

1 DUCTWORK SYMBOLS

2 EQUIPMENT SYMBOLS

3 SYMBOLS

4 EQUIPMENT ABBREVIATIONS

NOT FOR CONSTRUCTION

911 Central Parkway N., Suite 425 San Antonio, TX 78223
501 North Broadway, St. Louis, Missouri 63102-2121

Revision: _____
Date: _____ By: _____ Description: _____

AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE) FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

DESCRIPTION	SINGLE LINE	DOUBLE LINE
ACCESS DOOR		
BACKDRAFT DAMPER		
FIRE DAMPER		
SMOKE DAMPER		
COMBINATION FIRE/SMOKE DAMPER		
FLEXIBLE CONNECTION		
MOTORIZED DAMPER		
CONTROL DAMPER		
VOLUME DAMPER, MANUAL		
STATIC PRESSURE MEASURING STATION		
DUCT ELBOW WITH TURNING VANES		
DUCT SECTION - SUPPLY AIR		
DUCT SECTION - RETURN, OUTSIDE, OR RELIEF AIR		
DUCT SECTION - EXHAUST AIR		
DUCT, INCLINED DROP		
DUCT, INCLINED RISE		
FLEXIBLE DUCT - ROUND		
DUCT TRANSITION		
DUCT TRANSITION (SQUARE OR RECTANGULAR TO ROUND)		
RECTANGULAR DUCT, SIZE IN INCHES, FIRST DIMENSION IS SIDE SHOWN (NET CLEAR INSIDE DIMENSION)		
ROUND DUCT, DIAMETER IN INCHES, (NET CLEAR INSIDE DIMENSION)		
AIR FLOW IN DIRECTION OF ARROW		
45° BRANCH TAKE-OFFS		
CONICAL LATERAL BRANCH TAKE-OFFS		
CEILING SUPPLY DIFFUSERS		
CEILING RETURN GRILLE/REGISTER		
CEILING EXHAUST GRILLE/REGISTER		
SIDEWALL SUPPLY GRILLE/REGISTER		
SIDEWALL RETURN/EXHAUST GRILLE/REGISTER		
EXTRACTOR		
DUCT TEE WITH SPLITTER DAMPER		
DOOR UNDERCUT		
DOOR LOUVER		

SYMBOL	DESCRIPTION
	MISC. EQUIPMENT
	VARIABLE AIR VOLUME BOX
	CHILLER
	HORIZONTAL SPLIT-CASE PUMP
	VERTICAL INLINE PUMP
	END-SUCTION PUMP
	BOILER

	KEYED NOTE
	DUCT SMOKE DETECTOR
	NEW CONNECTION TO EXISTING
	CARBON MONOXIDE MONITOR
	CARBON DIOXIDE (CO2) SENSOR
	HUMIDISTAT
	PRESSURE SENSOR
	THERMOSTAT (MOUNT 48" AFF)
	TEMPERATURE SENSOR (MOUNT 48" AFF)
	NIGHT THERMOSTAT
	ALARM STROBE
	DIFFUSER, GRILLE OR REGISTER MARK (REF SCHEDULE)
	CFM
	NECK SIZE (IF NOT ON SCHEDULE)
	EQUIPMENT MARK (REF SCHEDULE)
	DETAIL DESIGNATION LOCATOR/DESCRIPTOR
	DRAWING WHERE DETAIL IS SHOWN OR WHERE DETAIL IS REFERENCED
	SECTION CUT LOCATOR/DESCRIPTOR
	DRAWING WHERE DETAIL IS SHOWN OR WHERE DETAIL IS REFERENCED

B	BOILER
CH	CHILLER
FCU	FAN COIL UNIT
FTR	FIN TUBE RADIATION
P	PUMP
VAV	VARIABLE AIR VOLUME BOX

Scales: 12" = 1'-0"

Jacobs Project No.: FDWD1301

Drawing Title:

Mechanical Symbols

Date: May 11, 2009

Designed By: Designer

Drawn By: Author

Checked By: Checker

Drawing No.:

M00

NOT FOR CONSTRUCTION

911 Central Parkway N., Suite 425 San Antonio, TX 78223
501 North Broadway, St. Louis, Missouri 63102-2121

Revision: _____
Date: _____ By: _____ Description: _____

AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

Scales: 1/4" = 1'-0"

Jacobs Project No.: FDWD1301

Drawing Title:

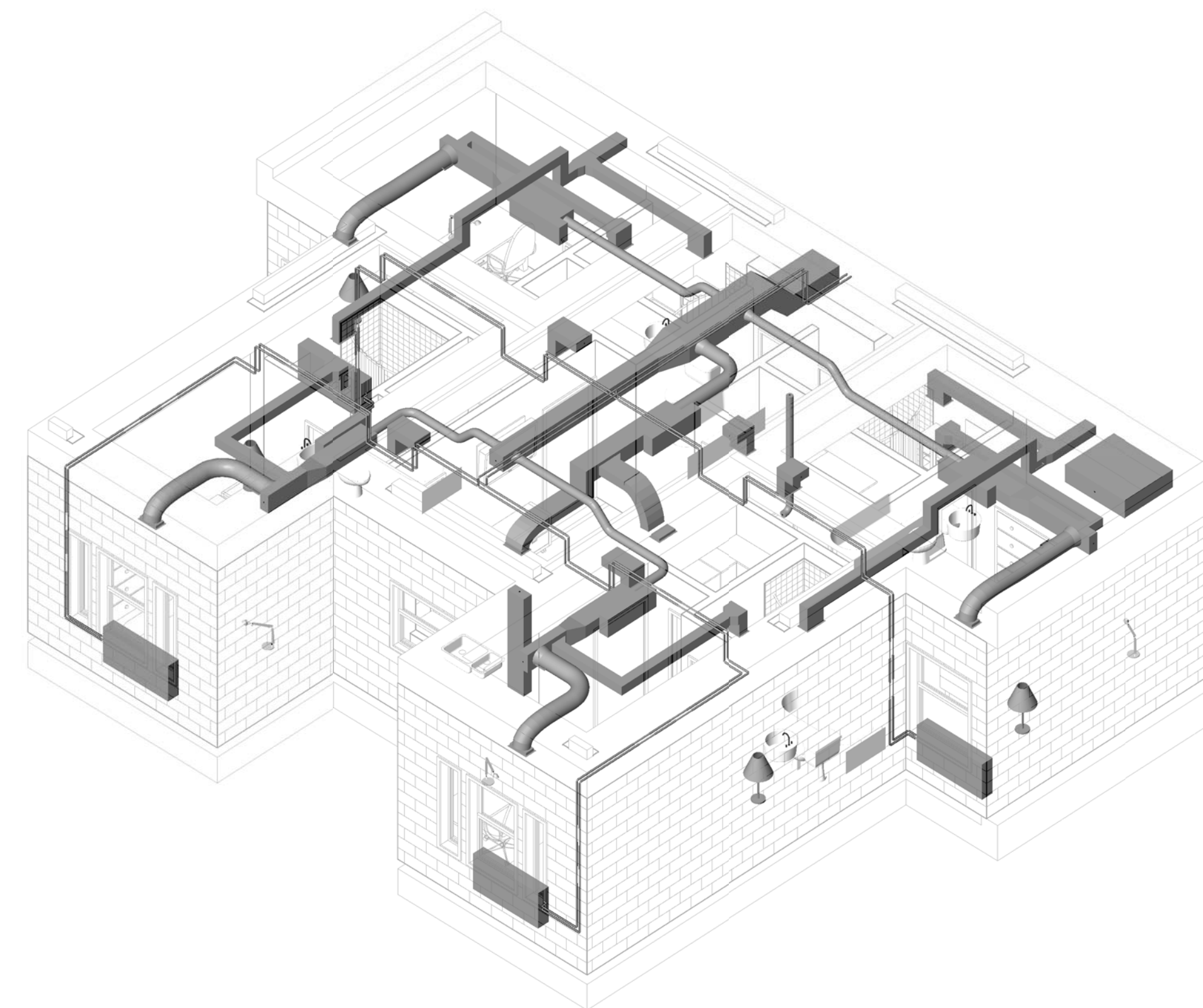
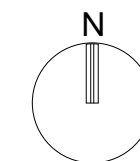
Cold/Arid

Date: May 11, 2009

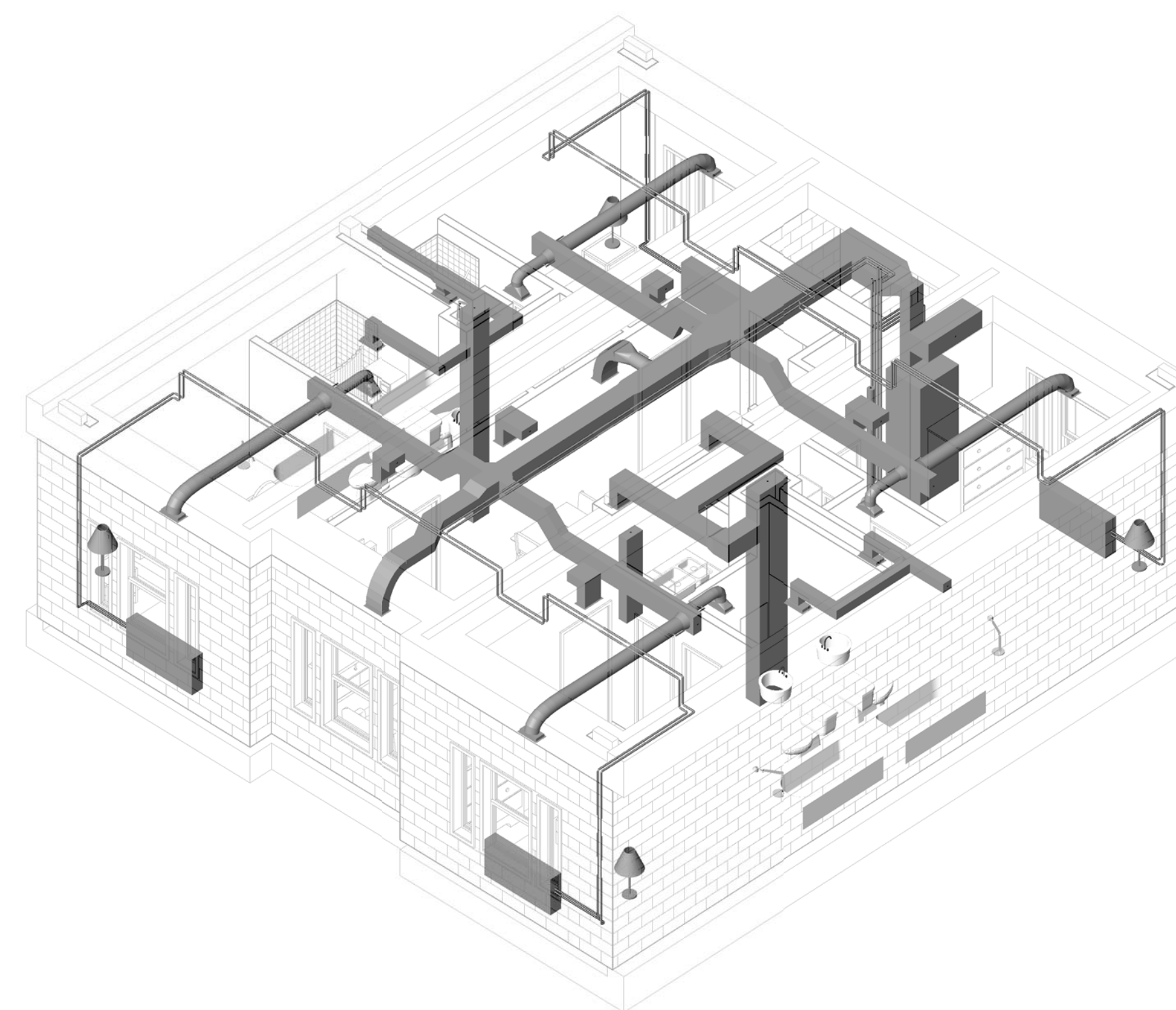
Designed By: Designer Drawing No.:

