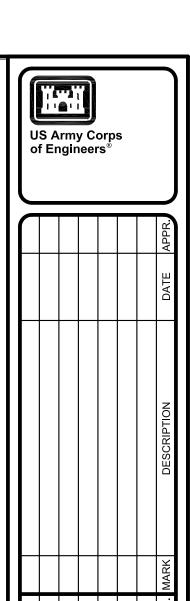
ONTROL RETROFT HOT DECK BYPASS (WITH AND WITHOUT RETURN FAN) TEMPLATE DRAWINGS

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M-622b1	LADDER DIAGRAM (RETURN FAN)
M-622b2	LADDER DIAGRAM (NO RETURN FAN)
M-622c1	CONTROL LOGIC DIAGRAMS (RETURN FAN)
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M-622d1	SEQUENCE OF OPERATIONS
M-622e1	CONTROL SCHEDULES
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GENERAL NOTES

- 1. THESE DRAWINGS ARE FOR A CONTROL SYSTEM RETROFIT TO CONVERT A MULTIZONE HVAC SYSTEM TO VARIABLE VOLUME
- 2. PROVIDE A COMPLETE, PROPERLY FUNCTIONING INSTALLATION IN CONFORMANCE WITH ALL APPLICABLE CODES, STANDARDS AND ORDINANCES, INCLUDING BUT NOT LIMITED TO: UFC 3-410-02 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS UFC 3-510-01 ELECTRICAL ENGINEERING, NFPA 70 NATIONAL ELECTRICAL CODE, AND THE LOCALLY ADOPTED BUILDING CODE AMENDMENTS.
- 3. UNLESS SPECIFIED OTHERWISE, PROVIDE ALL SUPERVISION, LABOR, MATERIALS, TRANSPORTATION, EQUIPMENT, HAULING AND SERVICES NECESSARY FOR COMPLETELY FINISHED AND OPERATIONAL MECHANICAL, ELECTRICAL, AND CONTROL SYSTEMS. PROVIDE ALL MINOR INCIDENTAL ITEMS SUCH AS OFFSETS, FITTINGS, ETC. REQUIRED AS PART OF THE WORK EVEN THOUGH NOT SPECIFICALLY SHOWN ON CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND AS REQUIRED FOR COMPLETE SYSTEMS.
- 4. THESE DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHOW THE GENERAL ARRANGEMENT OF PIPING, DUCTWORK, MECHANICAL, ELECTRICAL, AND CONTROLS EQUIPMENT AND APPURTENANCES, AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF THEIR TRADES WILL PERMIT. BECAUSE OF THE SMALL SCALE OF THESE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES WHICH MAY BE REQUIRED. INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND PROVIDE SUCH FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. VERIFY DIMENSIONS GOVERNING MECHANICAL, ELECTRICAL, AND CONTROLS WORK. DO NOT SCALE THE DRAWINGS FOR DIMENSIONS. TAKE DIMENSIONS, MEASUREMENTS, LOCATIONS, LEVELS, ETC. FROM THE ACTUAL FIELD CONDITIONS. NO EXTRA COMPENSATION SHALL BE CLAIMED OR ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN THE ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.
- 5. PERFORM ALL WORK IN A WORKMANLIKE MANNER. INSTALLATION SHALL CONCLUDE WITH A COMPLETE WORKING SYSTEM IN ALL RESPECTS. AVOID INTERFERENCE WITH ALL OTHER BUILDING SYSTEMS. IF CONFLICTS ARISE, REQUEST RESOLUTION FROM THE CONTRACTING OFFICER.
- 6. CONTRACTOR SHALL OBTAIN NECESSARY BUILDING PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS WITH THE APPROPRIATE REGULATORY AGENCY. CONTRACTOR SHALL MAINTAIN RESPONSIBILITY FOR COMPLIANCE WITH ALL CODES OR STANDARDS WHICH AFFECT WORK. ALERT CONTRACTING OFFICER OF ALL ITEMS NOT DEPICTED ON DRAWINGS IN A CODE—COMPLYING MANNER. DO NOT PROCEED WITH FURTHER WORK UNTIL WRITTEN RESPONSE IS RECEIVED FROM CONTRACTING OFFICER.
- 7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF JOB SITE SAFETY, VIOLATIONS WILL BE DOCUMENTED AND CORRECTIVE ACTION TAKEN.
- 8. CONTRACTOR IS RESPONSIBLE FOR PATCHING AND REPAIRING ALL PENETRATIONS IN OR DAMAGE TO WALLS OR CEILINGS THAT ARE A RESULT OF WORK.
- 9. CONTRACTOR SHALL OFFER GOV'T THE OPTION TO RETAIN POSSESSION OF ANY DEMOLISHED MATERIALS OR EQUIPMENT. CONTRACTOR SHALL REMOVE ALL DEMOLISHED MECHANICAL MATERIALS NOT RETAINED BY GOV'T FROM PROJECT SITE.
- 10. INSTALL ALL NEW EQUIPMENT AND DEVICES IN COMPLETE COMPLIANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

 ARRANGE ALL EQUIPMENT AND DEVICES TO PERMIT EASY REMOVAL OF PARTS WHICH MIGHT REQUIRE PERIODIC REPLACEMENT OR MAINTENANCE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIRED SERVICE CLEARANCES EXCEPT WHERE NOTED OTHERWISE.



