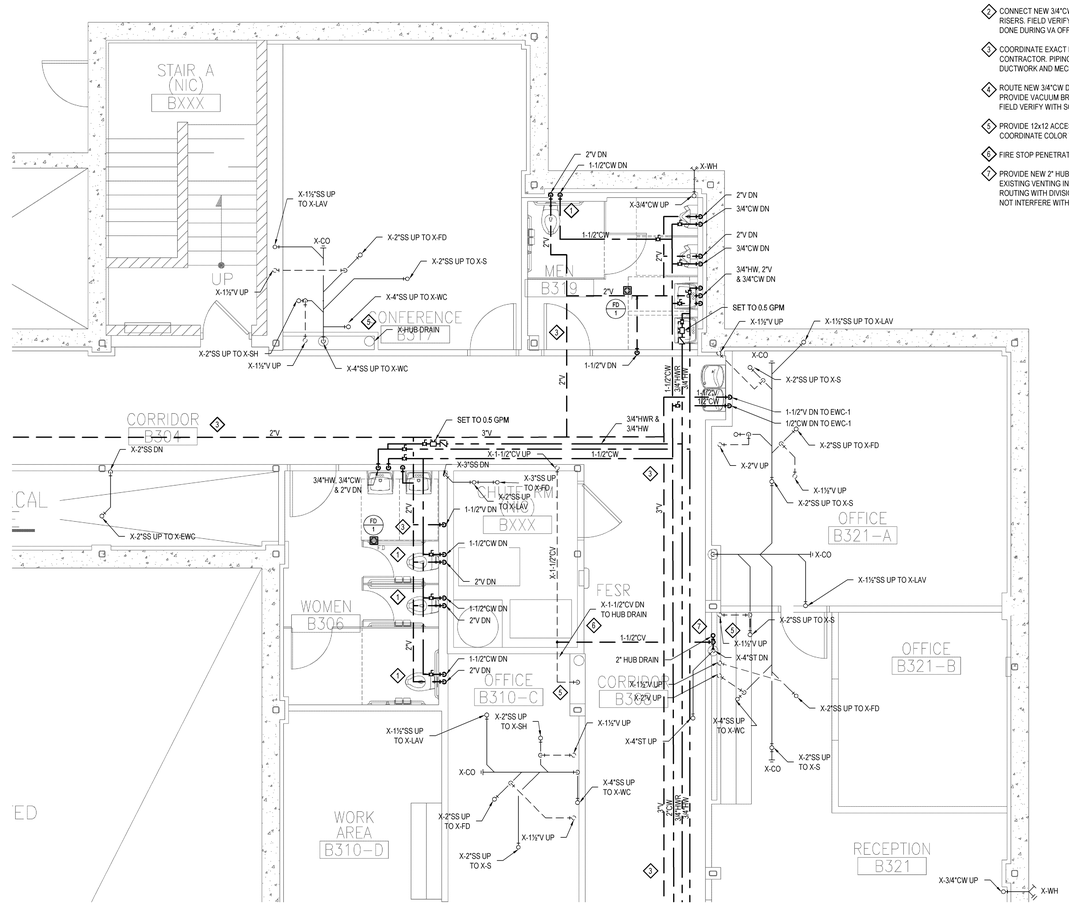
KEY NOTES

1. PROVIDE COMPACT CARRIERS FOR NEW WATER CLOSETS. COORDINATE EXACT LOCATION WITH NEW WALL.
2. CONNECT NEW 3/4"CW & 3/4"HW TO X-2-1/2"CW AND X-2"HW RISERS. FIELD VERIFY EXACT ROUTING. WORK SHALL BE DONE DURING VA OFF HOURS.
3. COORDINATE EXACT ROUTING WITH DIVISION 23 CONTRACTOR. PIPING SHALL NOT INTERFERE WITH DUCTWORK AND MECHANICAL PIPING.
4. ROUTE NEW 3/4"CW DN TO NEW SOAP DISPENSER. PROVIDE VACUUM BREAKER PER WI PLUMBING CODE. FIELD VERIFY WITH SOAP DISPENSER LOCATION.
5. PROVIDE 12x12 ACCESS PANEL FOR EXISTING HUB DRAIN. COORDINATE COLOR WITH ARCHITECT.
6. FIRE STOP PENETRATION AT FIRE RATED WALL.
7. PROVIDE NEW 2" HUB DRAIN AND CONNECT 1-1/2"CV TO EXISTING VENTING IN CHUTE ROOM. COORDINATE EXACT ROUTING WITH DIVISION 23 CONTRACTOR. VENTING SHALL NOT INTERFERE WITH DUCTWORK.



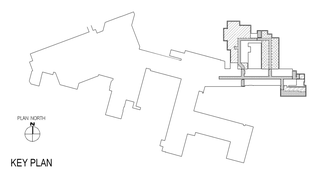
2 JANITOR'S CLOSET AND STORAGE ROOM ABOVEGROUND PLUMBING PLAN

1/4" = 1'-0"



1 MEN'S AND WOMEN'S RESTROOM ABOVEGROUND PLUMBING PLAN

1/4" = 1'-0"



100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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nagel architects

Drawing Title: 'B' WING GROUND FLOOR – ABOVEGROUND PLUMBING PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: PL102

Office of Construction and Facilities Management

Department of Veterans Affairs

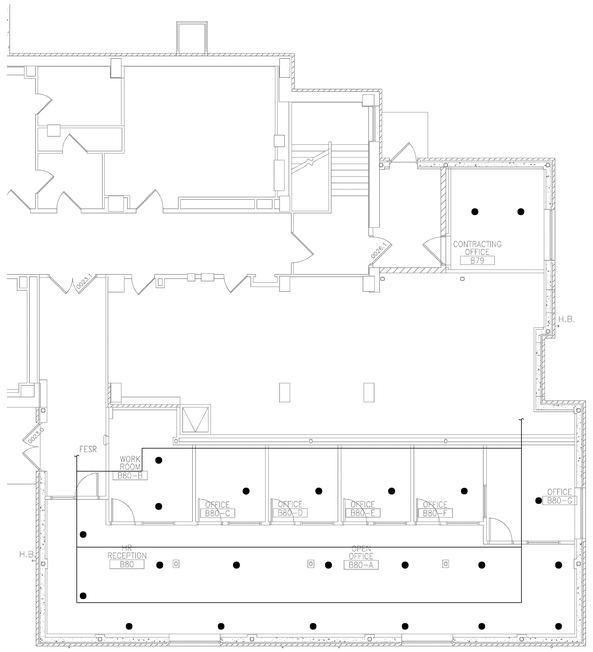
VA FORM 08-6231

KEY NOTES

1. REMOVE EXISTING SPRINKLER MAIN AND INSTALL NEW MAIN AS TIGHT TO SLAB AS POSSIBLE. CONTRACTOR SHALL FIELD VERIFY EXACT SIZE AND LOCATION.