Drawn By: Author

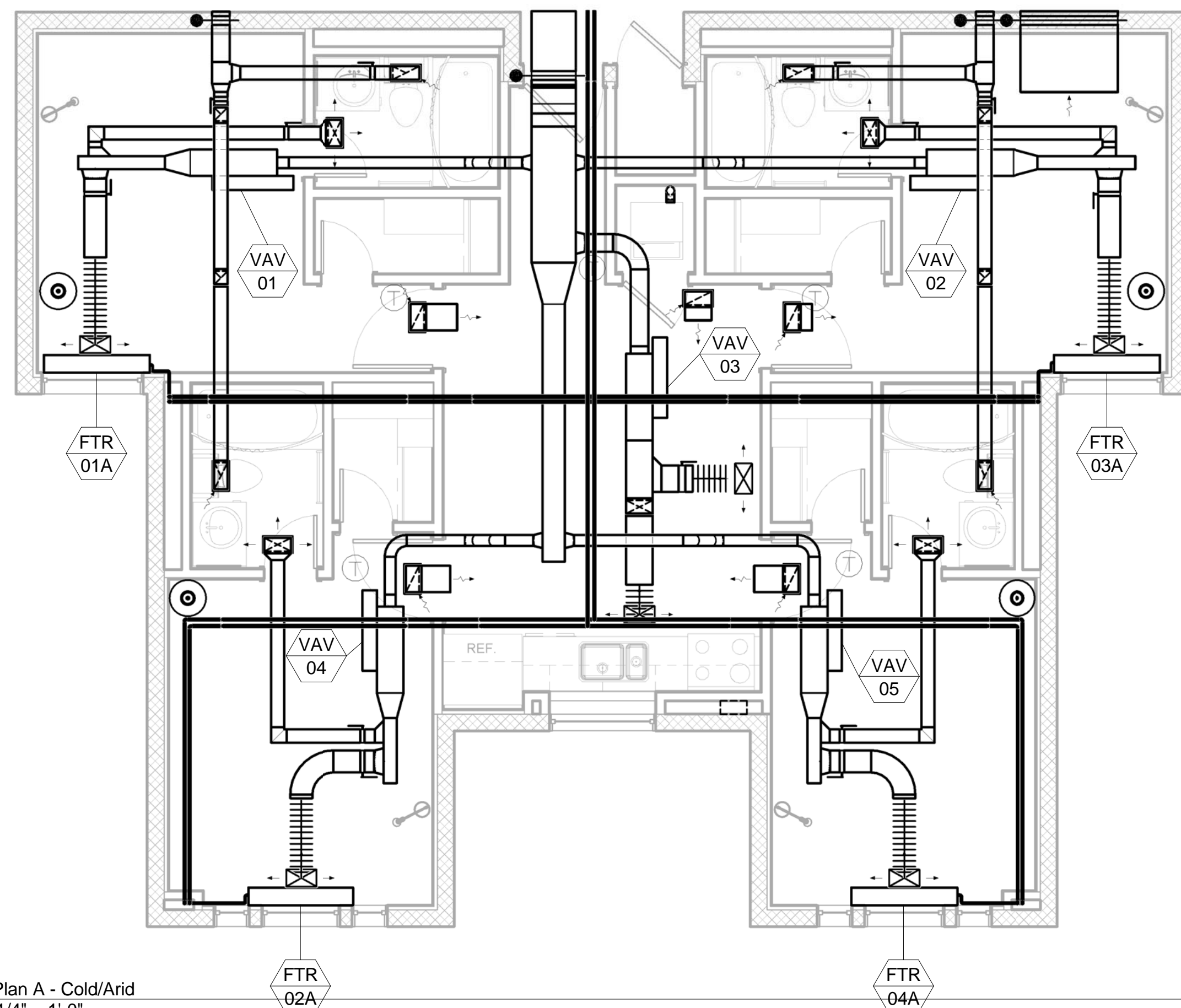
Checked By: Checker M01



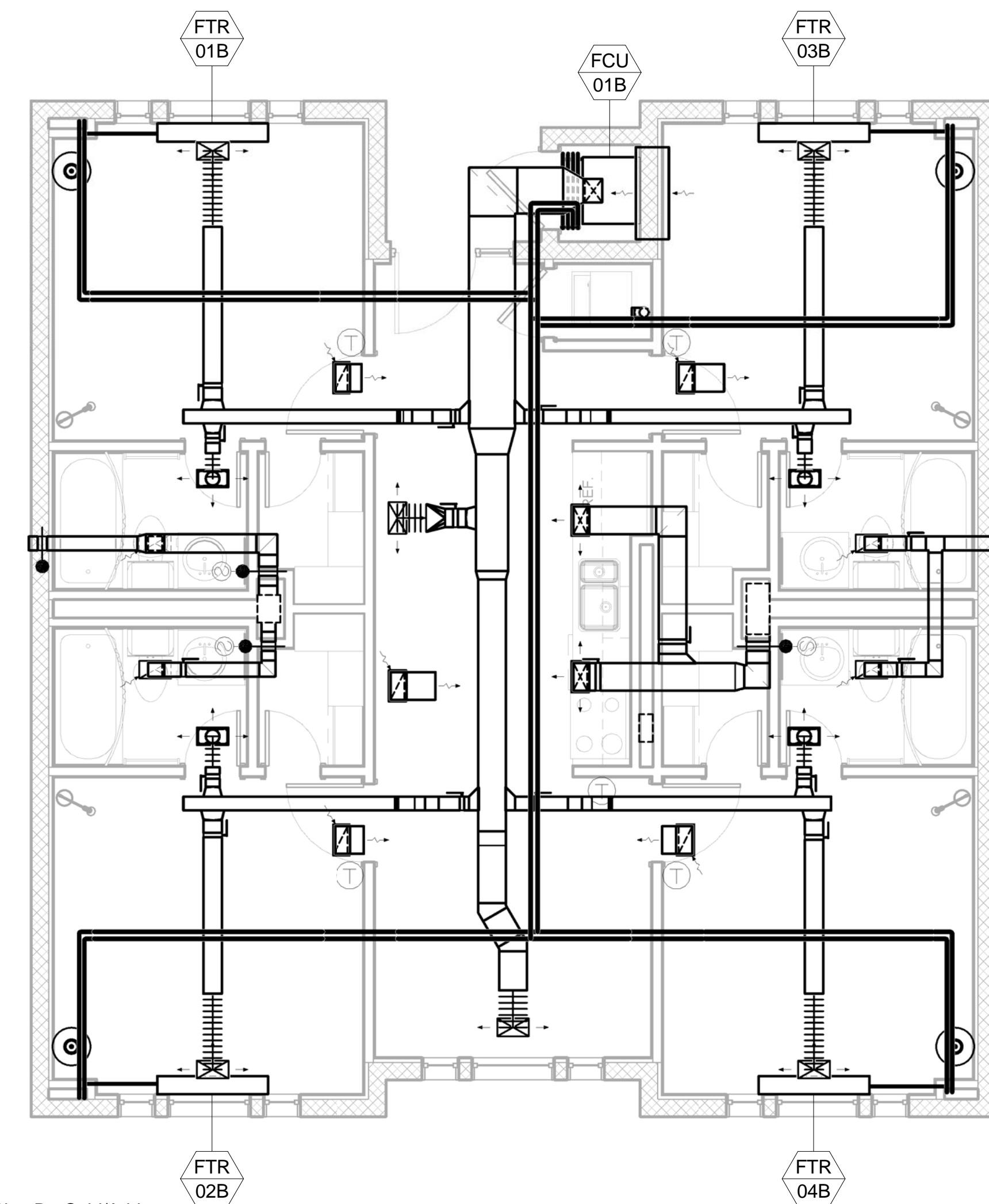
② Plan A - Cold/Arid



④ Plan B - Cold/Arid



① Plan A - Cold/Arid
1/4" = 1'-0"



③ Plan B - Cold/Arid
1/4" = 1'-0"

D
C
B
A

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AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

Scales: As indicated

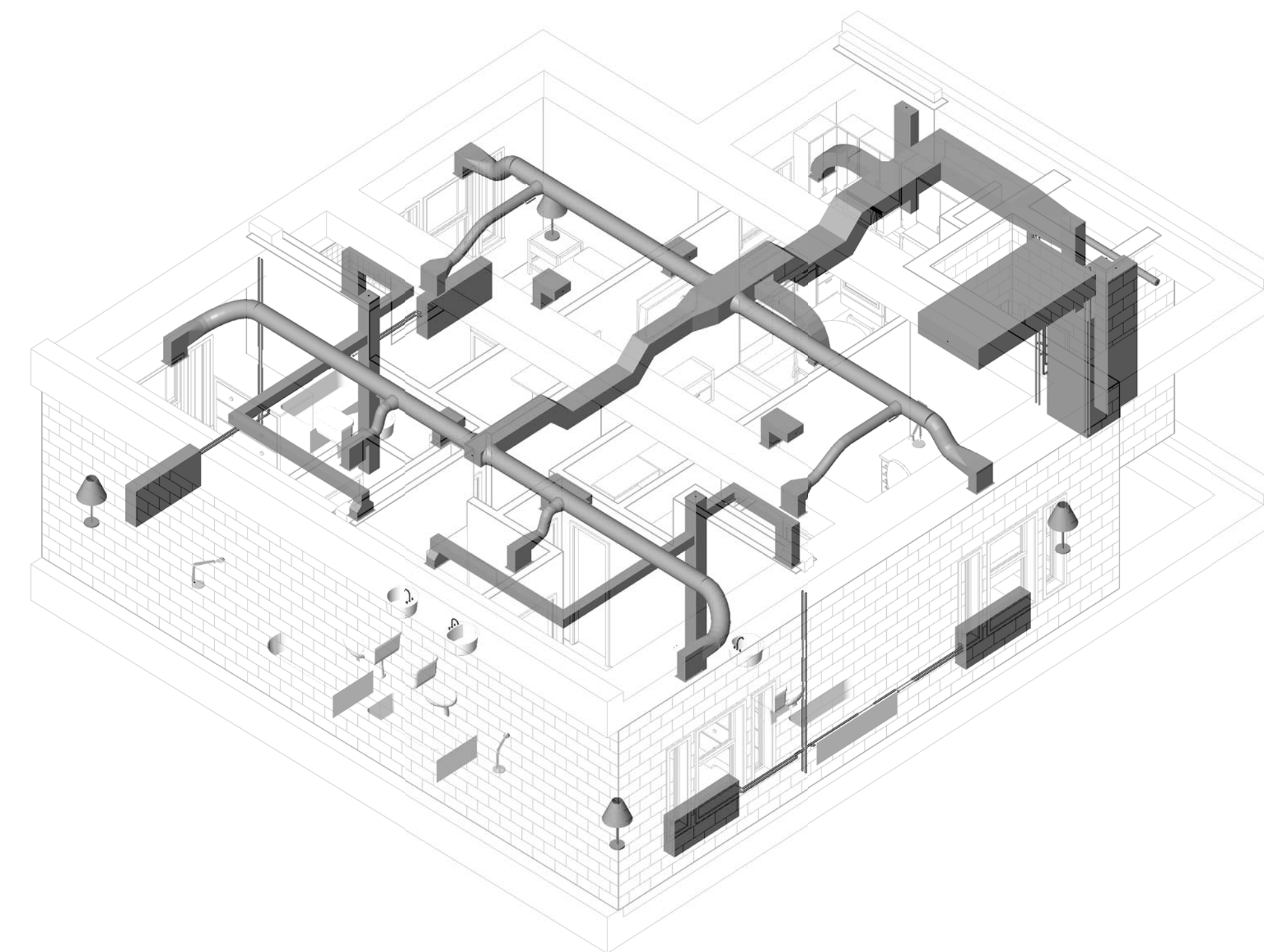
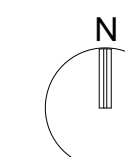
Jacobs Project No.: FDWD1301

Drawing Title:

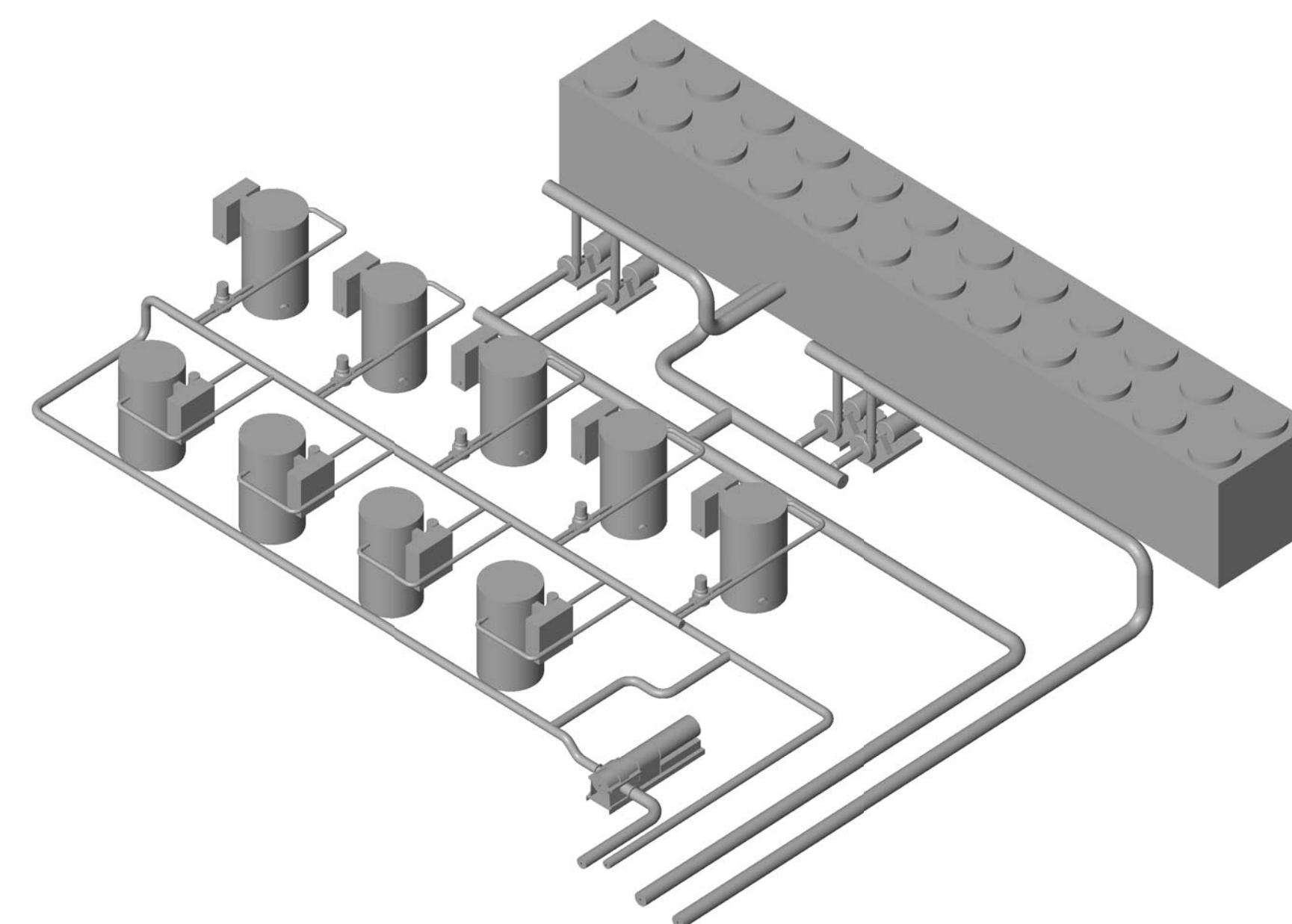
Cold/Arid

Date: May 11, 2009

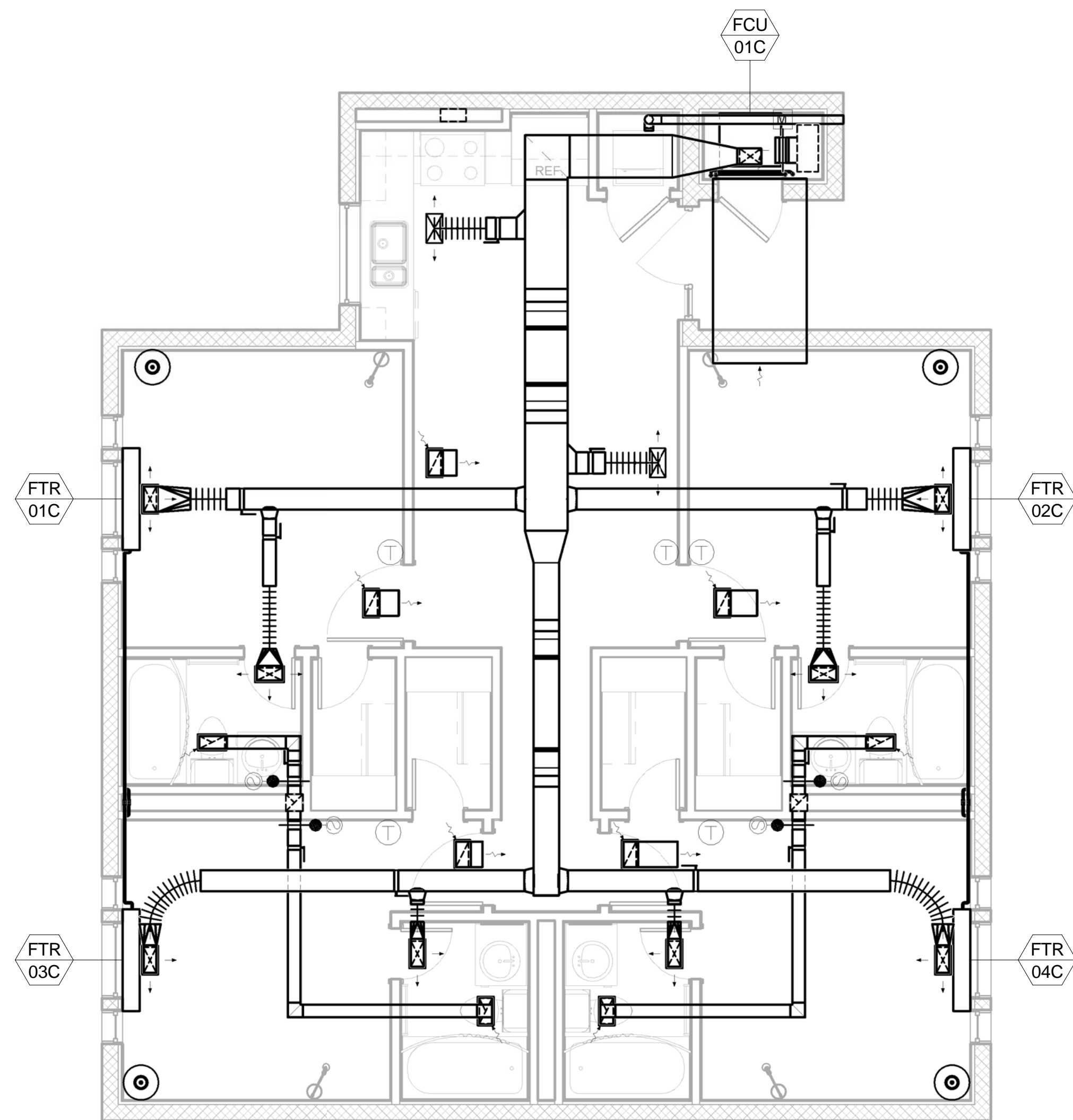
Designed By: Designer
Drawn By: Author
Checked By: Checker
Drawing No.: M02



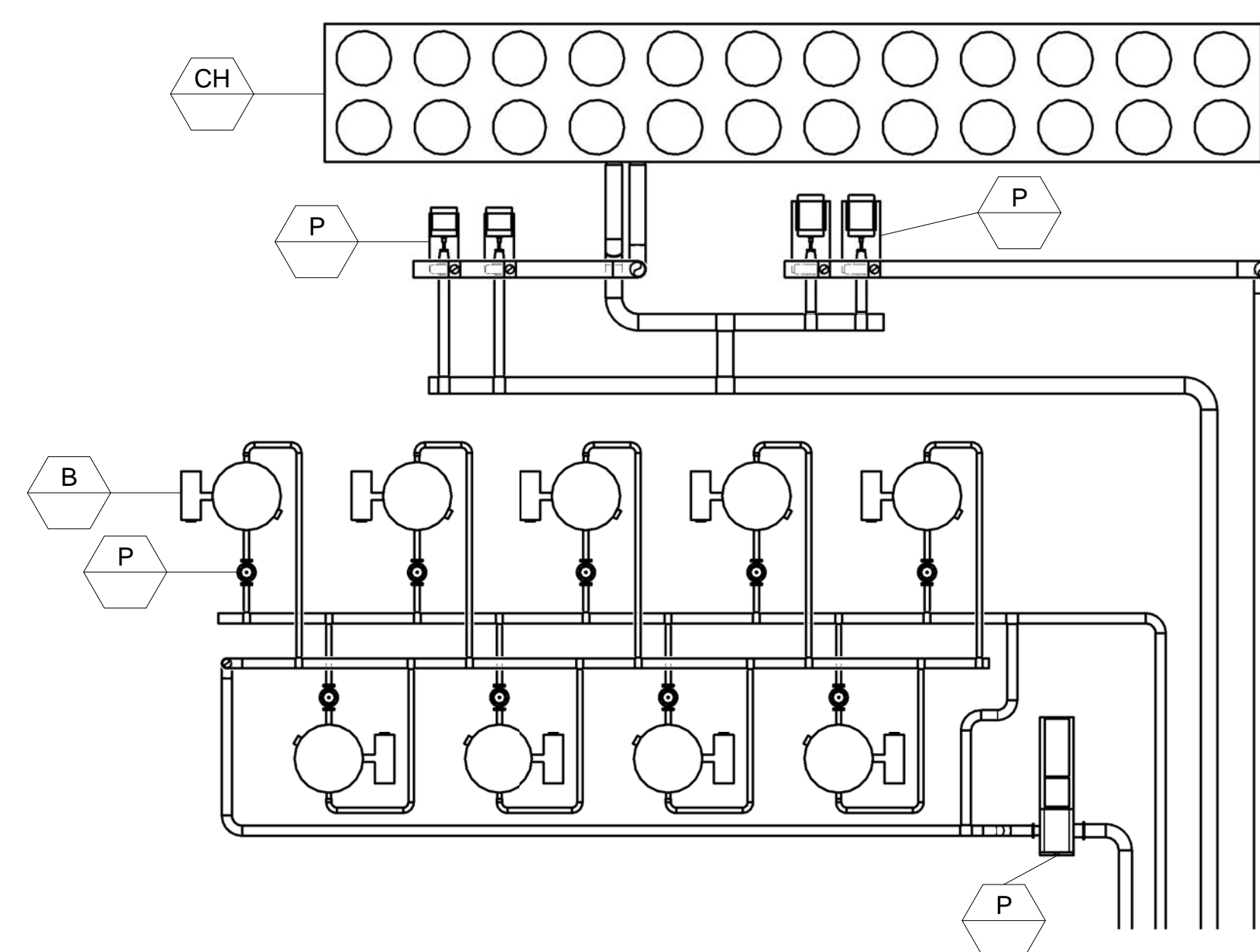
2 Plan C - Cold/Arid



4 Mechanical Yard - Cold/Arid



1 Plan C - Cold/Arid
1/4" = 1'-0"



3 Mechanical Yard - Cold/Arid
1/8" = 1'-0"

NOT FOR CONSTRUCTION

911 Central Parkway N., Suite 425 San Antonio, TX 78323
501 North Broadway, St. Louis, Missouri 63102-2121

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Date: _____ By: _____ Description: _____

AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

Scales: 1/4" = 1'-0"

Jacobs Project No.: FDWD1301

Drawing Title:

Hot/Arid

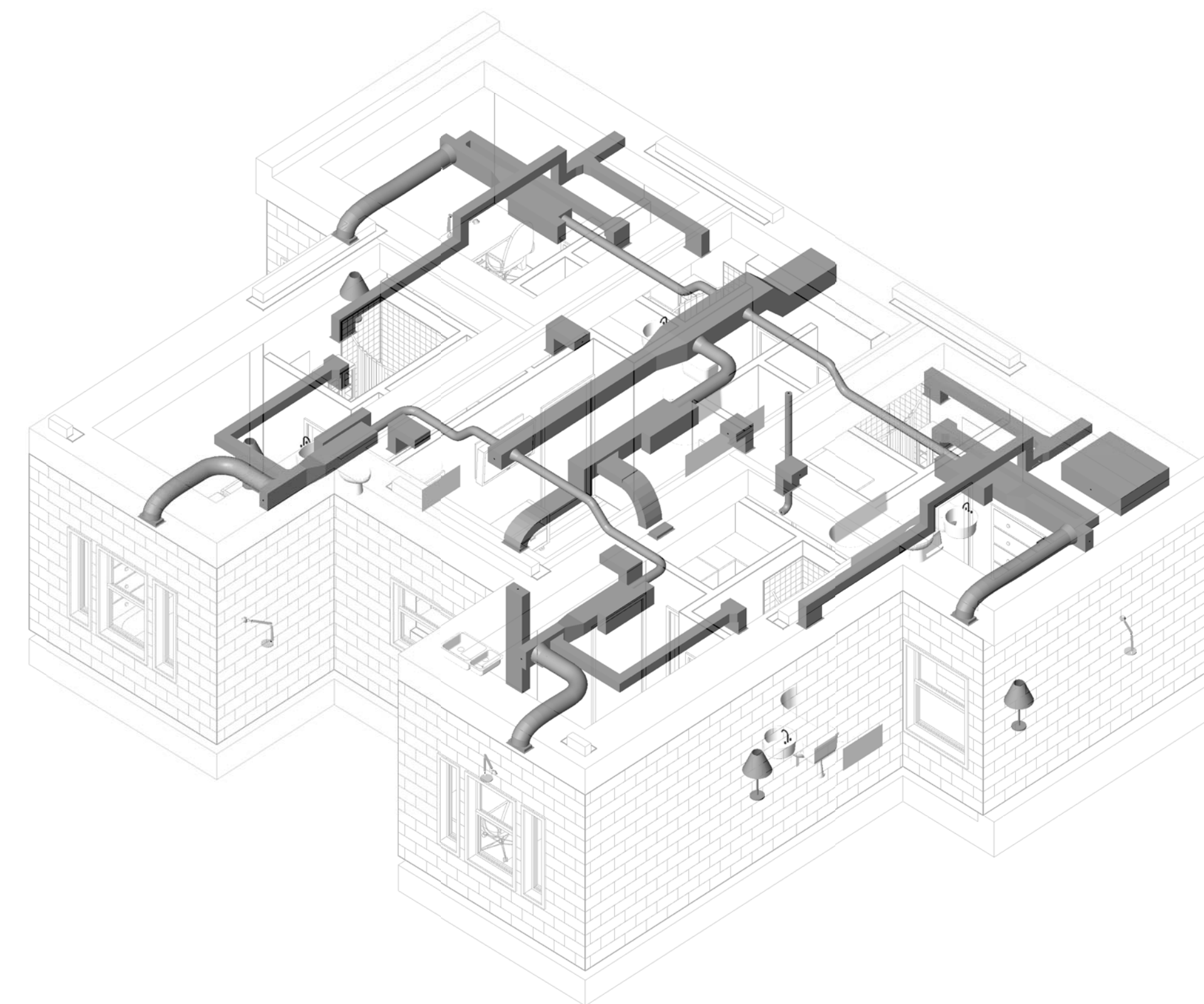
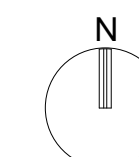
Date: May 11, 2009