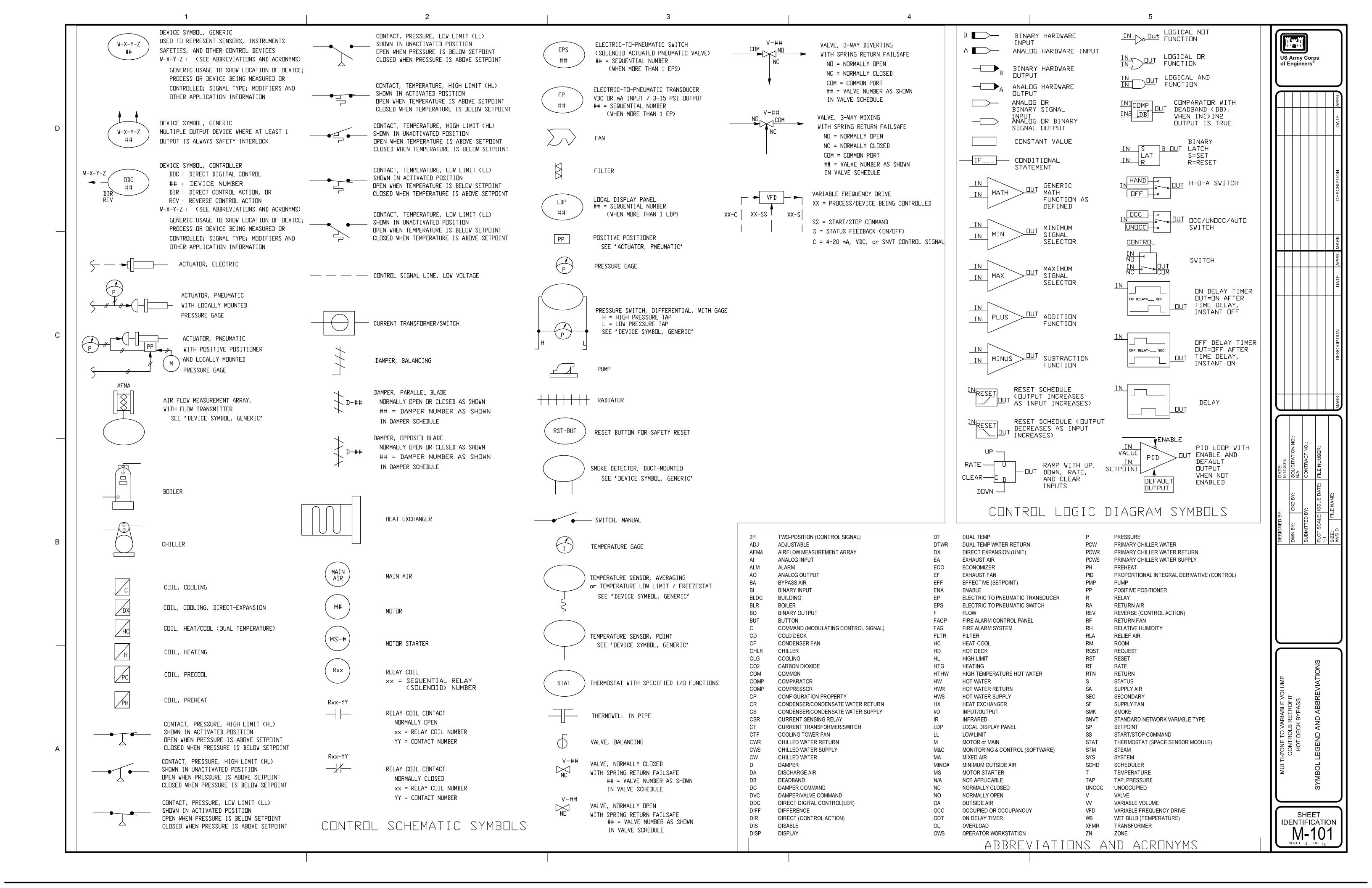
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CONTROLS RETROFIT
HOT DECK BYPASS
-E SHEET AND INDEX OF DRAWINGS