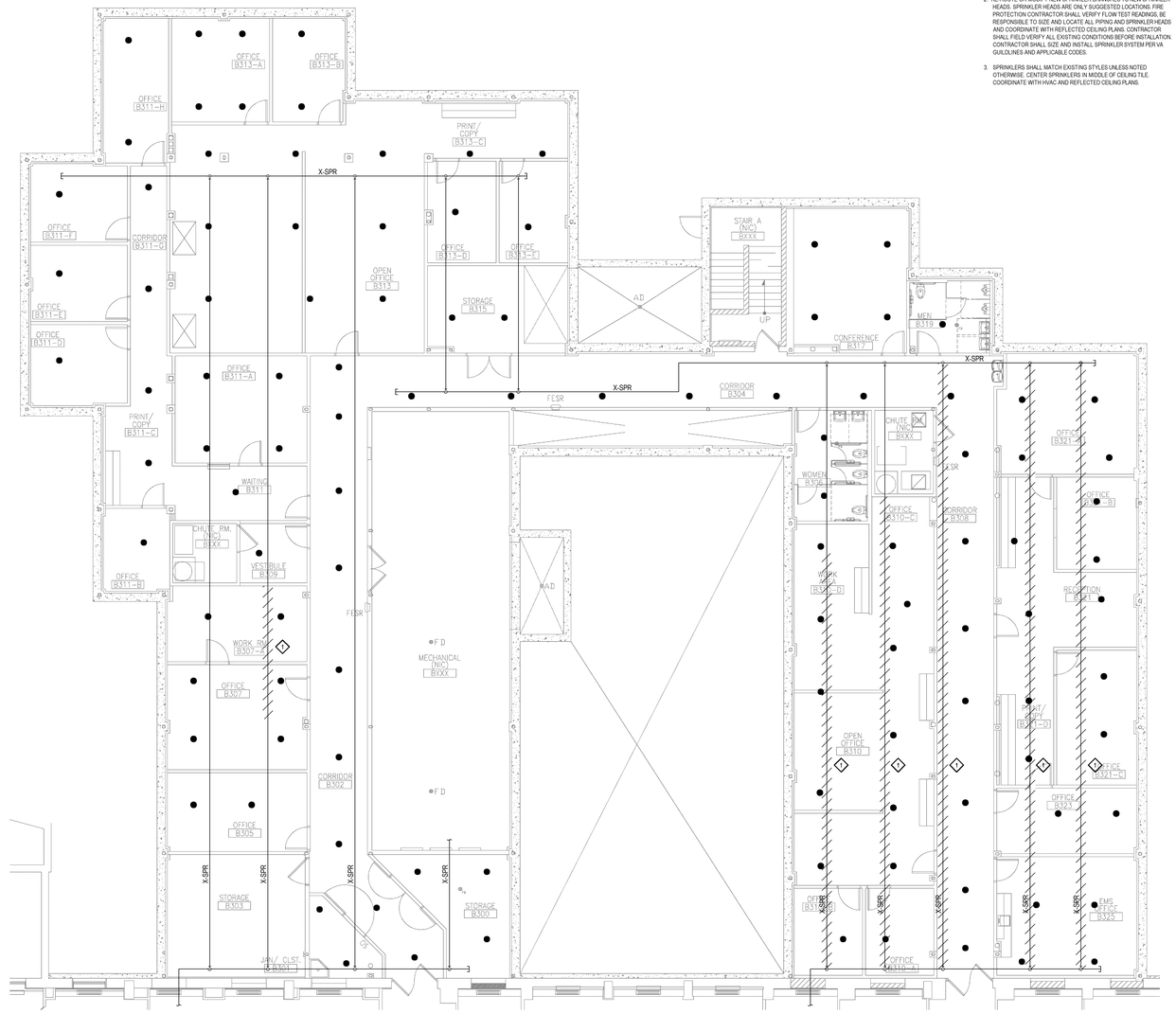
FIRE PROTECTION NOTES

1. THE FIRE PROTECTION SYSTEM NOTED ON THIS PLAN IS CONCEPTUAL FOR GENERAL PURPOSE ONLY AND SHALL NOT BE CONSTRUED AS FINAL DESIGN OR INSTALLATION DOCUMENTS. THE FIRE PROTECTION DESIGN AND INSTALLATION SHALL BE THE RESPONSIBILITY OF THE DESIGN BUILD FIRE PROTECTION CONTRACTOR. THIS INCLUDES THE RELOCATION OF SPRINKLER MAINS, BRANCH PIPING, ALL NEW WORK AND HEADS AS NECESSARY FOR THE NEW DESIGN. REFER TO SPECIFICATION FOR DESIGN CRITERIA.
2. RE-ROUTE OR MODIFY NEW SPRINKLER BRANCHES TO NEW SPRINKLER HEADS. SPRINKLER HEADS ARE ONLY SUGGESTED LOCATIONS. FIRE PROTECTION CONTRACTOR SHALL VERIFY FLOW TEST READINGS, BE RESPONSIBLE TO SIZE AND LOCATE ALL PIPING AND SPRINKLER HEADS AND COORDINATE WITH REFLECTED CEILING PLANS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS BEFORE INSTALLATION. CONTRACTOR SHALL SIZE AND INSTALL SPRINKLER SYSTEM PER VA GUILDLINES AND APPLICABLE CODES.
3. SPRINKLERS SHALL MATCH EXISTING STYLES UNLESS NOTED OTHERWISE. CENTER SPRINKLERS IN MIDDLE OF CEILING TILE. COORDINATE WITH HVAC AND REFLECTED CEILING PLANS.



2 'B' WING – HUMAN RESOURCES OFFICE FIRE PROTECTION PLAN – NEW

1/8" = 1'-0"



1 'B' WING – MAIN OFFICES FIRE PROTECTION PLAN – NEW

1/8" = 1'-0"

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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nagel architects

Drawing Title: 'B' WING GROUND FLOOR – FP PLAN (SCOPE DOCUMENTS)

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: FP100

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

CASSETTE FAN COILS

PLAN DESIGNATION		CFC-11	CFC-12	CFC-13	CFC-14	CFC-15	CFC-16	CFC-17	CFC-18	CFC-19	CFC-20
SERVING ROOM		C313B	B313	B313	B313C	B313D	B313E	B317	B321A	B321B	B321
MANUFACTURER		CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
MODEL		42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12
MOUNTING		CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING
AIRFLOW	SUPPLY AIR - CFM	260	260	260	260	260	260	260	260	260	260
COOLING	TOTAL CAPACITY - BTU	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502
	SENSIBLE CAPACITY - BTU	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604
	ENTERING AIR TEMP (DB) - °F	75	75	75	75	75	75	75	75	75	75
	FLUID	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER
	ENTERING WATER TEMP - °F	45	45	45	45	45	45	45	45	45	45
	LEAVING WATER TEMP - °F	55	55	55	55	55	55	55	55	55	55
	FLOW RATE - GPM	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	PRESSURE DROP - PSI	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
ELECTRIC HEAT	CAPACITY - KW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
FAN	QUANTITY	1	1	1	1	1	1	1	1	1	1
	FAN SPEED	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
	SPL DBA	29	29	29	29	29	29	29	29	29	29
	HORSEPOWER EACH	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	FLA	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	MCA	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
	VOLTS / PHASE	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø
CONFIGURATION	LENGTH x WIDTH x HEIGHT	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"
	WEIGHT - LBS	45	45	45	45	45	45	45	45	45	45
REMARKS		1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

1. PROVIDE WITH MANUFACTURER'S ELECTRONIC WALL MOUNTED PROGRAMMABLE THERMOSTAT
2. PROVIDE WITH STARTER/DISCONNECT
3. PROVIDE WITH ELECTRIC HEAT

CASSETTE FAN COILS

PLAN DESIGNATION		CFC-21	CFC-22	CFC-23	CFC-24	CFC-25	CFC-26	CFC-27	CFC-28	CFC-29	CFC-30
SERVING ROOM		B321C	B323	B325	B310A	B310B	B310	B310	B310-D	B80B	B80C
MANUFACTURER		CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
MODEL		42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12
MOUNTING		CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING
AIRFLOW	SUPPLY AIR - CFM	260	260	260	260	260	260	260	260	260	260
COOLING	TOTAL CAPACITY - BTU	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502
	SENSIBLE CAPACITY - BTU	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604
	ENTERING AIR TEMP (DB) - °F	75	75	75	75	75	75	75	75	75	75
	FLUID	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER
	ENTERING WATER TEMP - °F	45	45	45	45	45	45	45	45	45	45
	LEAVING WATER TEMP - °F	55	55	55	55	55	55	55	55	55	55
	FLOW RATE - GPM	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	PRESSURE DROP - PSI	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
ELECTRIC HEAT	CAPACITY - KW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
FAN	QUANTITY	1	1	1	1	1	1	1	1	1	1
	FAN SPEED	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
	SPL DBA	29	29	29	29	29	29	29	29	29	29
	HORSEPOWER EACH	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	FLA	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	MCA	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
	VOLTS / PHASE	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø
CONFIGURATION	LENGTH x WIDTH x HEIGHT	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"
	WEIGHT - LBS	45	45	45	45	45	45	45	45	45	45
REMARKS		1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

1. PROVIDE WITH MANUFACTURER'S ELECTRONIC WALL MOUNTED PROGRAMMABLE THERMOSTAT
2. PROVIDE WITH STARTER/DISCONNECT
3. PROVIDE WITH ELECTRIC HEAT

CASSETTE FAN COILS

PLAN DESIGNATION		CFC-31	CFC-32	CFC-33
SERVING ROOM		B80D	B80E	B80F
MANUFACTURER		CARRIER	CARRIER	CARRIER
MODEL		42WKN-12	42WKN-12	42WKN-12
MOUNTING		CEILING	CEILING	CEILING
AIRFLOW	SUPPLY AIR - CFM	260	260	260
COOLING	TOTAL CAPACITY - BTU	7,502	7,502	7,502
	SENSIBLE CAPACITY - BTU	6,604	6,604	6,604
	ENTERING AIR TEMP (DB) - °F	75	75	75
	FLUID	CHILLED WATER	CHILLED WATER	CHILLED WATER
	ENTERING WATER TEMP - °F	45	45	45
	LEAVING WATER TEMP - °F	55	55	55
	FLOW RATE - GPM	1.5	1.5	1.5
	PRESSURE DROP - PSI	1.4	1.4	1.4
ELECTRIC HEAT	CAPACITY - KW	1.5	1.5	1.5
FAN	QUANTITY	1	1	1
	FAN SPEED	LOW	LOW	LOW
	SPL DBA	29	29	29
	HORSEPOWER EACH	1/8	1/8	1/8
	FLA	7.2	7.2	7.2
	MCA	8.9	8.9	8.9
	VOLTS / PHASE	208/ 1Ø	208/ 1Ø	208/ 1Ø
CONFIGURATION	LENGTH x WIDTH x HEIGHT	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"
	WEIGHT - LBS	45	45	45
REMARKS		1, 2, 3	1, 2, 3	1, 2, 3

1. PROVIDE WITH MANUFACTURER'S ELECTRONIC WALL MOUNTED PROGRAMMABLE THERMOSTAT
2. PROVIDE WITH STARTER/DISCONNECT
3. PROVIDE WITH ELECTRIC HEAT

BOOSTER COILS

PLAN DESIGNATION		BC-1	BC-2
SERVES		B80	B80-G
CONSTRUCTION	TYPE	HOT WATER	HOT WATER
	MIN FACE AREA - SQ FT	1.5	0.56
	ROWS	1	1
	FIN SPACING - PER FT	80	180
AIR	CFM	625	200
	MAX VELOCITY - FPM	500	500
	MAX PRESS DROP - IN WC	0.10	0.10
	MIN. TOTAL CAPACITY - MBH	14.0	6.6
	ENTERING DB TEMP - °F	55.0	55.0
	LEAVING DB TEMP - °F	85.0	85.0
WATER	GPM	1.4	0.7
	MAX VELOCITY - FPS	2.40	0.75
	MAX PRESS DROP - FT WC	2.4	0.1
	ENTERING TEMP - °F	180	180
	LEAVING TEMP - °F	160	160