Designed By: Designer

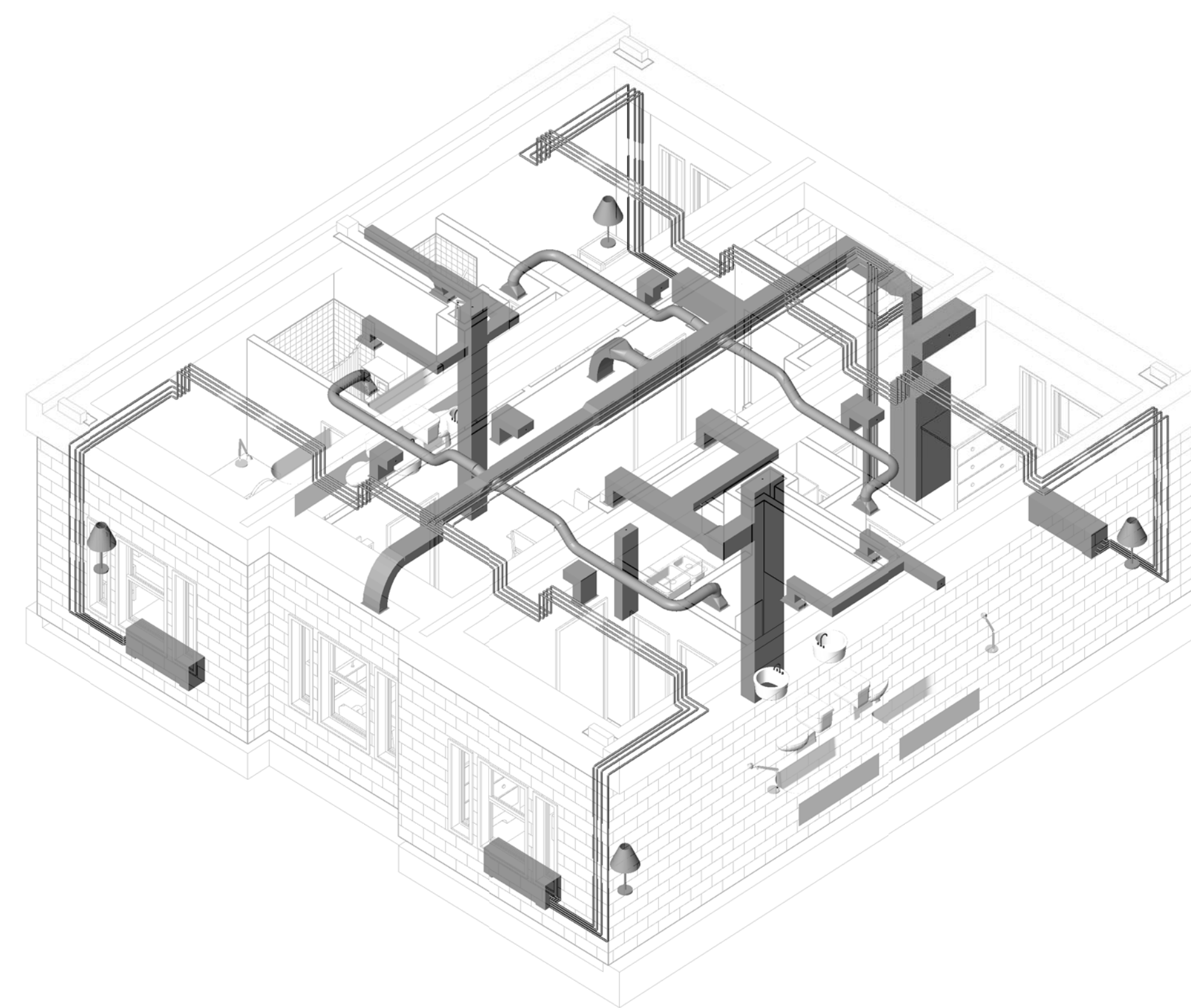
Drawn By: Author

Checked By: Checker

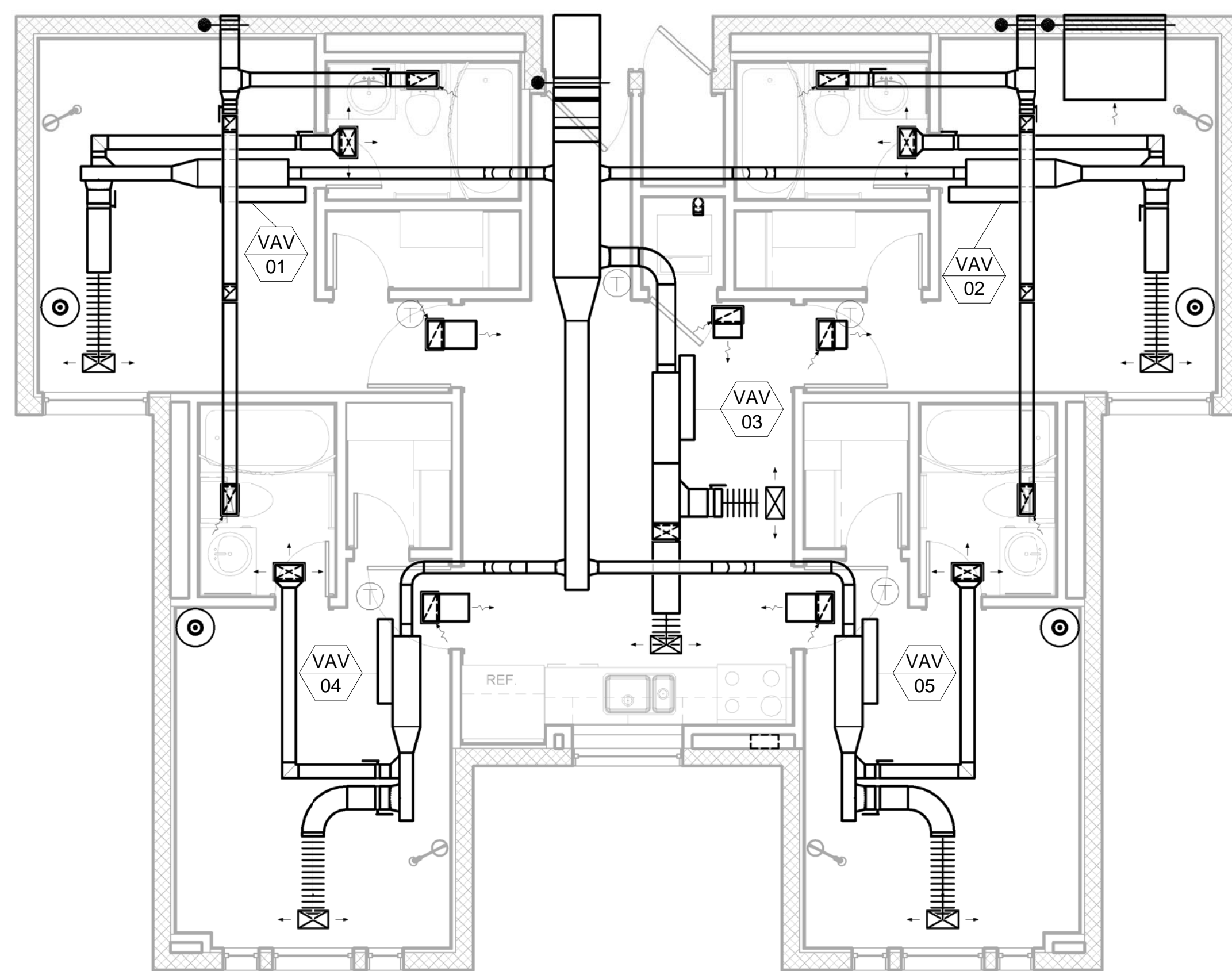
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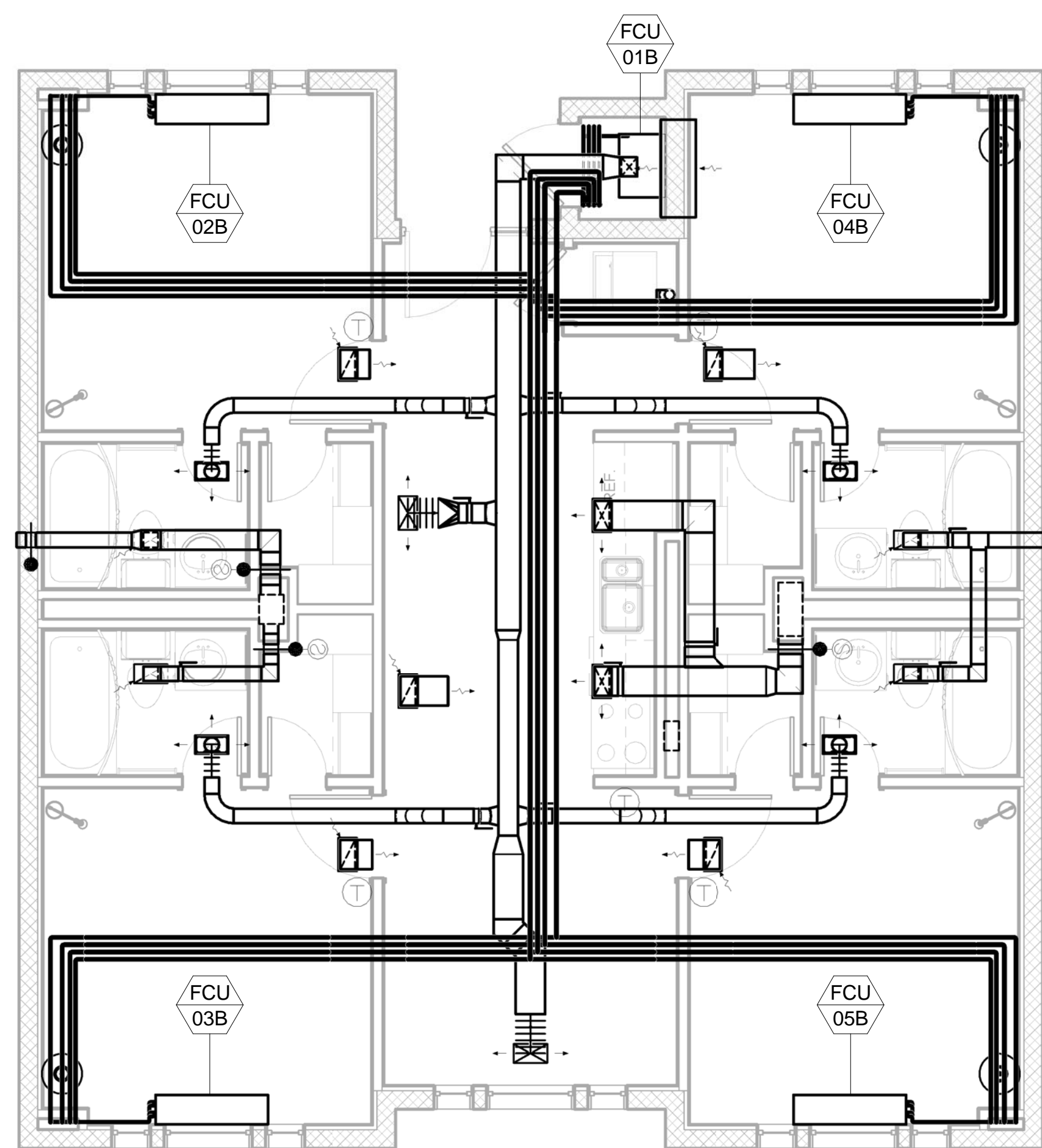
② Plan A - Hot/Arid



④ Plan B - Hot/Arid



① Plan A - Hot/Arid
1/4" = 1'-0"



③ Plan B - Hot/Arid
1/4" = 1'-0"

D

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AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

Scales: As indicated

Jacobs Project No.: FDWD1301

Drawing Title:

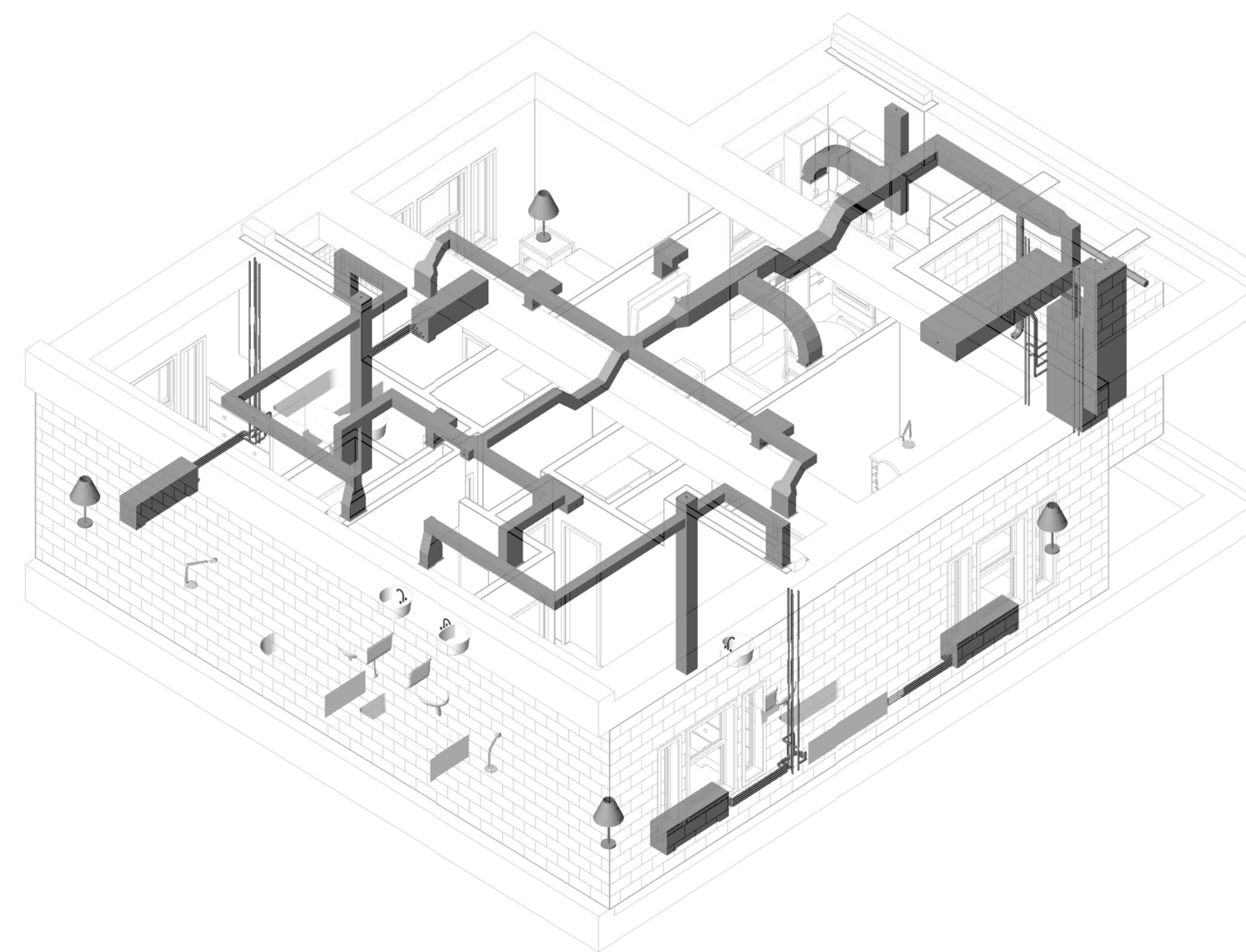
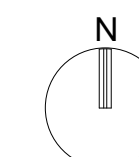
Hot/Arid

Date: May 11, 2009

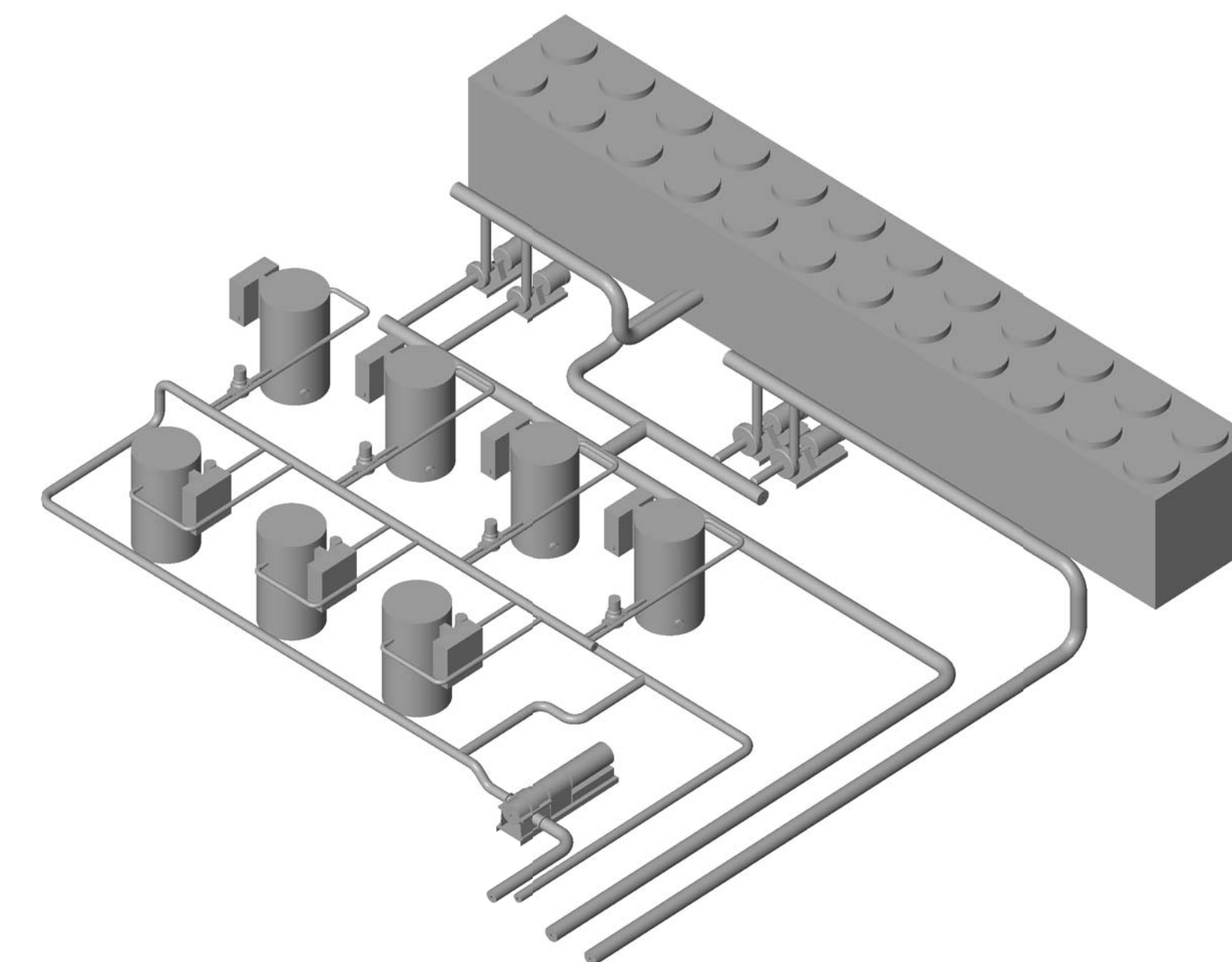
Designed By: Designer Drawing No.:

Drawn By: Author

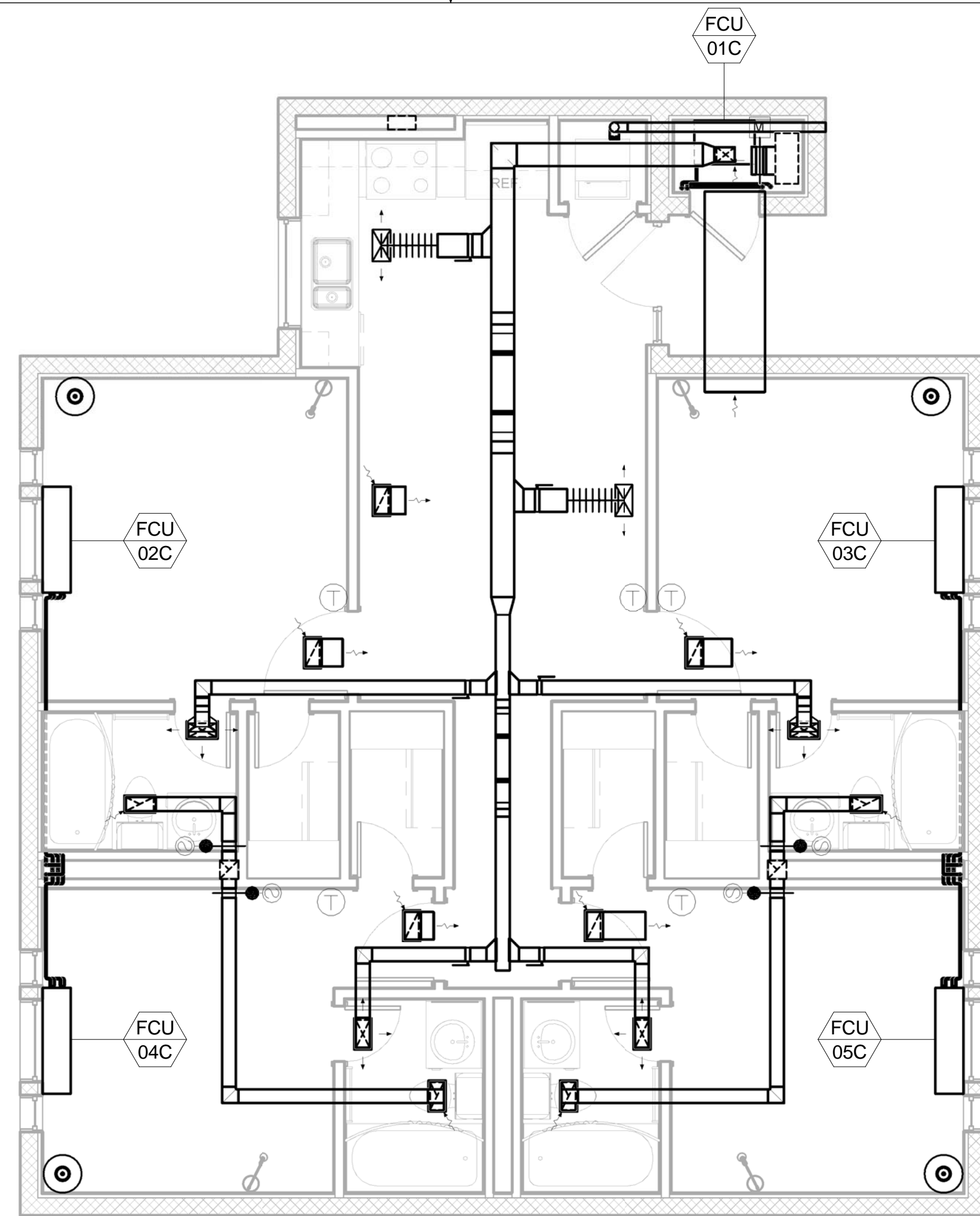
Checked By: Checker **M04**



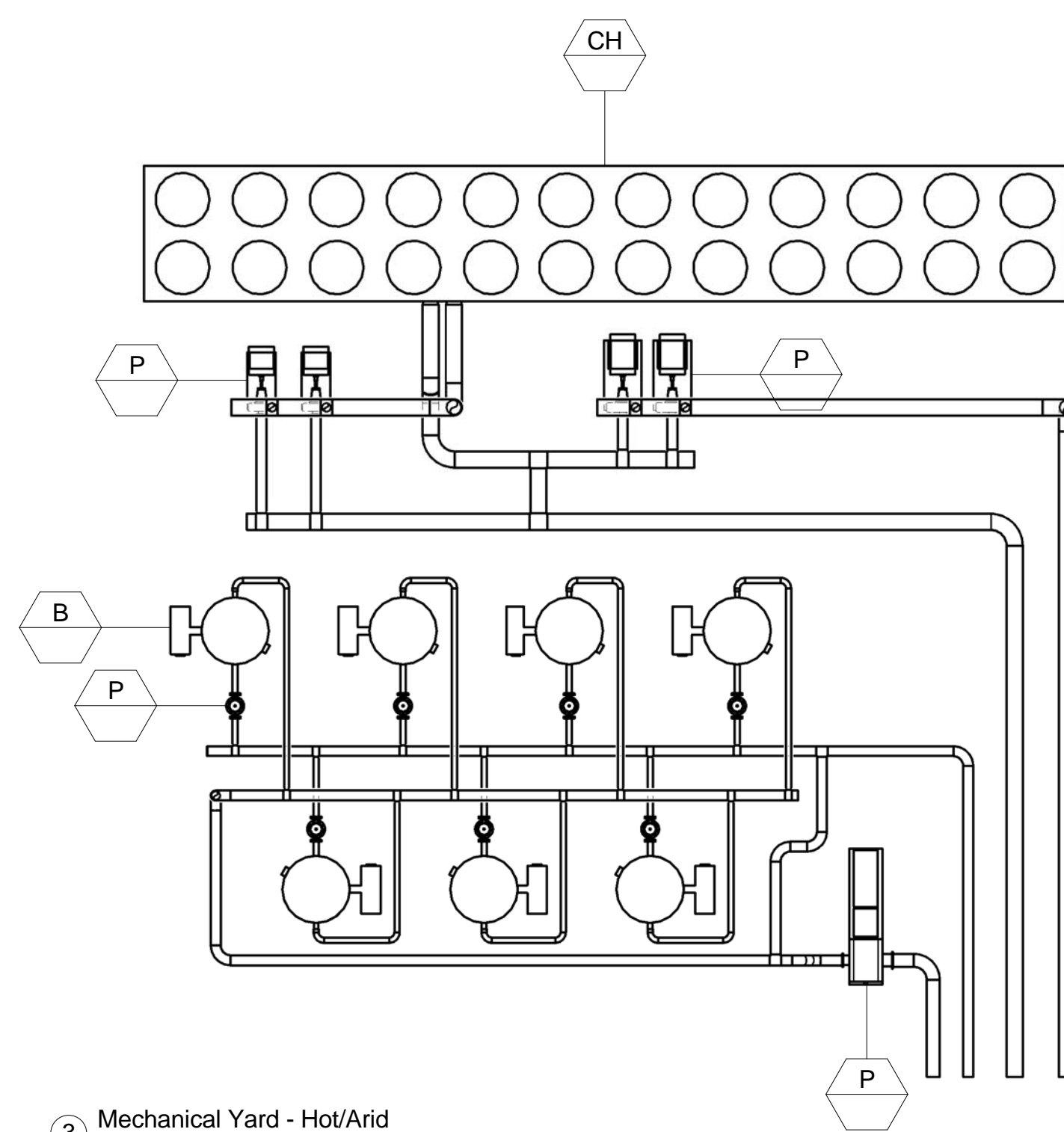
② Plan C - Hot/Arid



④ Mechanical Yard - Hot/Arid



① Plan C - Hot/Arid
1/4" = 1'-0"



③ Mechanical Yard - Hot/Arid
1/8" = 1'-0"

NOT FOR
CONSTRUCTION

911 Central Parkway N., Suite 425 San Antonio, TX 78233
501 North Broadway, St. Louis, Missouri 63102-2121

Revision:
Date: By: Description:

**AIR FORCE CENTER FOR ENGINEERING AND THE
ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR
DORMITORIES**

Scales: 1/4" = 1'-0"

Jacobs Project No.: FDWD1301

Drawing Title:

Hot/Humid

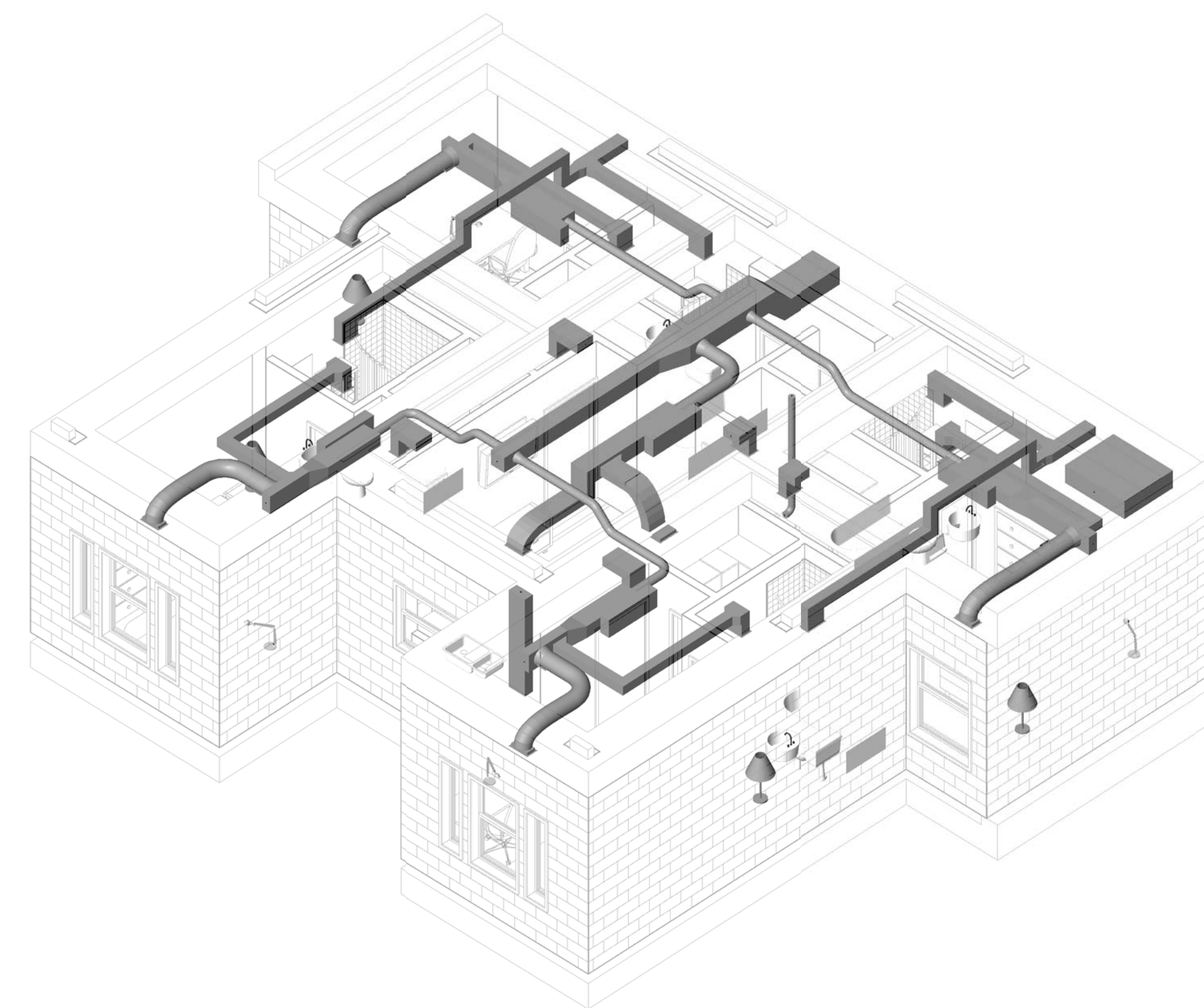
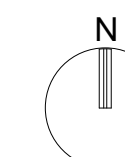
Date: May 11, 2009

Designed By: Designer Drawing No.:

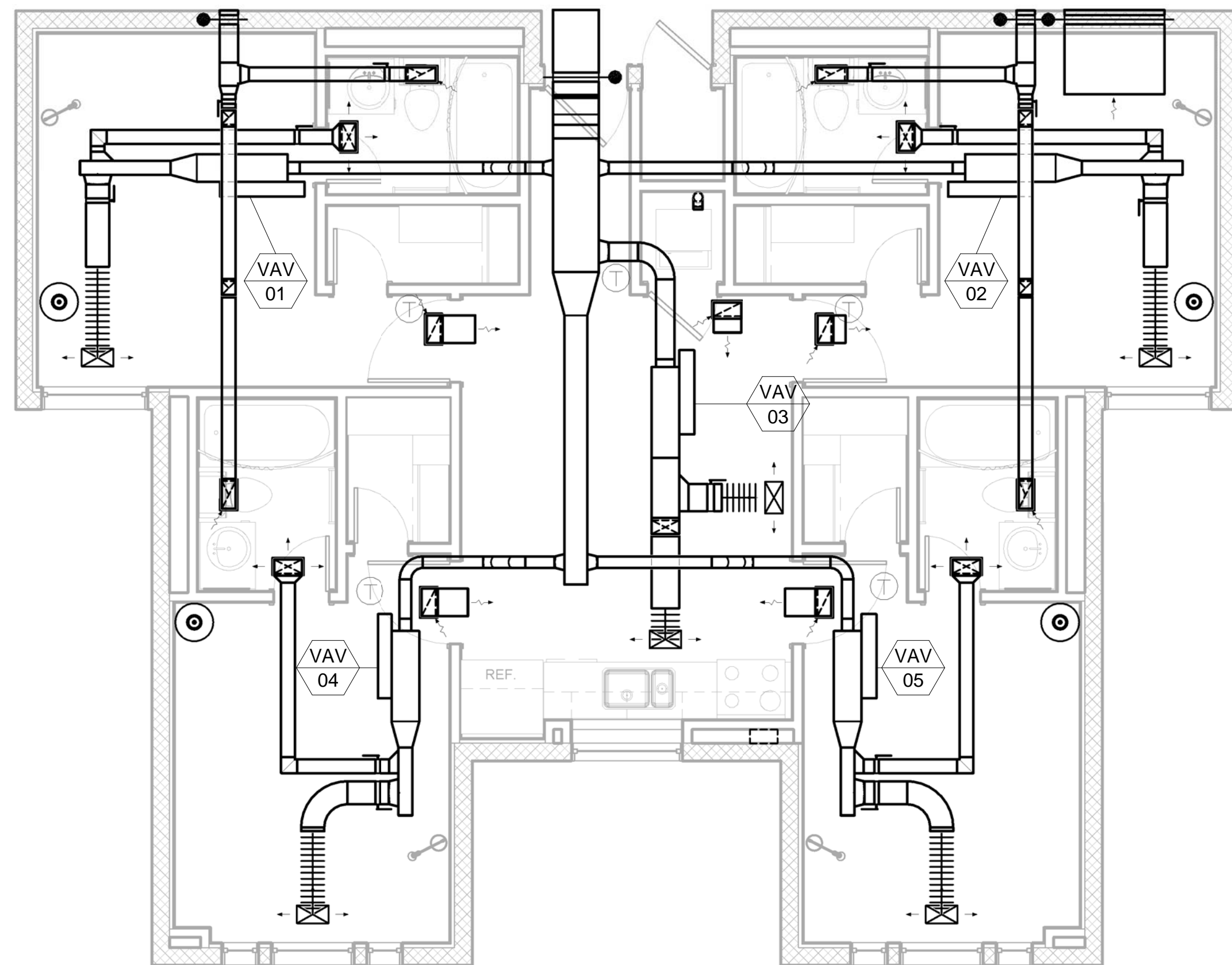
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Checked By: Checker