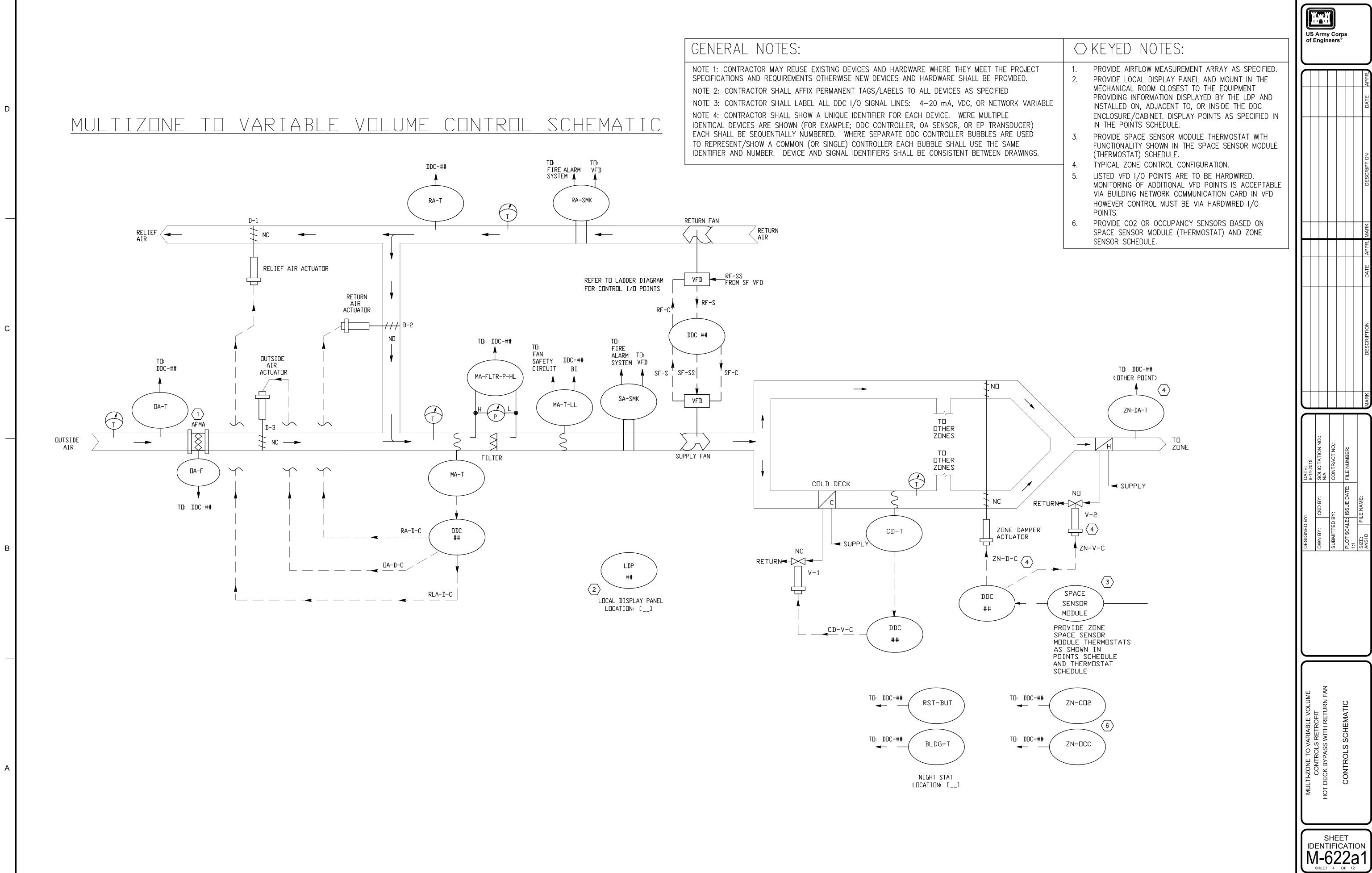
SHEET IDENTIFICATION

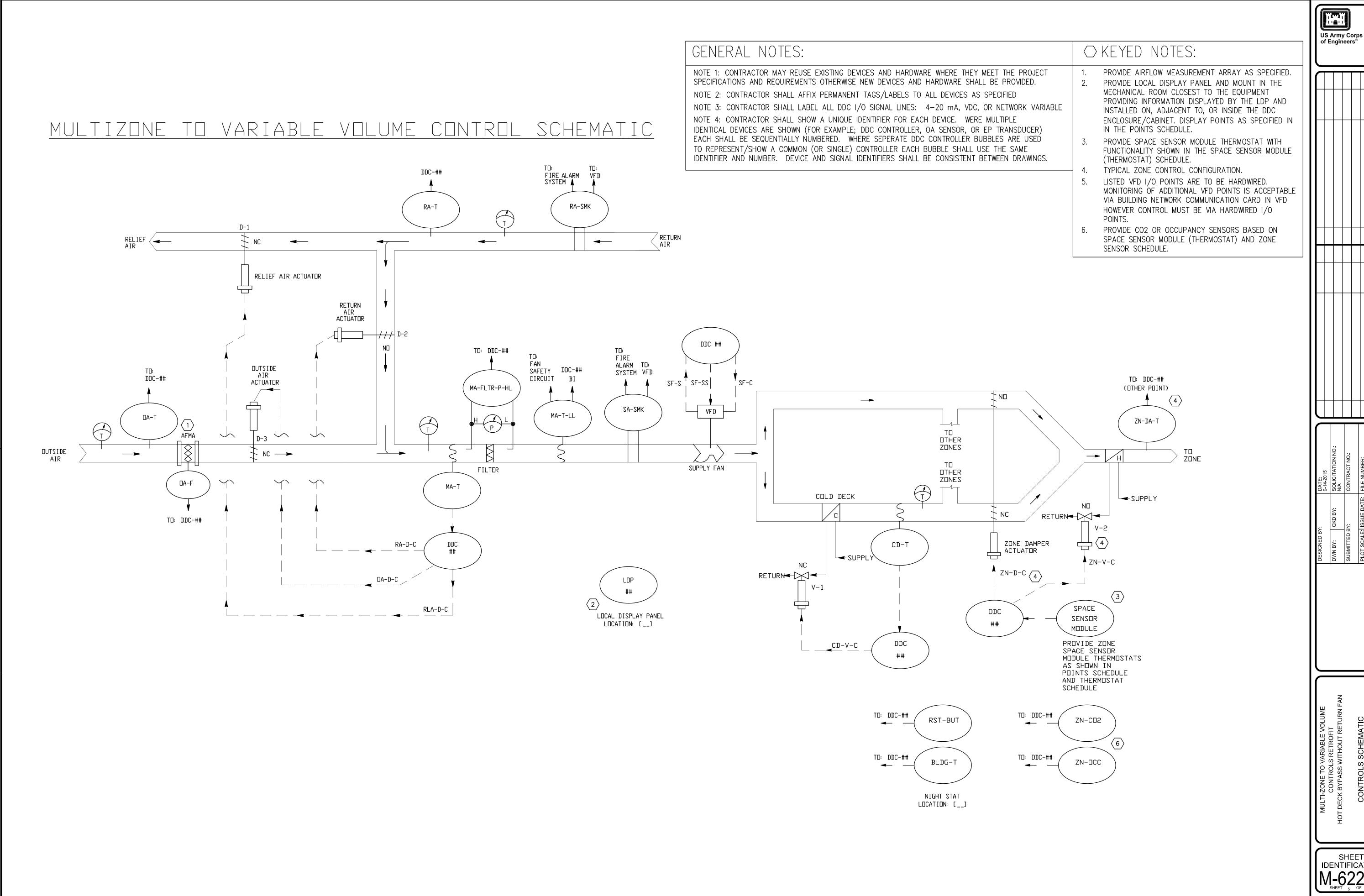
M-100

SHEET 1 OF 12

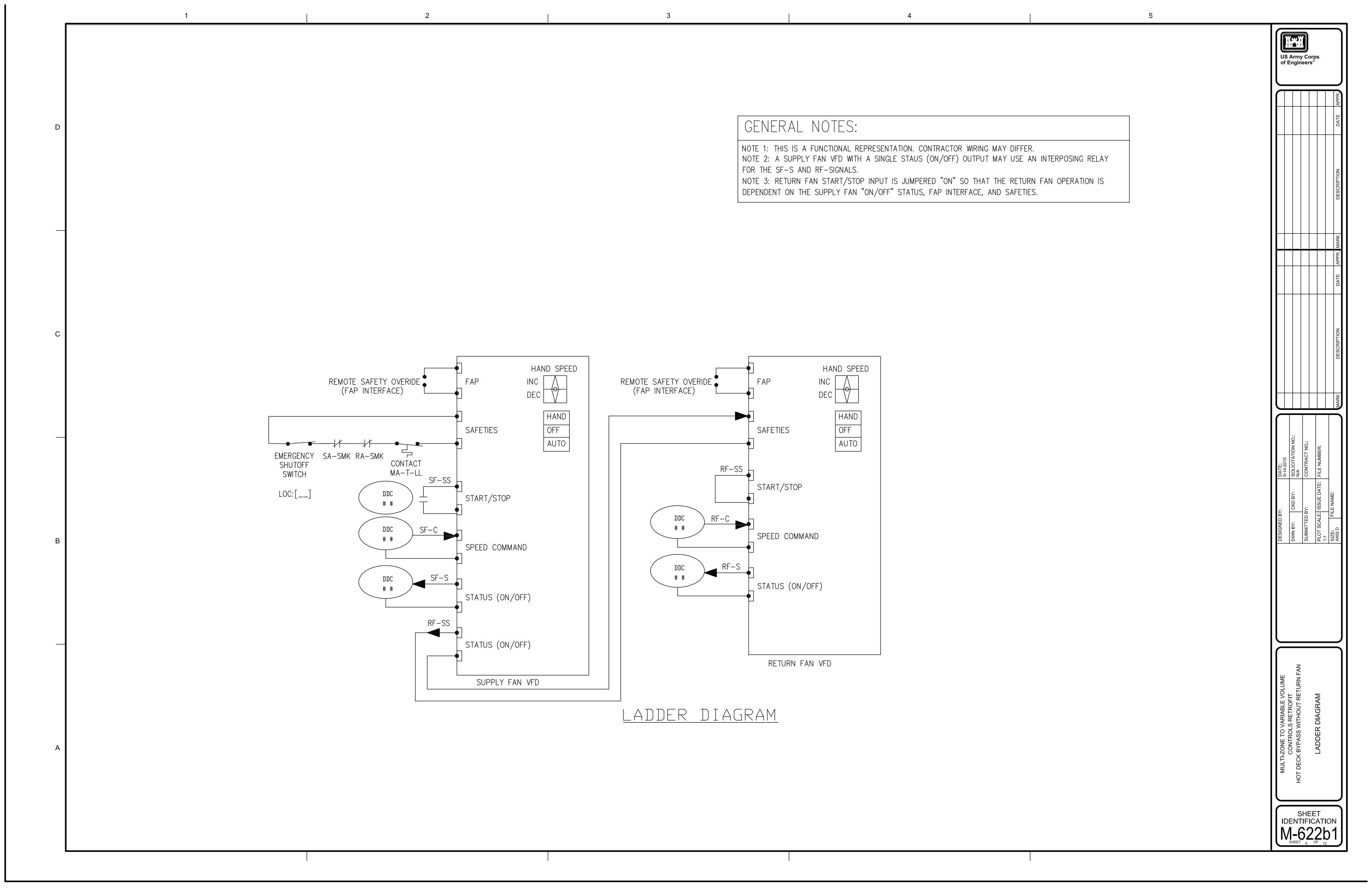