*BASED ON TRANE HEATING COILS MODEL ST

VENTILATION SCHEDULE

WING	LEVEL	ROOM NUMBER	ROOM NAME	ROOM USE	AREA SQ FT	OCCUPANT LOAD	ACH REQ'D SUPPLY	ACH REQ'D EXHAUST	CFM REQ'D SUPPLY	CFM REQ'D EXHAUST	CFM REQ'D CALCS	CFM REQ'D HEATING	OUTSIDE AIR	ROOM AIR BALANCE	CFM PROVIDED SUPPLY	CFM PROVIDED OUTSIDE AIR	CFM PROVIDED EXHAUST	REMARKS
B	GROUND	B301	JANITORS CLOSET	HAC	84	NA	NA	10	NA	75	NA	NA	NA	DBL NEGATIVE	NA	NA	75	
B	GROUND	B300	STORAGE	STORAGE	201	NA	NA	NR	NA	NR	NA	NA	NA	NA	NA	NA	75	
B	GROUND	B302	WEST CORRIDOR	CORRIDOR	797	NA	4	NR	425	NR	94	NA	213	NEUTRAL	245	245	NR	
B	GROUND	B305	UTILIZATION MANAGEMENT	OFFICE	208	1	4	NR	111	NR	94	28	55	NEUTRAL	260	60	60	
B	GROUND	B307	PAYROLL	OFFICE	279	1	4	NR	149	NR	136	41	74	NEUTRAL	260	75	75	
B	GROUND	B307A	WORKROOM	OFFICE	199	1	4	NR	106	NR	28	8	53	NEUTRAL	260	55	55	
B	GROUND	B311A	OFFICE	OFFICE	267	1	4	NR	142	NR	163	49	71	NEUTRAL	260	75	75	
B	GROUND	B311A	WAITING	WAITING	139	1	4	NR	74	NR	54	16	37	NEUTRAL	45	45	45	
B	GROUND	B311C	COPY/PRINTER	COPY/PRINTING	129	NA	6	NR	103	NR	101	30	52	NEUTRAL	55	55	55	
B	GROUND	B311B	OFFICE	OFFICE	103	1	4	NR	55	NR	74	19	27	NEUTRAL	260	40	40	
B	GROUND	B311D	OFFICE	OFFICE	147	1	4	NR	78	NR	98	29	39	NEUTRAL	260	40	40	
B	GROUND	B311E	OFFICE	OFFICE	147	1	4	NR	78	NR	98	29	39	NEUTRAL	26	40	40	
B	GROUND	B311F	OFFICE	OFFICE	147	1	4	NR	78	NR	98	29	39	NEUTRAL	260	40	40	
B	GROUND	B311G	NORTHWEST CORRIDOR	CORRIDOR	171	NA	4	NR	91	NR	30	NA	46	NEUTRAL	50	50	50	
B	GROUND	B311H	OFFICE	OFFICE	178	1	4	NR	95	NR	51	15	47	NEUTRAL	260	50	50	
B	GROUND	B313A	OFFICE	OFFICE	180	1	4	NR	96	NR	49	15	48	NEUTRAL	260	50	50	
B	GROUND	B313B	OFFICE	OFFICE	154	1	4	NR	82	NR	49	15	41	NEUTRAL	26	45	45	
B	GROUND	B313	FISCAL	OFFICE	960	5	4	NR	512	NR	431	129	256	NEUTRAL	520	260	260	
B	GROUND	B313D	OFFICE	OFFICE	145	1	4	NR	77	NR	49	15	39	NEUTRAL	260	40	40	
B	GROUND	B313E	OFFICE	OFFICE	132	1	4	NR	70	NR	51	15	35	NEUTRAL	260	40	40	
B	GROUND	B313C	COPY/PRINTER	COPY/PRINTING	143	NA	6	NR	114	NR	101	30	57	NEUTRAL	260	60	60	
B	GROUND	B315	STORAGE	STORAGE	210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
B	GROUND	B304	NORTH CORRIDOR	CORRIDOR	554	NA	4	NR	295	NR	65	NA	148	NEUTRAL	245	245	NR	
B	GROUND	B317	CONFERENCE	CONFERENCE	305	2	4	NR	163	NR	173	52	81	NEUTRAL	260	85	85	
B	GROUND	B319	MENS RESTROOM	TOILET	112	NA	NA	10	NA	149	19	6	NA	DBL NEGATIVE	NA	NA	225	
B	GROUND	B306	WOMENS RESTROOM	TOILET	156	NA	NA	10	NA	208	15	5	NA	DBL NEGATIVE	NA	NA	225	
B	GROUND	B321A	OFFICE	OFFICE	318	2	4	NR	170	NR	100	30	85	NEUTRAL	260	85	85	
B	GROUND	B321A	RECEPTION	OFFICE	197	1	4	NR	105	NR	80	24	53	NEUTRAL	260	55	55	
B	GROUND	B321B	OFFICE	OFFICE	127	1	4	NR	68	NR	87	26	34	NEUTRAL	260	40	40	
B	GROUND	B321C	OFFICE	OFFICE	186	1	4	NR	99	NR	84	25	50	NEUTRAL	260	50	50	
B	GROUND	B321D	ESS	CORRIDOR	318	NA	4	NR	170	NR	50	15	85	NEUTRAL	85	85	85	
B	GROUND	B323	OFFICE	OFFICE	173	1	4	NR	92	NR	83	25	46	NEUTRAL	100	50	50	
B	GROUND	B325	EMS SUPPORT	OFFICE	313	2	4	NR	167	NR	160	48	83	NEUTRAL	175	85	85	
B	GROUND	B310A	OFFICE	OFFICE	113	1	4	NR	60	NR	79	24	30	NEUTRAL	100	40	40	
B	GROUND	B310B	OFFICE	OFFICE	113	1	4	NR	60	NR	81	24	30	NEUTRAL	100	40	40	
B	GROUND	B310	LOGISTICS	OFFICE	719	4	4	NR	383	NR	350	105	192	NEUTRAL	520	195	195	
B	GROUND	B310D	WORK AREA	OFFICE	135	1	4	NR	72	NR	81	24	36	NEUTRAL	260	40	40	
B	GROUND	B308	EAST CORRIDOR	CORRIDOR	650	NA	4	NR	347	NR	77	NA	173	NEUTRAL	240	240	NR	
B	GROUND	B79	CONTRACTING	OFFICE	171	1	4	NR	91	NR	253	76	46	NEUTRAL	260	50	50	
B	GROUND	B80	HUMAN RESOURCES	OFFICE	992	5	4	NR	529	NR	600	183	265	NEUTRAL	600	265	600	
B	GROUND	B80B	MULTIPURPOSE	OFFICE	149	1	4	NR	79	NR	120	183	40	NEUTRAL	260	40	40	
B	GROUND	B80C	OFFICE	OFFICE	92	0	4	NR	49	NR	77	23	25	NEUTRAL	260	40	40	
B	GROUND	B80D	OFFICE	OFFICE	92	0	4	NR	49	NR	77	23	25	NEUTRAL	260	40	40	
B	GROUND	B80E	OFFICE	OFFICE	92	0	4	NR	49	NR	77	23	25	NEUTRAL	260	40	40	
B	GROUND	B80F	OFFICE	OFFICE	94	0	4	NR	50	NR	77	23	25	NEUTRAL	260	40	40	
B	GROUND	B80G	OFFICE	OFFICE	144	1	4	NR	77	NR	200	67	38	NEUTRAL	200	40	200	
NR=NOT REQUIRED																		
NA=NOT APPLICABLE				TOTALS:	10353		164	20	5764	357	4820	1546	2882		9327	3010	3470	

CASSETTE FAN COILS

PLAN DESIGNATION		CFC-01	CFC-02	CFC-03	CFC-04	CFC-05	CFC-06	CFC-07	CFC-08	CFC-09	CFC-10
SERVING ROOM		B305	B307	B307A	B311B	B311A	B311D	B311E	B311F	B311H	B313A
MANUFACTURER		CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
MODEL		42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12	42WKN-12
MOUNTING		CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING
AIRFLOW	SUPPLY AIR - CFM	260	260	260	260	260	260	260	260	260	260
COOLING	TOTAL CAPACITY - BTU	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502	7,502
	SENSIBLE CAPACITY - BTU	6,107	6,107	6,107	6,107	6,107	6,107	6,107	6,107	6,107	6,107
	ENTERING AIR TEMP (DB) - °F	75	75	75	75	75	75	75	75	75	75
	FLUID	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER	CHILLED WATER
	ENTERING WATER TEMP - °F	45	45	45	45	45	45	45	45	45	45
	LEAVING WATER TEMP - °F	55	55	55	55	55	55	55	55	55	55
	FLOW RATE - GPM	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	PRESSURE DROP - PSI	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
ELECTRIC HEAT	CAPACITY - KW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
FAN	QUANTITY	1	1	1	1	1	1	1	1	1	1
	FAN SPEED	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
	SPL DBA	29	29	29	29	29	29	29	29	29	29
	HORSEPOWER EACH	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	FLA	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	MCA	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
	VOLTS / PHASE	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø	208/ 1Ø
CONFIGURATION	LENGTH x WIDTH x HEIGHT	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"	22" x 22" x 12"
	WEIGHT - LBS	45	45	45	45	45	45	45	45	45	45
REMARKS		1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

1. PROVIDE WITH MANUFACTURER'S ELECTRONIC WALL MOUNTED PROGRAMMABLE THERMOSTAT
2. PROVIDE WITH STARTER/DISCONNECT
3. PROVIDE WITH ELECTRIC HEAT

DIFFUSERS & GRILLES

PLAN DESIGNATION		S-1	S-2	S-3	R-1	R-2	R-3	E-1	T-1
MANUFACTURER		TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL		PAS	TBDI-10	TBDI-10	PAR	PAR	8F	PAR	PAR
CONSTRUCTION	TYPE	PERFORATED	1-SLOT 1.5" WIDTH	1-SLOT 1.5" WIDTH	PERFORATED	PERFORATED	PERFORATED	PERFORATED	PERFORATED
	MOUNTING	LAY-IN	SURFACE	SURFACE	LAY-IN	LAY-IN	SURFACE	LAY-IN	LAY-IN
	MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
CFM		0 - 150	0-100	101-150	0-100	101-200	0-150	0-250	0-250
GRILLE SIZE		24" x 24"	24" LONG	48" LONG	12" x 12"	12" x 12"	12" x 8"	10" x 10"	12" x 12"
DUCT CONNECTION SIZE		8" Ø	6" Ø OVAL	6" Ø OVAL	8" Ø	10"x 10"	12" x 8"	10"x 10"	10"x 10"
NC		20	27	18	14	15	-	21	21
REMARKS		1,3	1	1	1,2,3	1,2,3	1,3	1,2,3	1,2,3