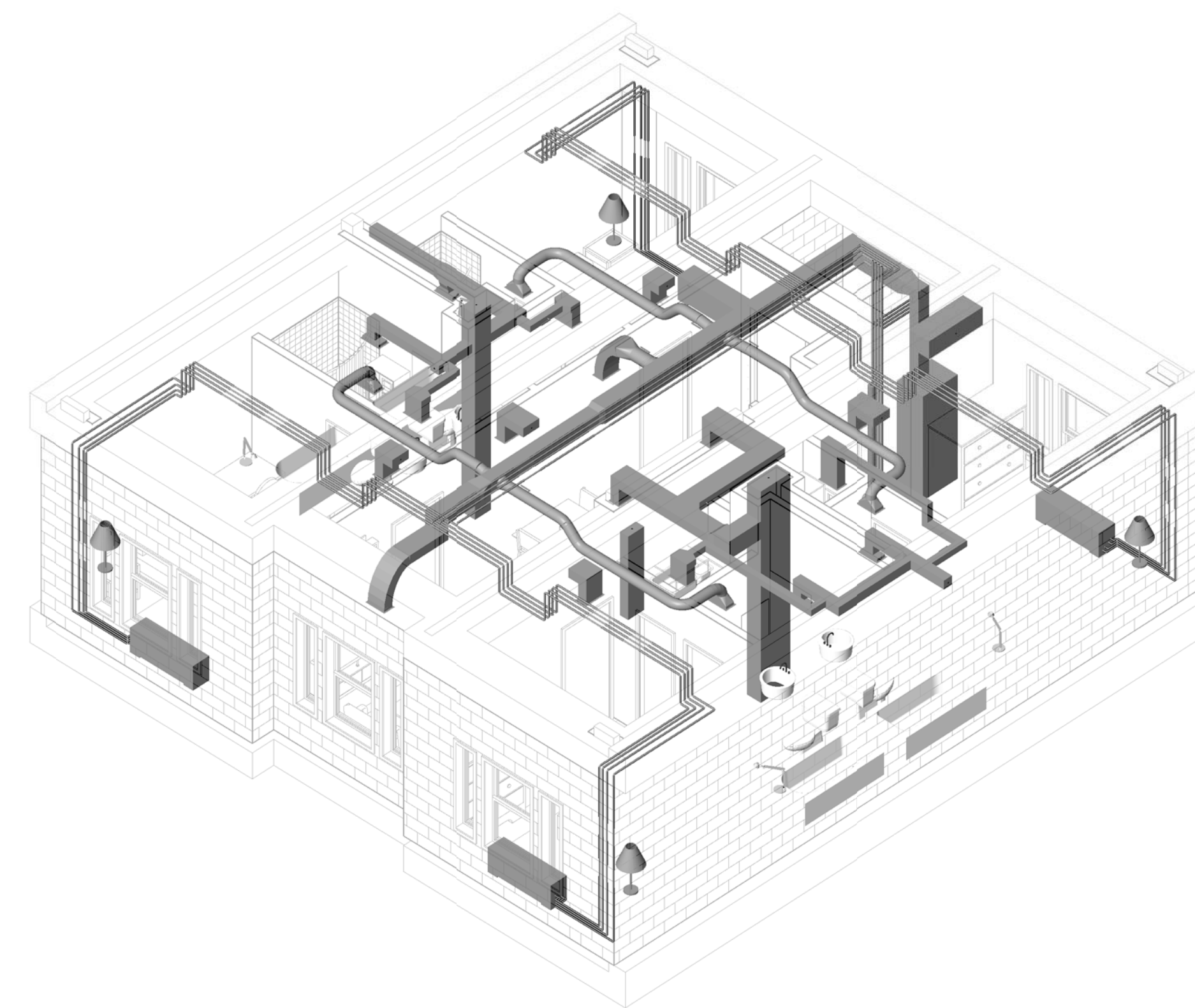
M05



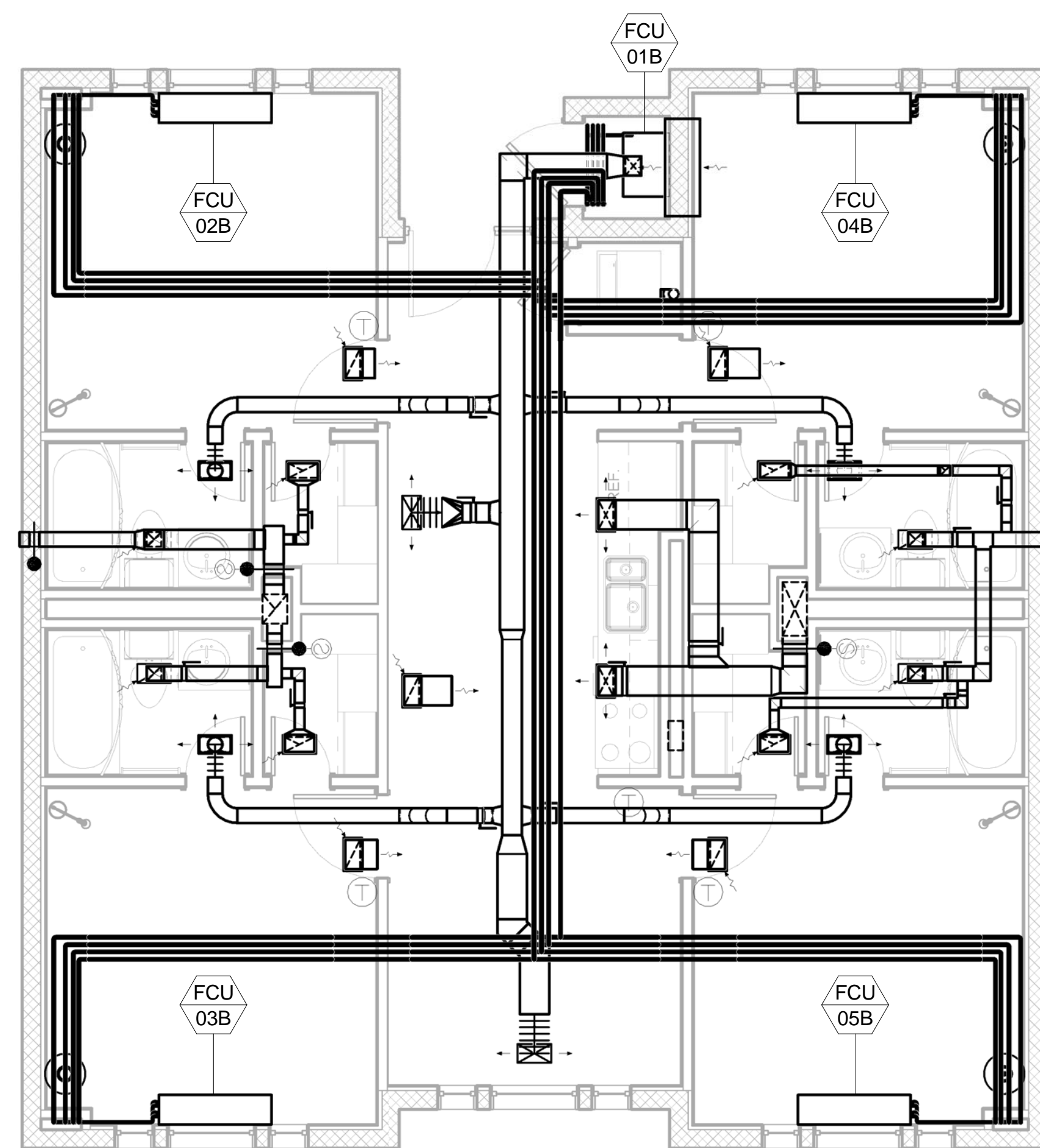
② Plan A - Hot/Humid



① Plan A - Hot/Humid
1/4" = 1'-0"



④ Plan B - Hot/Humid



③ Plan B - Hot/Humid
1/4" = 1'-0"

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AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE)
FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

Scales: As indicated

Jacobs Project No.: FDWD1301

Drawing Title:

Hot/Humid

Date: May 11, 2009

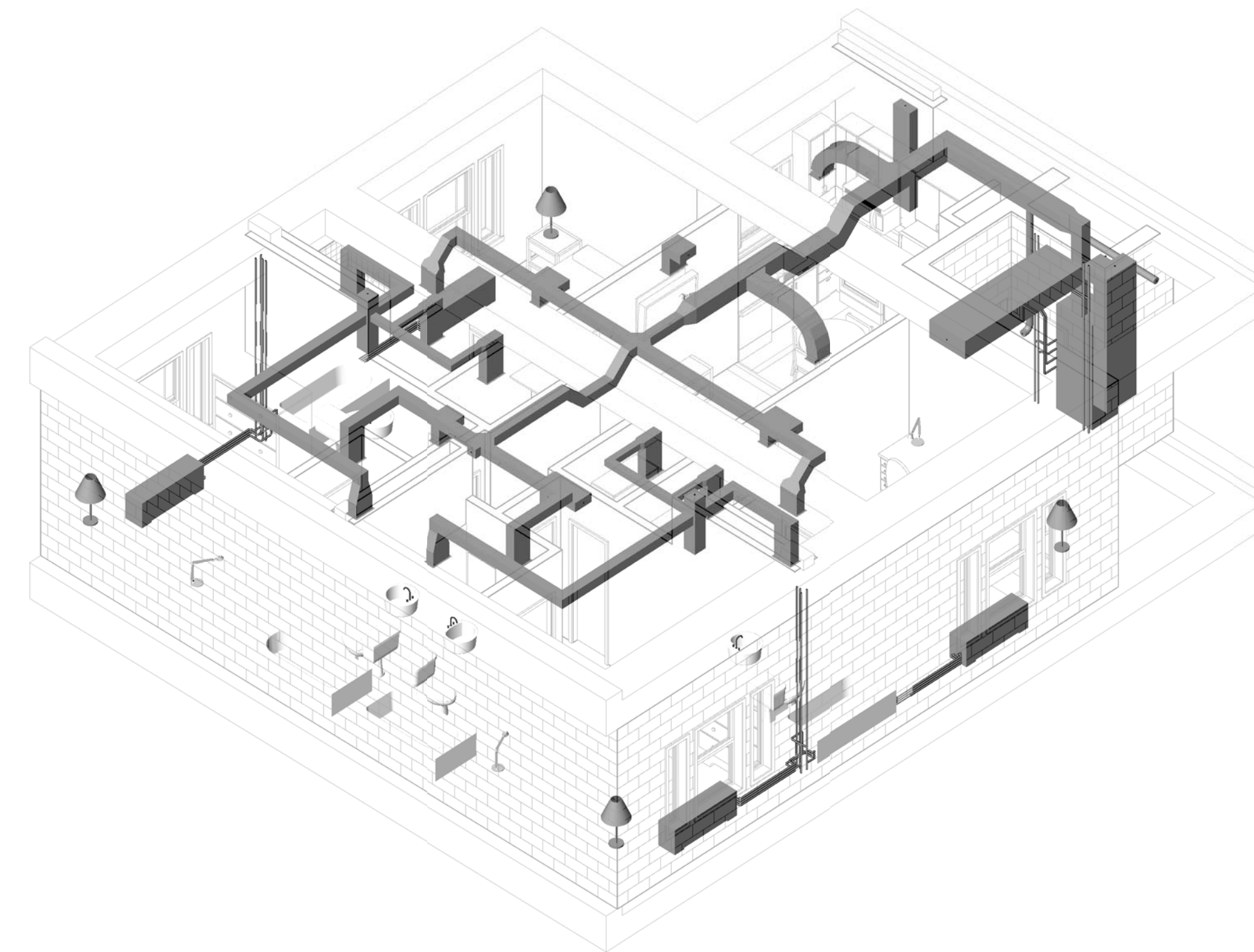
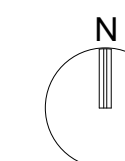
Designed By: Designer