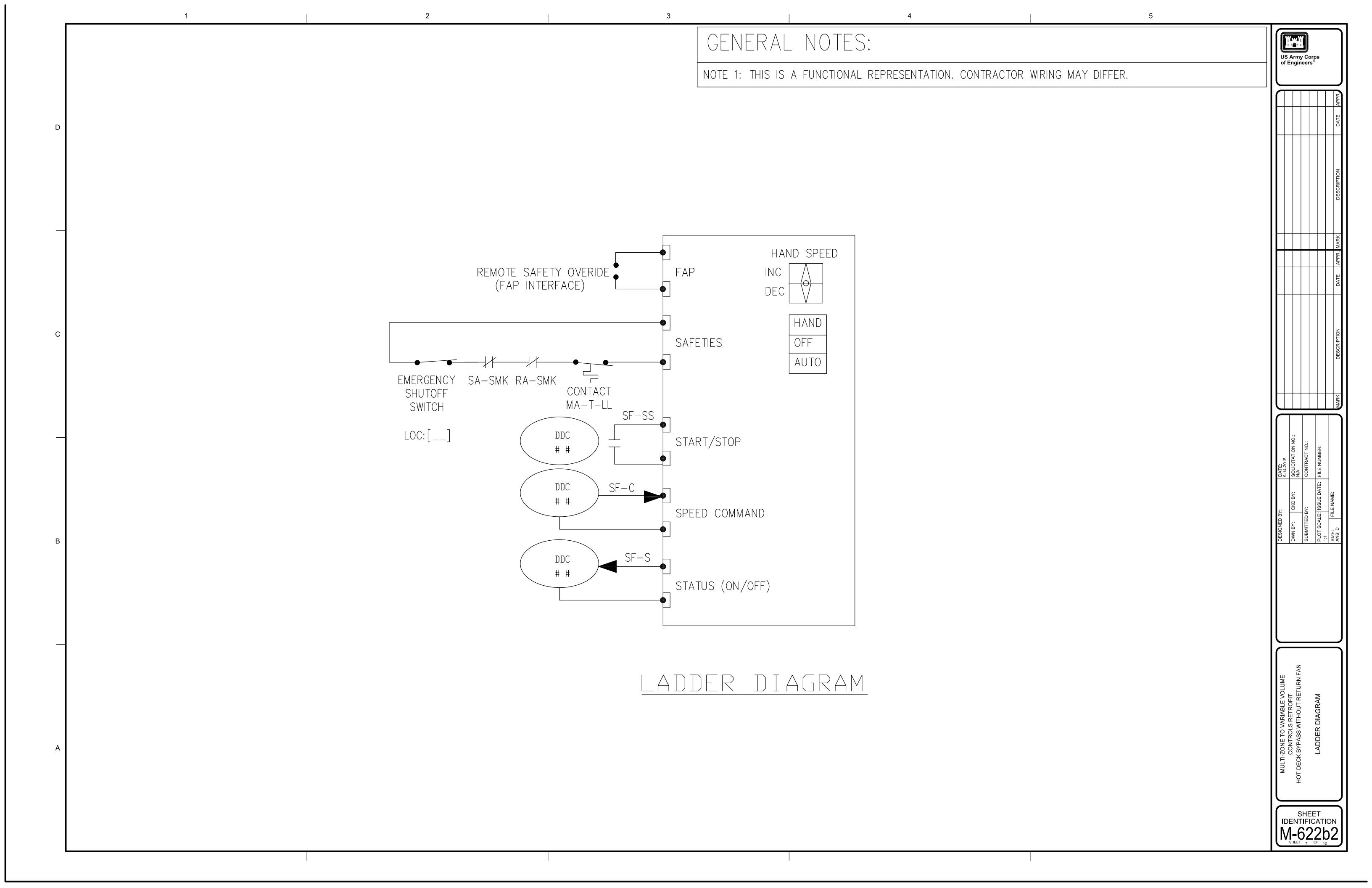
NOTE: INSERT FLOOR PLANS SHOWING HVAC DUCTWORK, IF DESIRED, OR AS A SEPARATE DRAWING. IF TAB IS INCLUDED IN THE PROJECT, PROVIDE ZONE AIRFLOW DRAWINGS SHOWING AIR DISTRIBUTION OTHER SUGGESTED DRAWINGS INCLUDE MECHANICAL ROOM LAYOUT AND ANY OTHER AS-BUILT OF THE SYSTEM SHEET IDENTIFICATION M-102