1. COORDINATE COLOR WITH ARCHITECT
2. PROVIDE WITH 24x24 LAY-IN BORDER
3. PROVIDE WITH OPPOSED BLADE DAMPER

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL COORDINATE WORK WITH EXISTING CONDITIONS AND WITH THE WORK OF OTHER TRADES.
2. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF WORK TO BE ACCOMPLISHED AND AS SUCH DO NOT SHOW ALL REQUIRED OFFSETS OF PIPING. MECHANICAL CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT AS TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND MAINTAIN HEADROOM AND PASSAGEWAY.
3. ALL CUTTING AND PATCHING OF EXISTING STRUCTURE TO ACCOMMODATE NEW HVAC IS BY MECHANICAL CONTRACTOR.
4. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF EXISTING CEILING (UNLESS WORK PERFORMED BY GENERAL CONTRACTOR AND IDENTIFIED ON ARCHITECTURAL DRAWINGS.) REPLACE ALL DAMAGED CEILING WITH NEW.
5. KEYNOTES PERTAIN ONLY TO THE DRAWING THEY ARE LOCATED ON.
6. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
7. MECHANICAL CONTRACTOR SHALL CLEAN ALL EXISTING DUCTWORK, COILS AND DIFFUSERS THAT ARE DESIGNATED TO REMAIN WITHIN PROJECT LIMITATIONS PER SPECS.
8. ALL CONTROL WIRING SHALL BE RUN IN CONDUIT.
9. MAINTAIN 25' MINIMUM DISTANCE FROM OUTSIDE AIR INTAKE TO ANY EXHAUST OR TOILET VENTS.
10. ALL DUCTWORK AND PIPING FITTINGS SHALL BE INSTALLED IN A MANNER WHICH VA STAFF SHALL HAVE ACCESS.
11. CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE THE CONSTRUCTION BOUNDARY LIMITS UNLESS NOTED ON PLANS. COORDINATE SCHEDULE OF SUCH WORK WITH VA.
12. THE EXISTING OR DEMOLITION PLANS ARE BASED OFF OF EXISTING AS-BUILTS, CONSTRUCTION DRAWINGS & CASUAL SITE WALK-THROUGHS. THE CONTRACTOR SHALL VISIT THE SITE, REVIEW OTHER DISCIPLINE DEMOLITION DRAWINGS & PROVIDE DISCONNECTION OR RELOCATION OF ALL NECESSARY EQUIPMENT FOR THE COMPLETION OF THIS PROJECT.
13. CONTRACTOR SHALL PROVIDE OFFSETS OR TRANSITIONS OF ALL DUCTWORK AND PIPING AS NECESSARY.
14. EQUIPMENT SELECTIONS ARE BASED OFF NOTED MANUFACTURERS AND MODELS LISTED ON SCHEDULES. ANY ALTERNATE EQUIPMENT SUBMITTED SHALL MEET OR EXCEED ALL PERFORMANCE CAPACITIES AND FALL WITHIN PHYSICAL DIMENSIONS AND WEIGHTS OF SCHEDULED EQUIPMENT. ALTERNATE SUBMITTALS SHALL MEET ALL SYSTEM REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS (STRUCTURAL, ELECTRICAL, MECHANICAL, ETC.) NECESSARY TO ACCOMMODATE ALTERNATE EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
15. CONTRACTOR SHALL REBALANCE EXISTING AHU INCLUDING EXISTING COILS, PUMPS, ETC SERVICING FIRST AND GROUND FLOORS TO MATCH AIRFLOWS INDICATED. CONTRACTOR SHALL ALSO REBALANCE EXISTING EXHAUST FAN SERVICING SERVICING FIRST AND GROUND FLOORS TO MATCH AIRFLOWS INDICATED.

HVAC LEGEND

- NEW HVAC EQUIPMENT
- EXISTING DUCTWORK
- NEW DUCTWORK
- EXISTING MECHANICAL COMPONENT
- DEMOLISHED MECHANICAL COMPONENT
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- ELBOW WITH TURNING VANES
- FLEX DUCT
- MOTORIZED DAMPER
- BACK DRAFT DAMPER
- BALANCING DAMPER
- AIR FLOW INDICATOR
- UC — DOOR UNDER CUT
- S-* — NEW SUPPLY DIFFUSER
- R-*/E-* — NEW RETURN/EXHAUST GRILLE
- R-*/E-* — NEW RETURN/EXHAUST GRILLE WITH DAMPER
- T — THERMOSTAT
- CONTROL WIRE
- 1 — KEY NOTE
- 1 — DEMO NOTE

ABBREVIATIONS

AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CP	CONTROL PANEL
CDR	CONDENSATE DRAIN
DN	DOWN
EA	EXHAUST AIR
FD	FIRE DAMPER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
MIN	MINIMUM
MAX	MAXIMUM
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
S/D	START / DISCONNECT

PIPING LEGEND

- NEW SUPPLY PIPING (ALL SYSTEM TYPES)
- EXISTING SUPPLY PIPING (ALL SYSTEM TYPES)
- NEW RETURN PIPING PIPING (ALL SYSTEM TYPES)
- EXISTING RETURN PIPING PIPING (ALL SYSTEM TYPES)
- BALL VALVE
- CHECK VALVE
- CIRCUIT SETTER
- 2-WAY ELECTRONIC CONTROL VALVE
- PIPE BREAK
- PIPE CAPPED END
- PIPE ELBOW/TEE DOWN
- PIPE ELBOW/TEE UP
- POINT OF CONNECTION
- REDUCER
- STRAINER
- UNION

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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Drawing Title: MECHANICAL NOTES, LEGEND, ABBREVIATIONS & SCHEDULES

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MG001

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

INPUT/OUTPUT SUMMARY TABLE

PROJECT: **GROUND FLOOR RENOVATION PROJECT**

BOOSTER COILS (BC-1 & 2)

HARDWARE – OUTPUT

POINT DESCRIPTION	DIGITAL: Control Relay	DIGITAL: Solinoid	DIGITAL: Contractor	DIGITAL: Incremental	ANALOG: Pneumatic Transducer	ANALOG: Electrical ransducer	ANALOG: Position	ANALOG: Control Relay	ANALOG: Incremental
HOT WATER COIL VALVE							X		

HARDWARE – INPUT

POINT DESCRIPTION	DIGITAL: Pressure Switch	DIGITAL: Flow Switch	DIGITAL: Switch Closure	DIGITAL: Auxiliary Contact	DIGITAL: KW	DIGITAL: Control Relay	DIGITAL: Current Sensor	DIGITAL: VSD Fault	ANALOG: Temperature	ANALOG: Relative Humidity	ANALOG: RPM	ANALOG: Position	ANALOG: Flow	ANALOG: Control Relay	ANALOG: Static Pressure
HOT WATER COIL VALVE									X						

SOFTWARE – ALARMS

POINT DESCRIPTION	DIGITAL: Equipment Status	DIGITAL: Maintenance	DIGITAL: Control Relay	ANALOG: High Limit	ANALOG: Low Limit	ANALOG: Run Time	ANALOG: Control Relay
HOT WATER COIL VALVE				X		X	

SOFTWARE – ENERGY MANAGEMENT SYSTEM FUNCTIONS

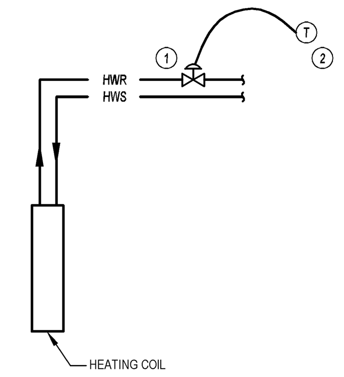
POINT DESCRIPTION	Schedule Start/Stop	Optimum Start/Stop	Point History	Day/Night Setback	Economizer	Temperature Control	Hot/Cold Deck Reset	Reheat Coil Reset	Steam Boiler OPtim.	Hot Water Boiler Optim.	HW OA Reset	Chiller Optimization	Chilled Water Reset	Condenser Water Reset	Chiller Demand Limit	VAV Control	Lighting Control	TOTALIZE
HOT WATER COIL VALVE																		

SEQUENCE OF OPERATION

CONTROL VALVE FOR BOOSTER COIL SHALL MODULATE TO MAINTAIN ROOM AIR TEMPERATURE REGULATED BY THE ROOM THERMOSTAT.

CONTROLS SEQUENCE

(HEATING) BOOSTER COIL AND CONTROL VALVE (V-1) SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE CALLED OUT BY SPACE THERMOSTAT (T-1).



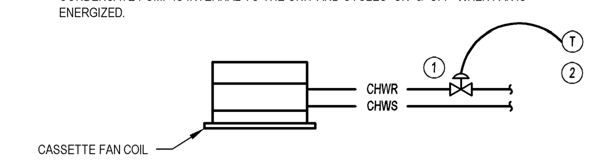
UNIT KEYED NOTES:

1. BOOSTER COIL WITH HOT WATER ELECTRONIC CONTROL VALVE (V-1)
2. ELECTRONIC ROOM THERMOSTAT (T-1)

CONTROLS SEQUENCE

(HEATING) FAN COIL UNITS DO NOT PROVIDE HEATING IN ROOMS WITH FIN TUB RADIATOR. INTEGRAL ELECTRIC HEATER IS PROVIDED IN ROOMS WITH PERIMETER BELOW GRADE WALLS. FAN COIL UNIT SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE CALLED OUT BY SPACE THERMOSTAT (T-1). CONTROL VALVE (V-1) SHALL BE "CLOSED". (NOTE: CONTRACTOR SHALL COORDINATE WITH VA TO HAVE NEW FAN ENERGIZED DURING HEATING TO MEET PROVIDE AIR CHANGES PER HOUR REQUIREMENTS)

(COOLING) NEW FAN COIL UNIT AND CONTROL VALVE (V-1) SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE CALLED OUT BY SPACE THERMOSTAT (T-1).
CONDENSATE PUMP IS INTERNAL TO THE UNIT AND CYCLES "ON" & "OFF" WHEN FAN IS ENERGIZED.