Drawn By: Author

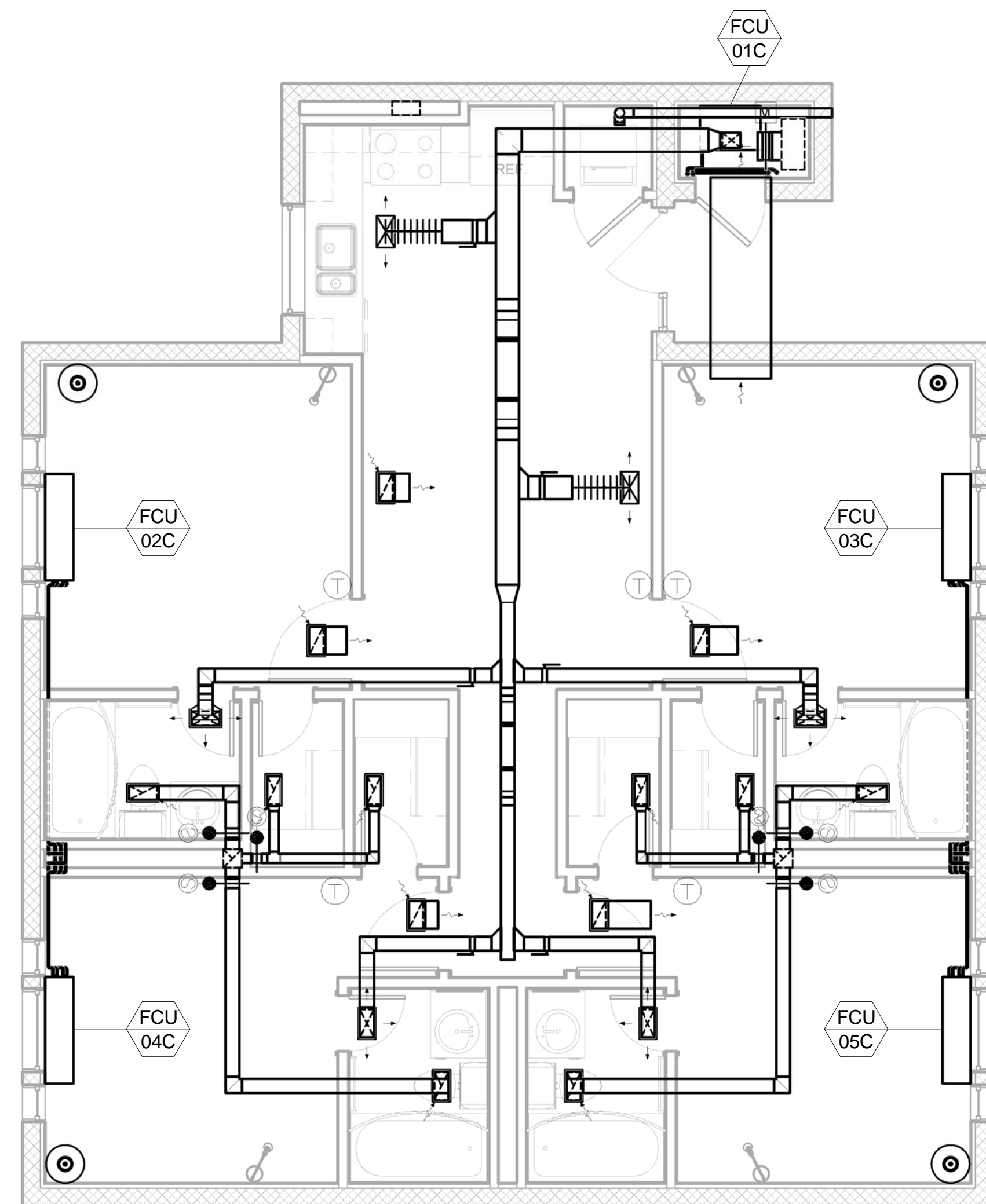
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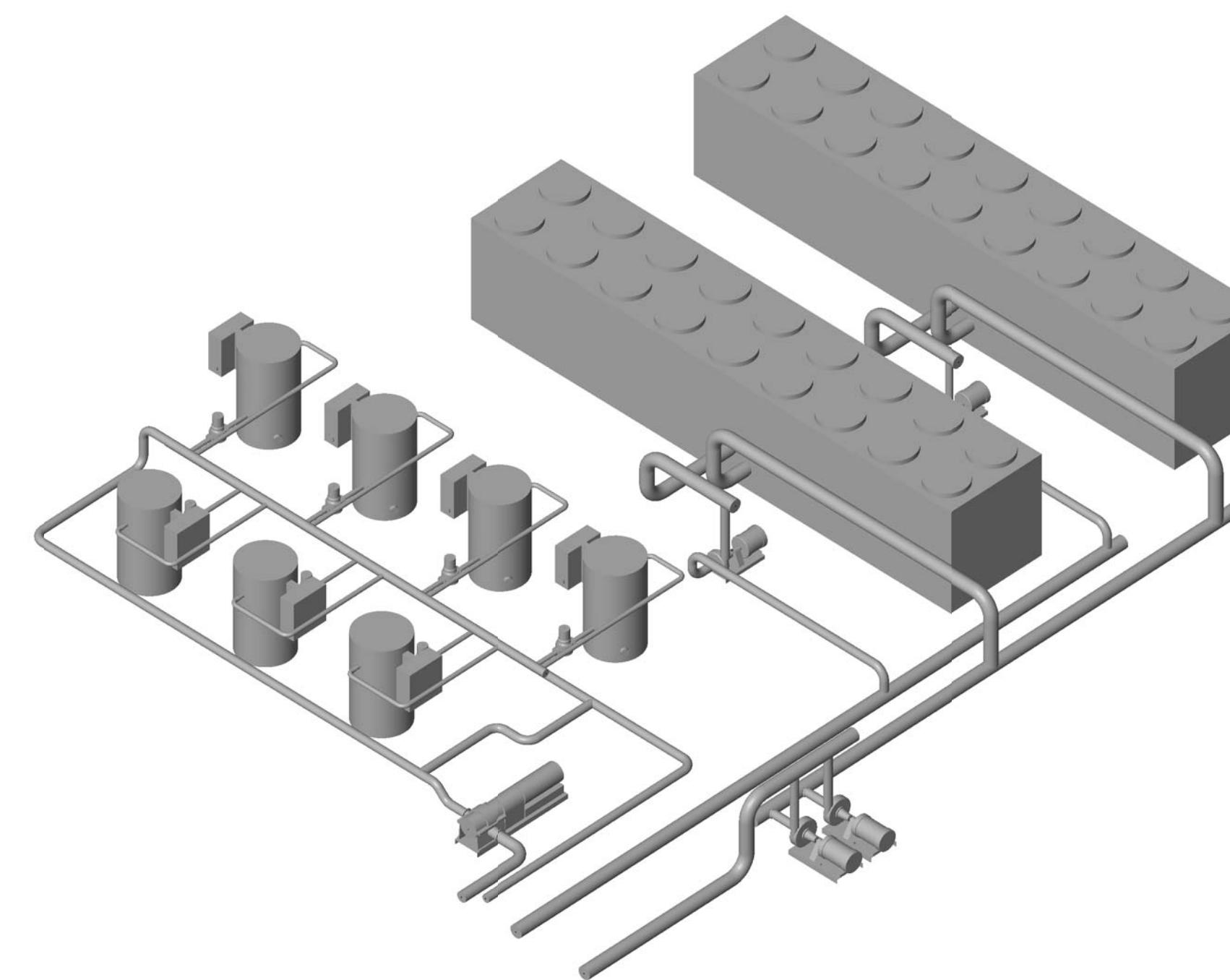
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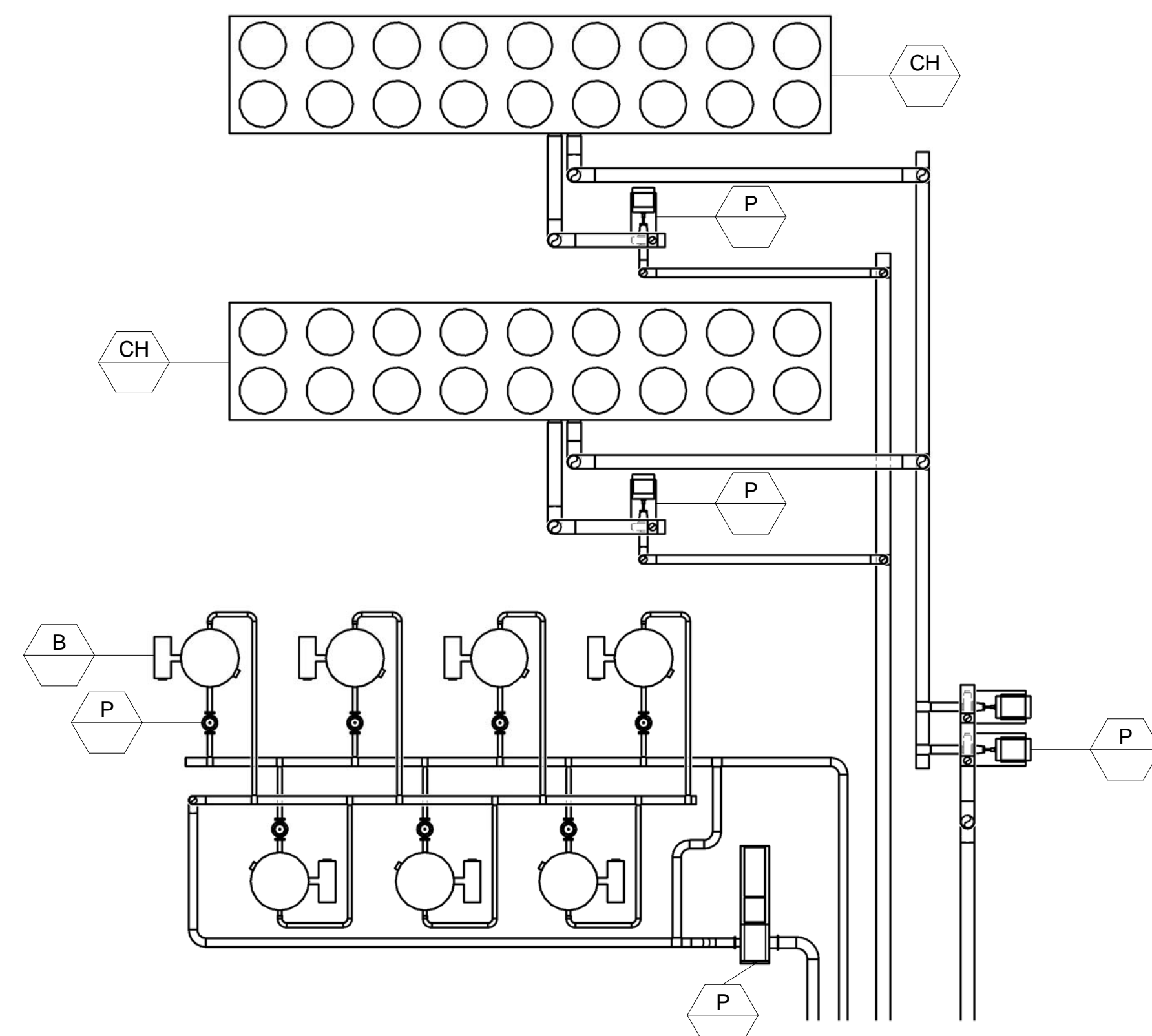
② Plan C - Hot/Humid



① Plan C - Hot/Humid
1/4" = 1'-0"



④ Mechanical Yard - Hot/Humid



③ Mechanical Yard - Hot/Humid
1/8" = 1'-0"

AIR FORCE CENTER FOR ENGINEERING AND THE ENVIRONMENT (AFCEE) FACILITIES DYNAMIC PROTOTYPES DESIGN FOR DORMITORIES

FAN COIL UNIT SCHEDULE (FCU) Cold/Arid																															
MARK	LOCATION	BASIS OF DESIGN			MOTOR DATA		COOLING COIL								HEATING COIL						ELECTRICAL DATA				OPERATING WEIGHT	REMARKS					
		MANUFACTURER	MODEL	TYPE	AIR FLOW (CFM)	ESP (IN-WG)	TOTAL (BTU/H)	SENSIBLE (BTU/H)	EAT		LAT		FLOW (GPM)	EWT	LWT	WPD (FT-H2O)	HEATING CAPACITY (BTU/H)	EAT		LAT		FLOW (GPM)	EWT	LWT			WPD (FT-H2O)	HP	V	Ph	Hz
									DB	WB	DB	WB						DB	WB	DB	WB										
01B		JOHNSON CONTROLS		VERTICAL CABINET		0.00			75.0 °F		55.0 °F			44.0 °F	54.0 °F	0.00		68.0 °F	95.0 °F			180.0 °F	160.0 °F	0.00	0.000	0	0	0	0		
01C		JOHNSON CONTROLS		VERTICAL CABINET		0.00			75.0 °F		55.0 °F			44.0 °F	54.0 °F	0.00		68.0 °F	95.0 °F			180.0 °F	160.0 °F	0.00	0.000	0	0	0	0		
02B		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
02C		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
03B		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
03C		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
04B		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
04C		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
05B		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		
05C		JOHNSON CONTROLS	FLX-03	HOTEL STYLE	240	0.00	6,700	5,200	75.0 °F	62.9 °F	55.0 °F	53.2 °F	1.34	44.0 °F	54.0 °F	3.40	7,000	68.0 °F	95.0 °F	0.70		180.0 °F	160.0 °F	1.20	0.000	115	1	60	0		

VAV SCHEDULE (VAV) Cold/Arid																									
MARK	LOCATION	SERVING	BASIS OF DESIGN		SIZE		CFM		STATIC PRESSURE (in-wg)			NC LEVELS		ELECTRIC REHEAT COIL DATA								REMARKS			
			MANUFACTURER	MODEL	INLET	OUTLET	MAX	MIN	INLET	DOWN	DROP THRU BOX	RAD.	DISCH.	CFM	CAPACITY (BTU/H)	EAT	LAT	APD (in-wg)	KW	V	PH		Hz		
01			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
01			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
01			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
02			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
02			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
02			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
03			TITUS	DESV	8"	12"x10"	350	145	1.00	0.25	0.00	0	0	145	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
03			TITUS	DESV	8"	12"x10"	350	145	1.00	0.25	0.00	0	0	145	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
04			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
04			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
04			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
05			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
05			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			
05			TITUS	DESV	5"	12"x8"	350	80	1.00	0.25	0.00	0	0	80	0	0.0 °F	0.0 °F	0.00	0.0	0	0	60			

FIN TUBE RADIATOR SCHEDULE (FTR)														
MARK	SERVING	BASIS OF DESIGN		ELEMENT	ROWS	FINNED LENGTH	ENCLOSURE HEIGHT	ENCLOSURE LENGTH	TOTAL BTU/h	EWT	LWT	EAT	GPM	NOTES
		MANUFACTURER	MODEL											
01A					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
01B					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
01C					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
02A					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
02B					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
02C					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
03A					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
03B					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
03C					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
04A					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
04B					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	
04C					2	0' - 0"	24"	48"	0	0.0 °F	0.0 °F	0.0 °F	0.00	

RETURN AND EXHAUST AIR DEVICE SCHEDULE											
MARK	BASIS OF DESIGN		DIFFUSER		SLOT		REGISTER/GRILL NOMINAL DUCT SIZE	DAMPER	BORDER TYPE	REMARKS	
	MANUFACTURER	MODEL	MODULE SIZE	NECK SIZE	LENGTH (FT)	# OF SLOTS					SLOT WIDTH
R1	AIR MATE	E240V		SEE PLANS					GYPSUM BOARD		
E1	AIR MATE	E240V		SEE PLANS					GYPSUM BOARD		

SUPPLY AIR DEVICE SCHEDULE											
MARK	BASIS OF DESIGN		DIFFUSER		SLOT		REGISTER/GRILL NOMINAL DUCT SIZE	DAMPER	BORDER TYPE	REMARKS	
	MANUFACTURER	MODEL	MODULE SIZE	NECK SIZE	LENGTH (FT)	# OF SLOTS					SLOT WIDTH
S1	AIR MATE	A140		SEE PLANS					GYPSUM BOARD		
S2	AIR MATE	140		SEE PLANS					GYPSUM BOARD		

Scales: _____
Jacobs Project No.: FDWD1301
Drawing Title: _____

Schedules

Date: May 11, 2009
Designed By: Designer
Drawn By: Author
Checked By: Checker
Drawing No.: M07