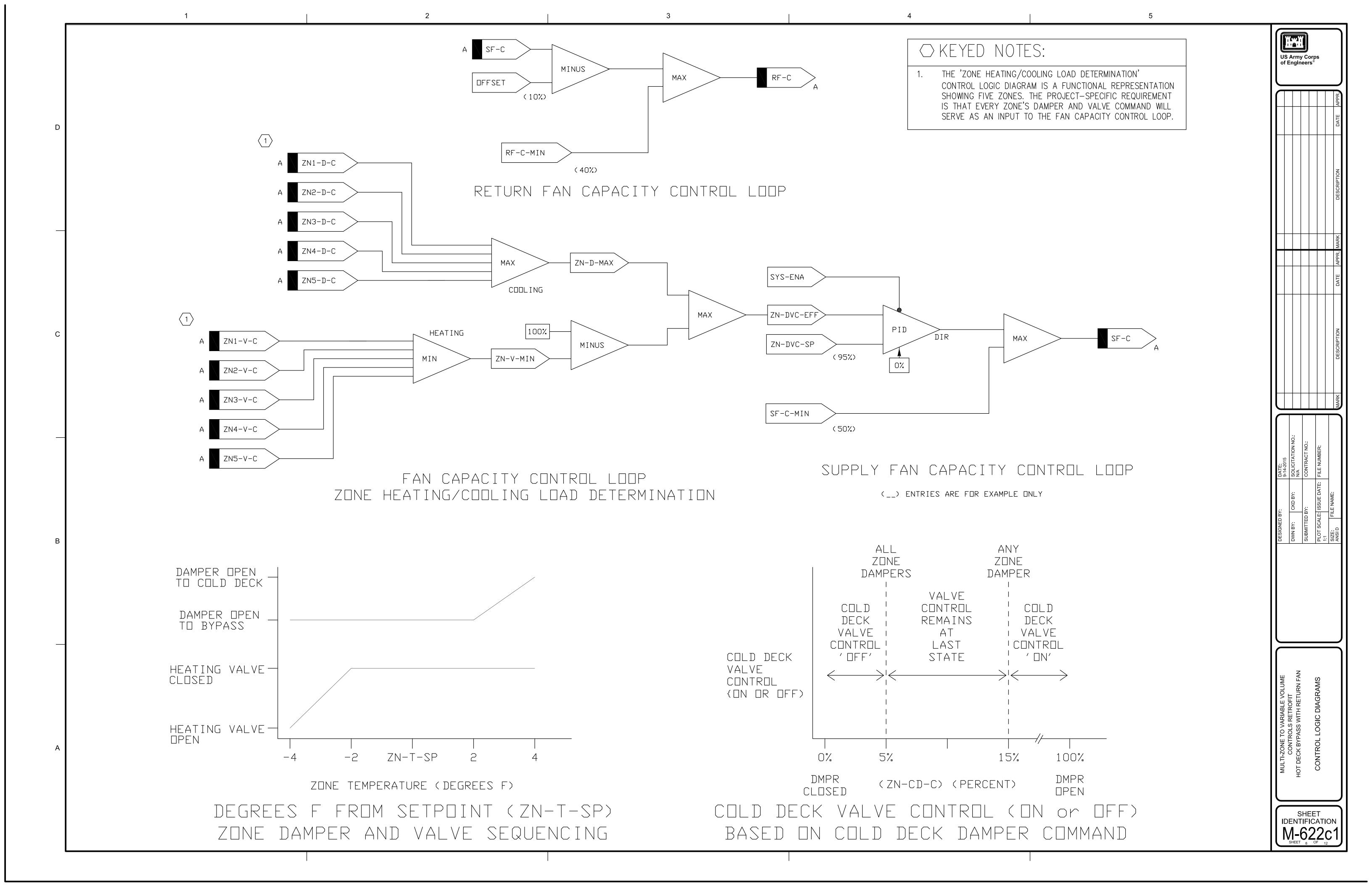


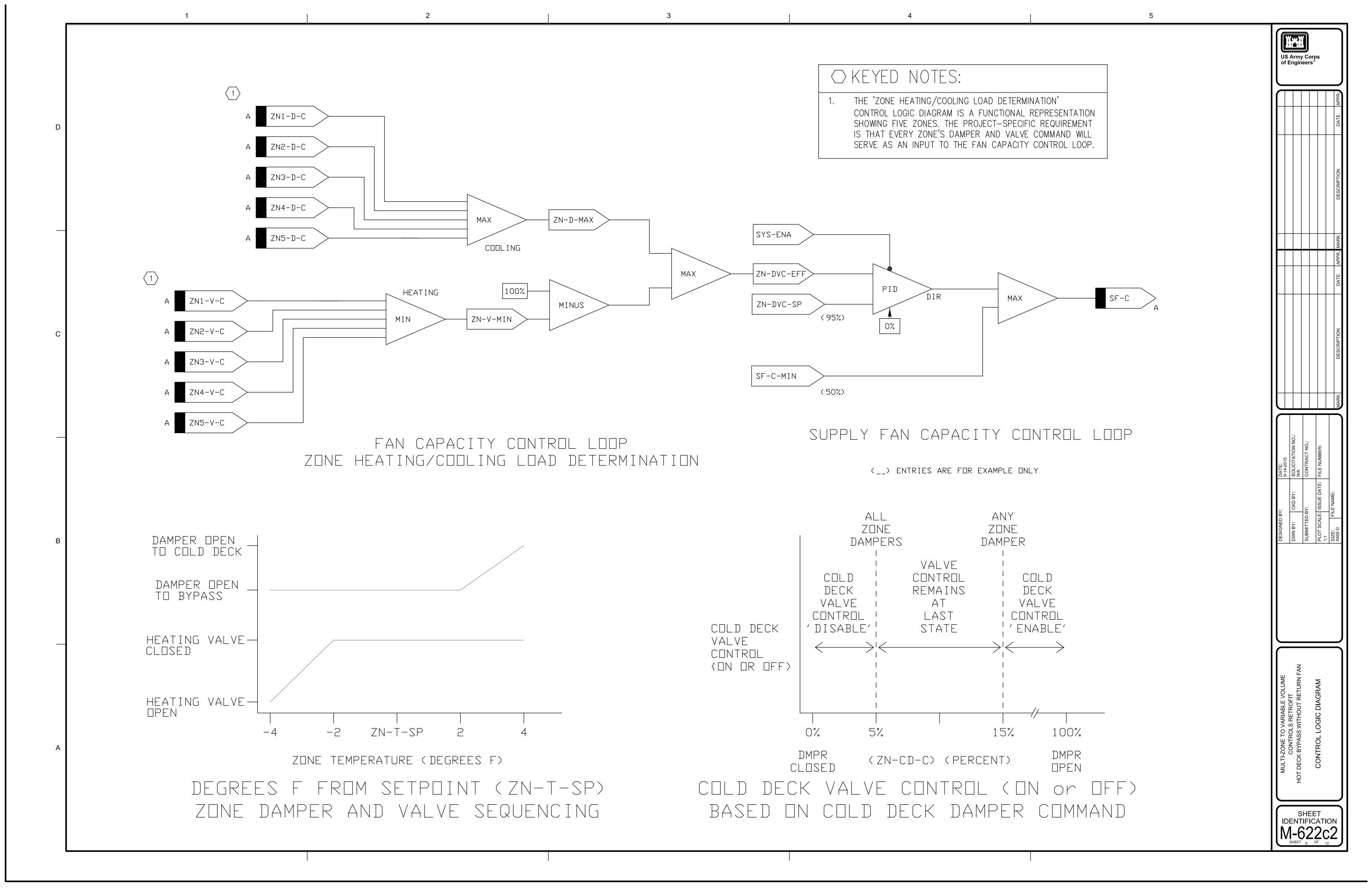


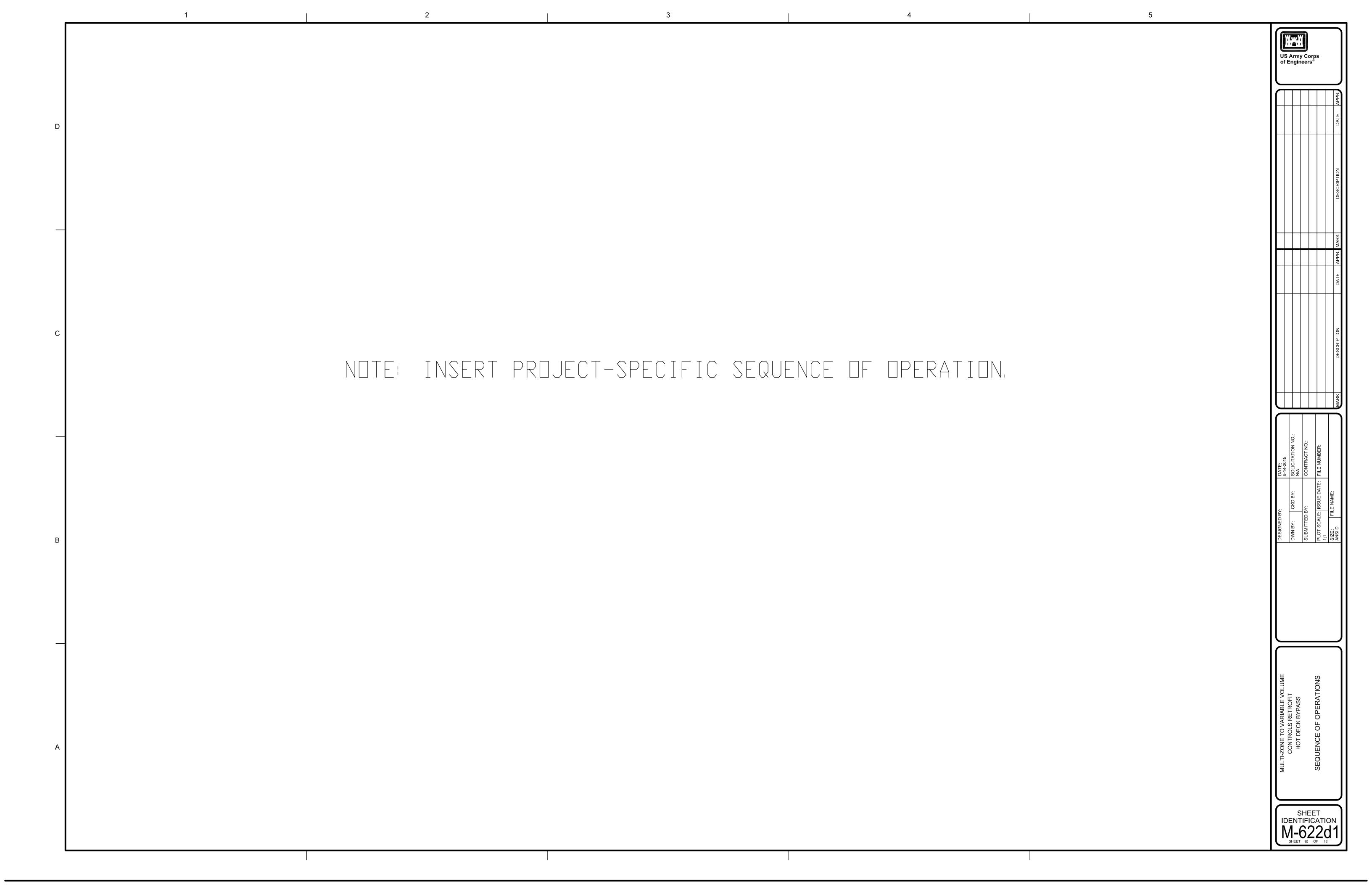
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ENABLED LOOPS BY OCCUPANCY MODE

MDDES	FAN CAPACITY CONTROL	OA FLOW Control	MIXED AIR LOW LIMIT	MIXED AIR TEMPERATURE CONTROL WITH ECONOMIZER	HEATING VALVE CONTROL	CD TEMPERATURE CONTROL	ZONE TEMPERATURE CONTROL	PREHEAT COIL CONTROL (IF REQUIRED)		
OCCUPIED	X	X	X	X	X	X	X	X		
UNDCCUPIED, MAX(ZN-T) > ZN-T-HL (DEADBAND = 5 DEG F ADJUSTABLE)	X		×	X		X	X	X		
UNDCCUPIED, MAX(ZN-T) < ZN-T-HL AND > ZN-T-LL (DEADBAND = 5 DEG F ADJUSTABLE)		(NO LOOPS ENABLED)								