UNIT KEYED NOTES:

1. FAN COIL CHILLED WATER ELECTRONIC CONTROL VALVE (V-1)
2. ELECTRONIC ROOM THERMOSTAT (T-1)

EXISTING AHU, RELIEF FANS AND EXHAUST FANS SCHEDULES

FAN SCHEDULE

MARK	LOCATION	SERVES	DESCRIPTION	FAN DATA: DRIVE TYPE	FAN DATA: FAN TYPE AF, BI, FC	FAN DATA: WHEEL DIAMETER (IN.)	FAN DATA: OUTLET VELOCITY (FPM)	FAN DATA: TIP SPEED (FPM)	FAN DATA: FAN DISCHARGE UB, TH, AD	FAN PERFORMANCE: DESIGN CFM	FAN PERFORMANCE: ACTUAL CFM	FAN PERFORMANCE: TOTAL S.P.	FAN PERFORMANCE: RPM	MOTOR DATA: BHP	MOTOR DATA: HP	MOTOR DATA: VOLTS	MOTOR DATA: PHASE	REMARKS
RF-106	MECH B77	AHU-106	CENTRIFUGAL	BELT	INLINE	–	474	7483	INLINE	7500	6,795	2	1750	4.78	7.5	208	3	1, 5
EF-106	MECH B77	AHU-106	CENTRIFUGAL	BELT	INLINE	–	347	6626	INLINE	5500	4885	1.75	1725	3.19	5	208	3	1, 2, 3, 5
EF-106A	MECH B77	ROOM VENTILATION	PROP	BELT	PROP	–	–	–	PROP	2500	2500	0.375	1725	0.35	0.5	120	1	1, 3, 4
RF-148	MECH 000	AHU-148	CENTRIFUGAL	BELT	FC	25	1917	–	TOP HORIZ	13000	7530	1.83	1750	6.3	7.5	208	3	1, 5
EF-1	ROOF	NEW ADDITION	CENTRIFUGAL	BELT	EXHAUST	–	1292	6258	DOWNBLAST	2600	2510	1.25	1725	0.93	1	208	3	1, 3, 4
EF-2	ROOF	NEW ADDITION	CENTRIFUGAL	BELT	EXHAUST	–	1287	5736	DOWNBLAST	1700	1535	1.25	1725	0.67	1.0	208	3	1, 3, 4

NOTES:
1. EQUIPMENT SELECTION INFORMATION ABOVE IS BASED ON DESIGN CFM (NOT ACTUAL).
2. PROVIDE VIBRATION ISOLATION AND SUPPORTS FROM STRUCTURE, REFER TO SPECIFICATIONS.
3. INSTALL PER DETAIL.
4. PROVIDE WTH FACTORY INSTALLED DISCONNECT SWITCH.
5. VFD COMPATIBLE.

AIR HANDLING UNIT SCHEDULE

MARK	DESCRIPTION	LOCATION	SERVES	OUTSIDE AIR (%)	CFM: ACTUAL	CFM: DESIGN	TOTAL SP (IN. W.C.)	EXTERNAL SP (IN. W.C.)	FAN TYPE/SIZE	OUTLET VELOCITY	FAN RPM	ELECTRICAL DATA: BHP	ELECTRICAL DATA: HP	ELECTRICAL DATA: VOLT	ELECTRICAL DATA: PH	REMARKS
AHU-106	DRAW THRU	ROOM B77	LOWER LEVEL & 1ST FLOOR B-WING	65	13,895	15,000	5.44	2.75	PLENUM AF/30"	–	1750	19.62	25	208	3	1.
AHU-148	DRAW THRU	LL NEW MECH RM	LOWER LEVEL & 1ST FLOOR B-WING	30	15,250	16,500	4.95	2.5	PLENUM AF/30"	–	1750	20.1	25	208	3	2

NOTES:
1. EXISTING AHU AND ALL ASSOCIATED COILS AND CONTROLS TO BE REPLACED UNDER SEPARATE BID. SEE ELEVATION OF UNIT FOR ITEMS INSTALLED IN UNIT. SHOWN HERE FOR COORDINATION (SEE DRAWINGS AND SPECIFICATIONS FOR FULL COORDINATION).
2. SEE ELEVATION OF UNIT FOR ITEMS INSTALLED IN UNIT.

100% BID DOCUMENTS

Revisions: | Date

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Drawing Title: CONTROLS SEQUENCE AND SCHEMATICS

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MG002

Office of Construction and Facilities Management

Department of Veterans Affairs

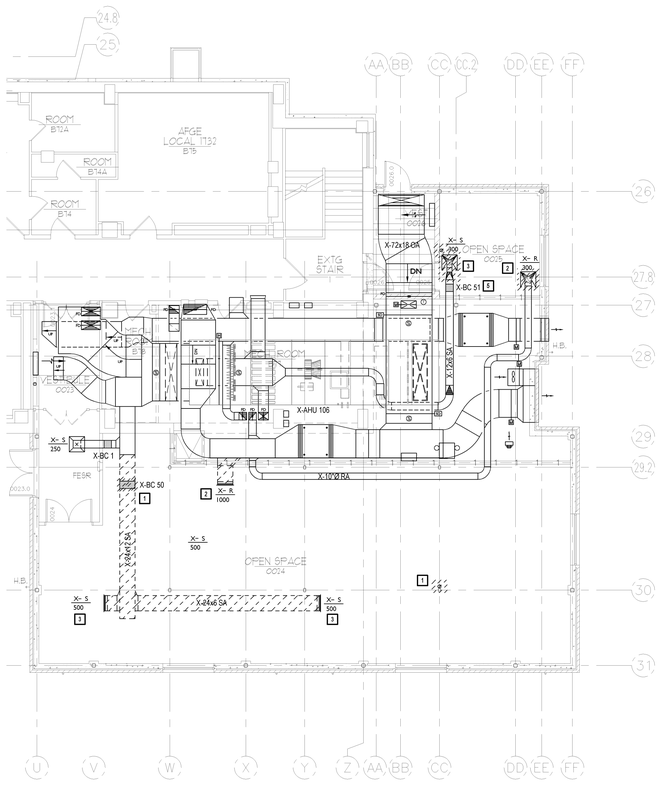
VA FORM 08-6231

DEMOLITION NOTES

1. REMOVE EXISTING BOOSTER COIL PIPING AND ASSOCIATED CONTROLS. FIELD VERIFY EXISTING LOCATION AND SIZE PRIOR TO DEMOLITION.
2. REMOVE EXISTING RETURN GRILLE AND DUCTWORK AS SHOWN ON PLAN.
3. REMOVE EXISTING SUPPLY GRILLE AND DUCTWORK AS SHOWN ON PLAN.
4. COORDINATE THE RELOCATION OF EXISTING FIRE ALARM CONDUIT WITH DIVISION 26 CONTRACTOR.
5. REMOVE EXISTING THERMOSTAT FOR X-BC 51 AND PROVIDE NEW THERMOSTAT TO MATCH RENOVATED SPACES. KEEP ALL X-BAS CONTROLS FOR X-BC 51.

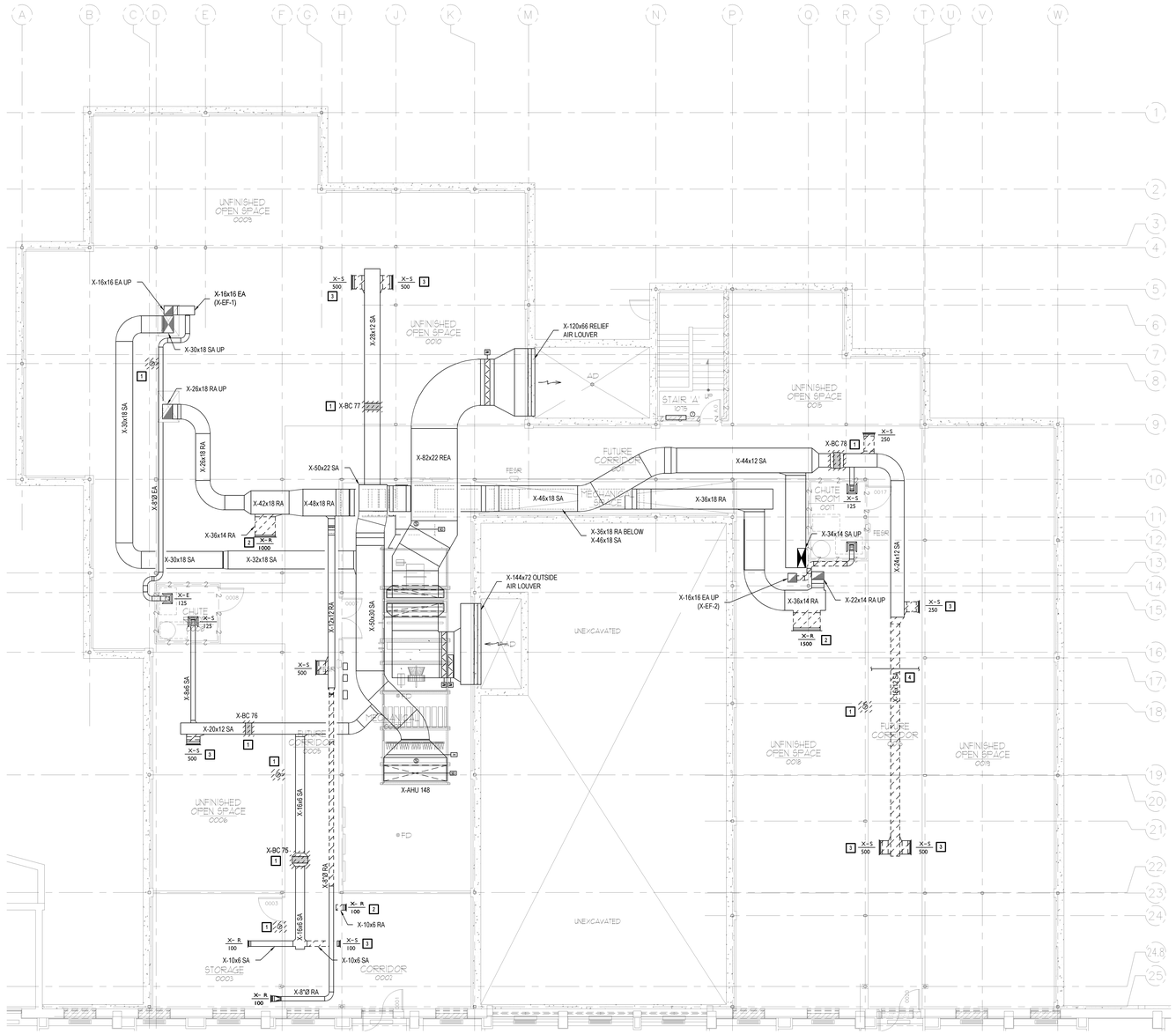
NOTE:

VA HAS RIGHT OR REFUSAL OF COILS, GRILLES OR CONTROLS. CONTRACTOR SHALL COORDINATE WITH VA PROJECT ENGINEERS.



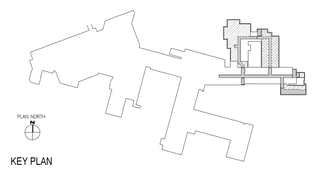
2 'B' WING – HUMAN RESOURCES OFFICE DUCTWORK DEMOLITION PLAN

1/8" = 1'-0"



1 'B' WING – MAIN OFFICES DUCTWORK DEMOLITION PLAN

1/8" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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Drawing Title: 'B' WING GROUND FLOOR – DUCTWORK DEMOLITION PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MD100

Office of Construction and Facilities Management

Department of Veterans Affairs

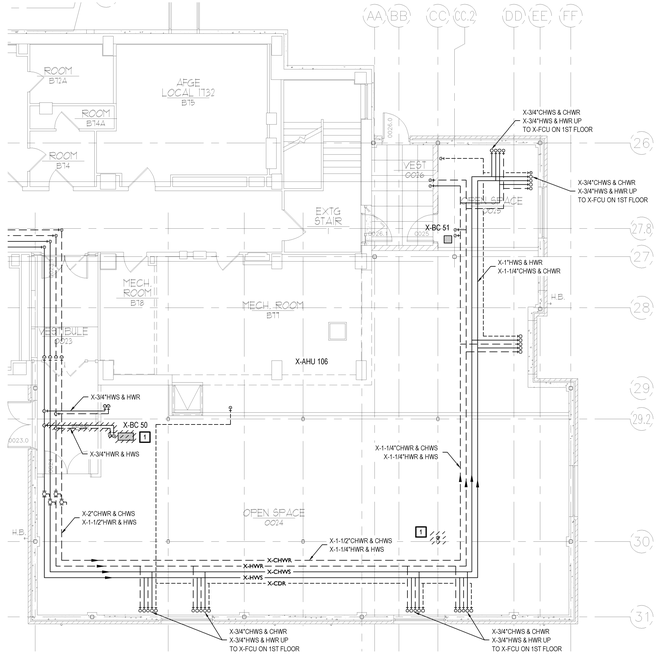
VA FORM 08-6231

DEMOLITION NOTES

1. REMOVE EXISTING BOOSTER COIL, PIPING AND ASSOCIATED CONTROLS. FIELD VERIFY EXISTING LOCATION AND SIZE PRIOR TO DEMOLITION.
2. REMOVE EXISTING CONDENSATE PIPING FOR EXISTING FAN COIL UNITS ABOVE TO ACCOMMODATE NEW PIPING. NEW PIPING TO BE INSTALLED AS HIGH AS POSSIBLE AND RE-PITCHED TO HUB DRAIN.

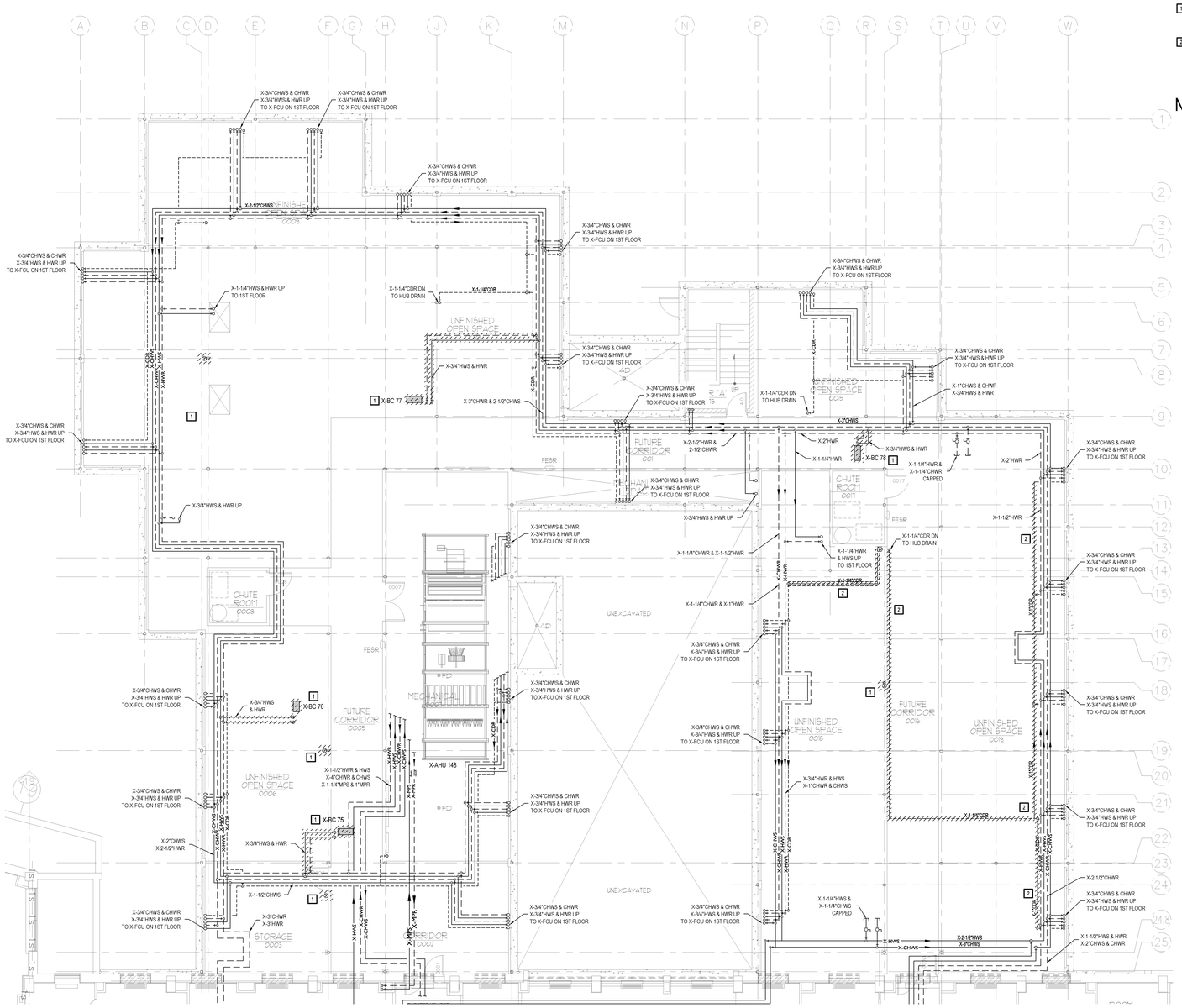
NOTE:

VA HAS RIGHT OR REFUSAL OF COILS, GRILLES OR CONTROLS. CONTRACTOR SHALL COORDINATE WITH VA PROJECT ENGINEERS.



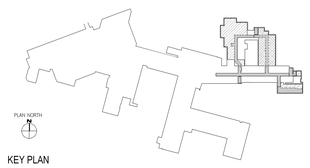
2 'B' WING – HUMAN RESOURCES OFFICE MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0"



1 'B' WING – MAIN OFFICES MECHANICAL PIPING DEMOLITION PLAN

1/8" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

IBC ENGINEERING SERVICES INC.
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Drawing Title: 'B' WING GROUND FLOOR – PIPING DEMOLITION PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MD101

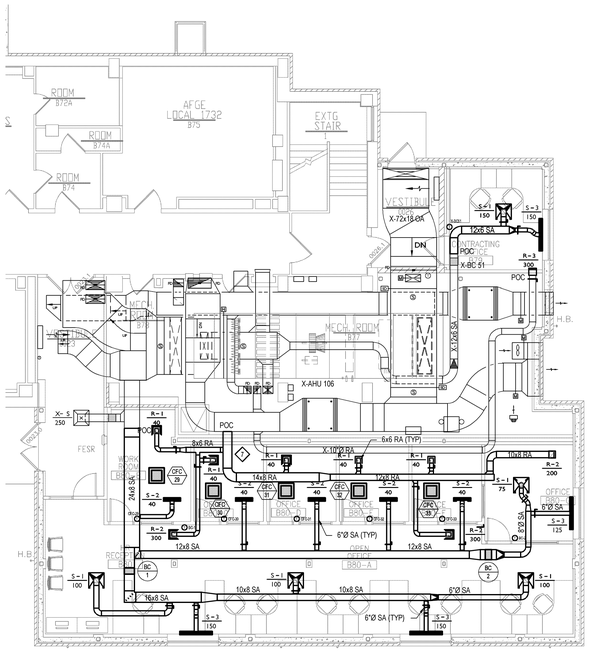
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