UNDCCUPIED, MIN(ZN-T) < ZN-T-LL (DEADBAND = 5 DEG F ADJUSTABLE)	X		X	X	X		X	X		
WARM-UP/COOL-DOWN	X		X	X	X	X	X	X		

NOTE: BLDG-T MAX AND MIN IS REFERENCING THE SPACE SENSOR MODULE THERMOSTATS

SPACE SENSOR MODULE (THERMOSTAT) AND ZONE SENSOR SCHEDULE

SYSTEM SERVICE (BLDG & AHU)	ZONE	SPACES SERVED	SSM/STAT LOCATION	ZN-T DISPLAY	ZN-T-SP	UNOCC OVERRIDE PUSHBUTTON	UNOCC OVERRIDE TIME	□CC SENS□R	CO2 SENSOR	RH SENSOR	DTHER
[]		RM-[] RM-[] RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	C _3	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	C _3	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]
[]		RM-[]	RM-[]	[_]	[_]	[_]	[]	[_]	[_]	[_]	[_]

OCCUPANCY SCHEDULE

SYSTEM	OCCUPIED	UNOCCUPIED	WARM-UP
[]	M-F 0800-1800	DTHERWISE	M-F 0700-0800

NOTE: OCCUPANCY SENSORS MUST BE CEILING MOUNTED UNLESS OTHERWISE SPECIFIED

NOTE TO DESIGNER: INSERT PROJECT-SPECIFIC POINTS SCHEDULE HERE. AN EXCEL SPREADSHEET WITH TEMPLATE POINTS SCHEDULE INSTRUCTIONS ARE AVAILABLE WITH THE MZ TO VV RETROFIT 'DESIGN GUIDE', POINTS SCHEDULE INSTRUCTIONS ARE AVAILABLE IN UFC 3-410-02 - DDC FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS. https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-410-02

MULII-ZONE TO VARIABLE VOLUME
CONTROLS RETROFIT
HOT DECK BYPASS
POINTS SCHEDULE

SHEET IDENTIFICATION M-622f1