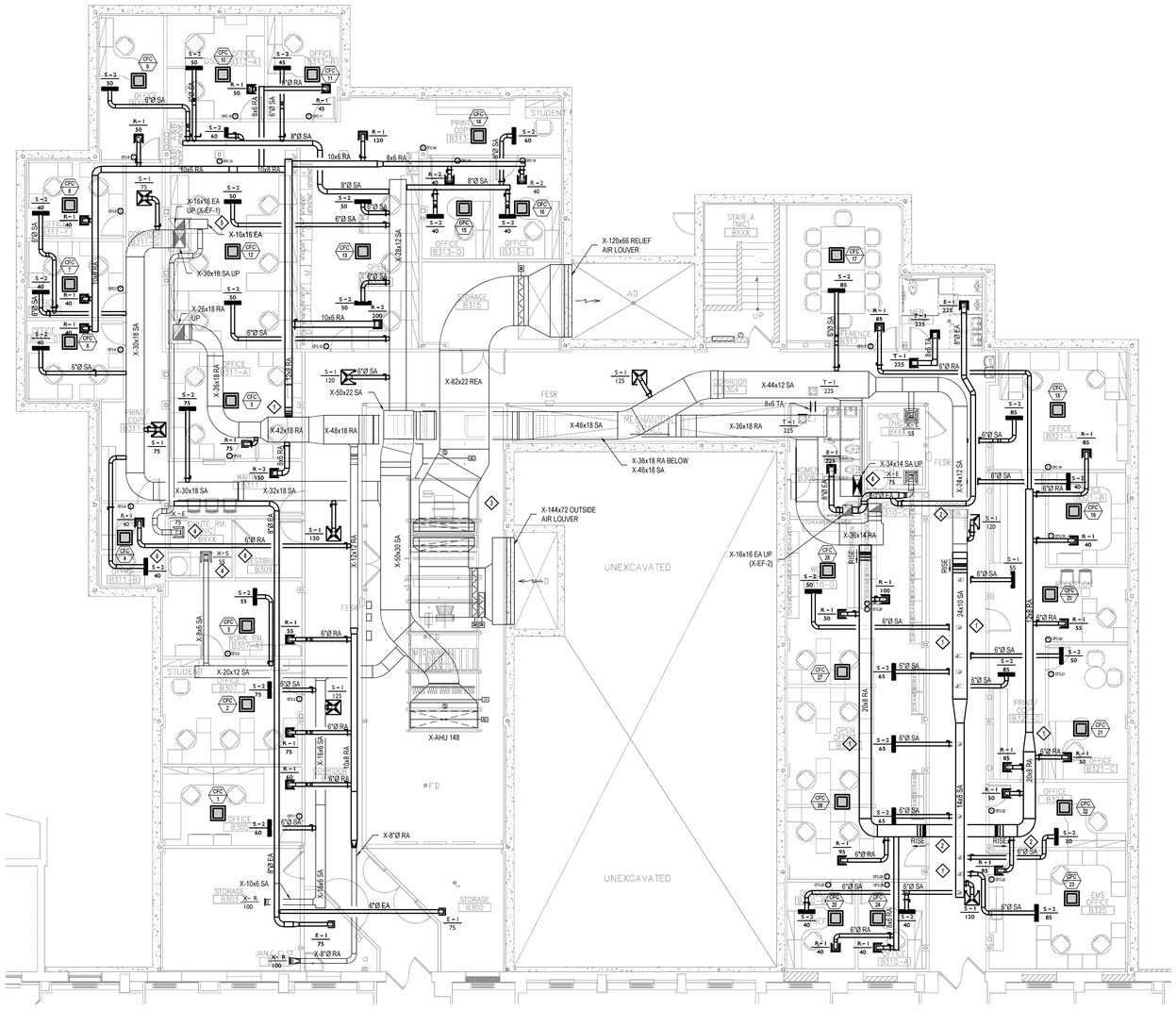
KEY NOTES

1. INSTALL NEW DUCTWORK MAIN TIGHT TO SLAB AS POSSIBLE. COORDINATE WITH EXISTING FIRE ALARM CONDUIT.
2. ROUTE NEW DUCTWORK UNDER EXISTING STRUCTURAL BEAM. VERIFY EXACT ROUTING WITH EXISTING CONDITIONS.
3. CONTRACTOR SHALL REBALANCE EXISTING AHU INCLUDING EXISTING COILS, PUMPS, ETC SERVICING FIRST AND GROUND FLOORS TO MATCH AIRFLOWS INDICATED. CONTRACTOR SHALL ALSO REBALANCE EXISTING EXHAUST FAN SERVICING SERVICING FIRST AND GROUND FLOORS TO MATCH AIRFLOWS INDICATED.
4. REBALANCE EXISTING EXHAUST & SUPPLY GRILLES IN CHUTE ROOM AS INDICATED. PROVIDE DAMPERS AS NECESSARY.
5. CAP OFF EXISTING EXHAUST DUCT. FIELD VERIFY EXACT SIZE.
6. FIRE CAULK DUCT PENETRATION AT CHUTE ROOM.
7. PROVIDE DUCT LINER ON FIRST 5FT OF 14x8 RA DUCT.



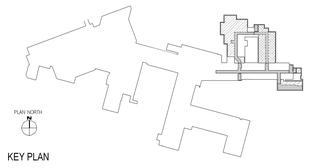
2 'B' WING – HUMAN RESOURCES OFFICE DUCTWORK PLAN – NEW

1/8" = 1'-0"



1 'B' WING – MAIN OFFICES DUCTWORK PLAN – NEW

1/8" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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Drawing Title: 'B' WING GROUND FLOOR – DUCTWORK PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MH100

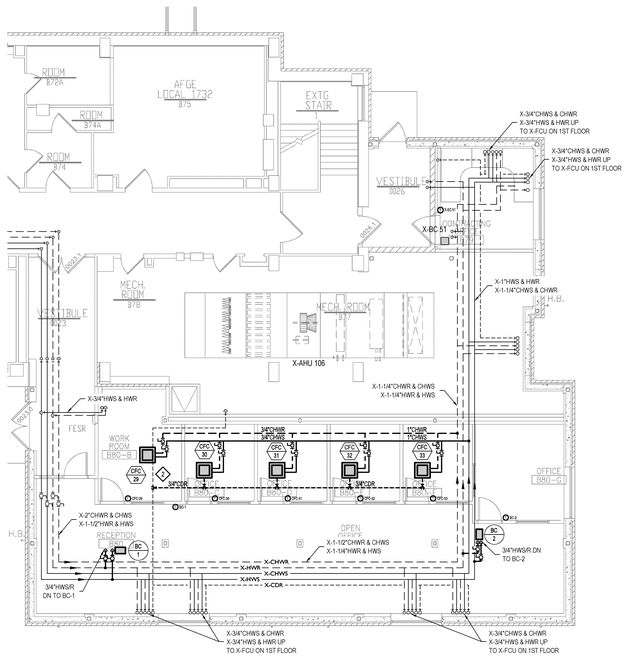
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

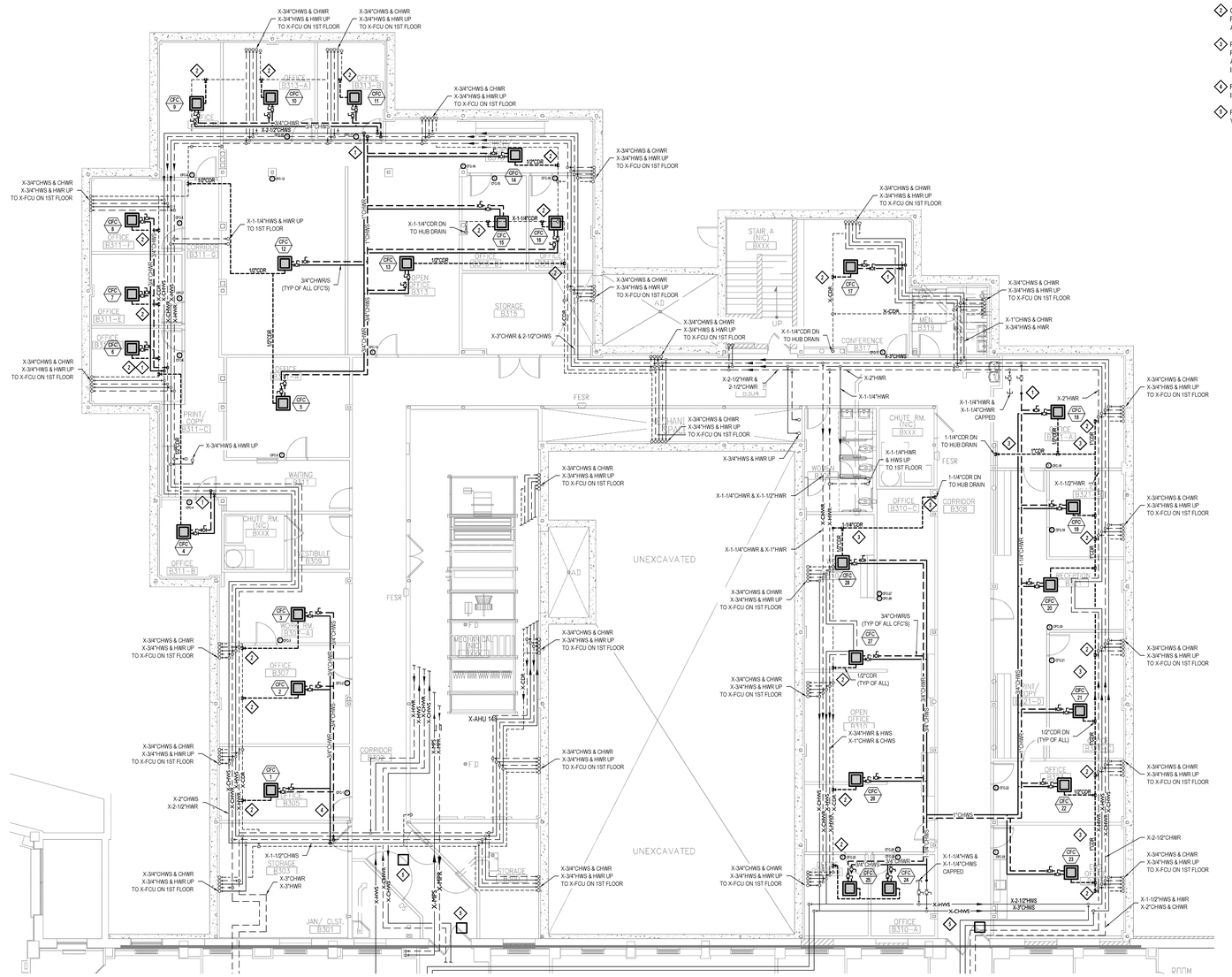
KEY NOTES

1. CONNECT TO X-CHWS/R PIPING. FIELD VERIFY EXACT LOCATION AND SIZE.
2. CONNECT NEW 1/2"CDR TO EXISTING CONDENSATE DRAIN. FIELD VERIFY EXISTING CONDENSATE DRAIN LOCATION AND SIZE.
3. REROUTE NEW 1"CDR AND INSTALL PIPING AS HIGH AS POSSIBLE. COORDINATE PIPING WITH ALL NEW DUCTWORK AND PIPING. NEW CONDENSATE PIPING SHALL NOT INTERFERE WITH DUCTWORK OR PIPING.
4. FIRE CAULK PENETRATION AT FIRE RATED WALL. PROVIDE INFILL SECTION TO CONCEAL PIPING.
5. PROVIDE A 18x18 ACCESS PANEL FOR EXISTING DRAIN VALVES. FIELD VERIFY EXACT LOCATION.



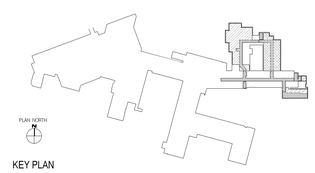
2 'B' WING – HUMAN RESOURCES OFFICE MECHANICAL PIPING PLAN – NEW

1/8" = 1'-0"



1 'B' WING – MAIN OFFICES MECHANICAL PIPING PLAN – NEW

1/8" = 1'-0"



KEY PLAN

100% BID DOCUMENTS

Revisions:	Date

MEP ENGINEERS:

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Drawing Title: 'B' WING GROUND FLOOR – PIPING PLAN

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

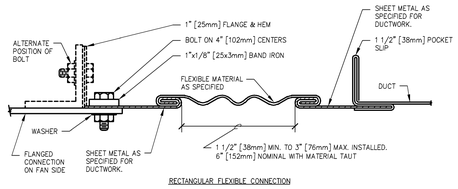
Building Number: 1

Drawing Number: MH101

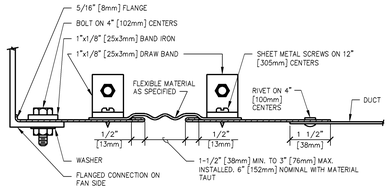
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



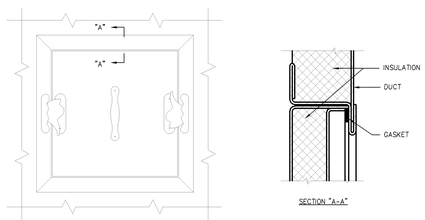
RECTANGULAR FLEXIBLE CONNECTION



ROUND FLEXIBLE CONNECTION

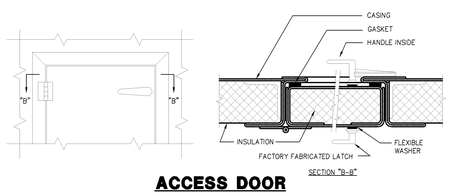
13 RECTANGULAR AND ROUND FLEXIBLE CONNECTION DETAILS

N.T.S.



SECTION "A-A"

ACCESS PANEL



SECTION "B-B"

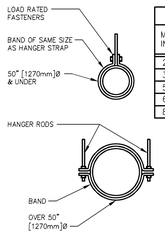
ACCESS DOOR

NOTES:

1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.

14 ACCESS PANEL/DOOR DETAIL

N.T.S.

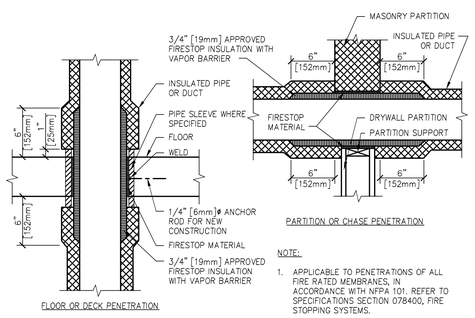


HANGER STRAPS OR RODS			
MAX. DUCT Ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3658]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3658]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3658]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3658]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3658]

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

9 ROUND DUCT HANGERS

N.T.S.



FLOOR OR DECK PENETRATION

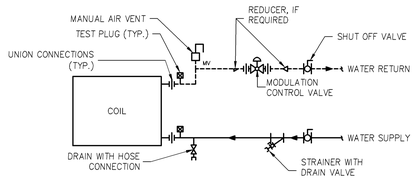
PARTITION OR CHASE PENETRATION

NOTE:

1. APPLICABLE TO PENETRATIONS OF ALL FIRE RATED MEMBRANES, IN ACCORDANCE WITH NFPA 101. REFER TO SPECIFICATIONS SECTION 078400, FIRE STOPPING SYSTEMS.

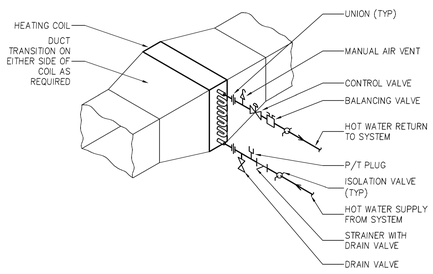
10 PIPE AND DUCT PENETRATION OF SMOKE/FIRE BARRIERS

N.T.S.



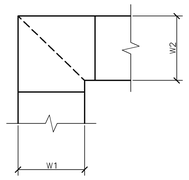
11 FAN COIL DETAIL

N.T.S.



12 HOT WATER BOOSTER COIL DETAIL

N.T.S.

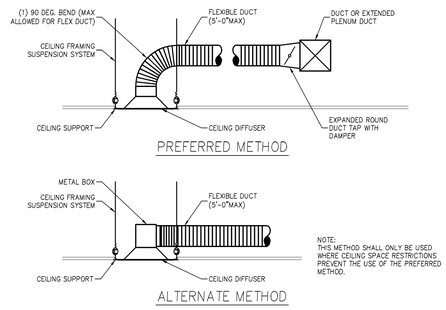


NOTE:

1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

5 DUCTWORK SQUARE VANED ELBOWS

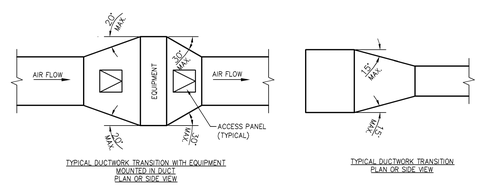
N.T.S.



NOTE:
THIS METHOD SHALL ONLY BE USED WHERE CEILING SPACE RESTRICTIONS PREVENT THE USE OF THE PREFERRED METHOD.

6 CEILING DIFFUSER DETAIL

N.T.S.

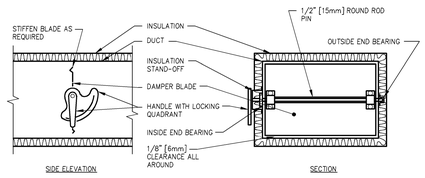


NOTE:

1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

7 TYPICAL DUCTWORK TRANSITION W/ EQUIPMENT MOUNTED IN DUCT

N.T.S.

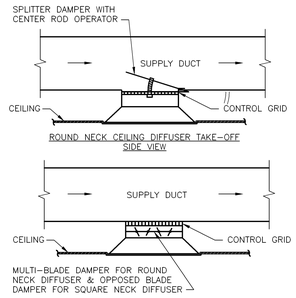


NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

8 VOLUME DAMPER DETAIL

N.T.S.

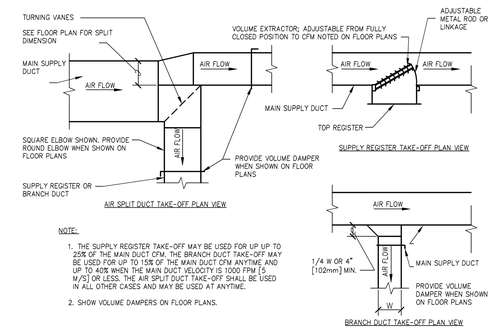


ROUND NECK CEILING DIFFUSER TAKE-OFF SIDE VIEW

ROUND AND/OR SQUARE NECK CEILING DIFFUSER TAKE-OFFS SIDE VIEW

1 CEILING DIFFUSER DUCTWORK TAKE-OFFS

N.T.S.



AIR SPLIT DUCT TAKE-OFF PLAN VIEW

SUPPLY REGISTER TAKE-OFF PLAN VIEW

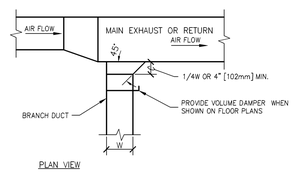
BRANCH DUCT TAKE-OFF PLAN VIEW

NOTE:

1. THE SUPPLY REGISTER TAKE-OFF MAY BE USED FOR UP UP TO 25% OF THE MAIN DUCT CFM. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM [5 M/S] OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES AND MAY BE USED AT ANYTIME.
2. SHOW VOLUME DAMPERS ON FLOOR PLANS.

2 SUPPLY DUCTWORK TAKE-OFFS

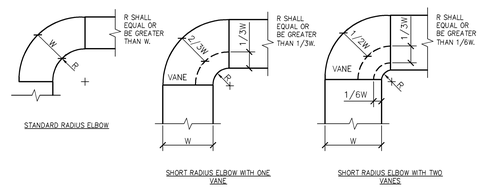
N.T.S.



PLAN VIEW

3 EXHAUST OR RETURN BRANCH DUCTWORK

N.T.S.



NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

4 DUCTWORK RADIUS ELBOWS

N.T.S.

100% BID DOCUMENTS

Revisions:	Date

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Drawing Title: MECHANICAL DETAILS

Approved: Project Director

Project Title: William S. Middleton Memorial Veterans Hospital Ground Floor Renovation

Location: Madison, WI

Date: SEPTEMBER 1, 2011 | Checked: DS,TK | Drawn: SO,CW,EK

Project Number: 607-11-109

Building Number: 1

Drawing Number: MH300

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231