

JOHNSON CONTROLS
VALVE SCHEDULE

FORM 1224 REV. 6/74 (REV. 4-4-01)

PROJECT/ADDRESS	Force Troops Complex	SHEET NO.	1 OF 1
CONTRACT NO.	BEQ - 3rd Increment	CONTRACT NO.	5129-0017
BUILDING DESIGNATION	Camp Lejeune, N. C.	PREPARED BY	Ed Guy
MECHANICAL ENGINEER	Barracks #1 & #2	DATE	12/5/75
MECHANICAL CONTRACTOR	JMCAN Columbia, S. C.	BRANCH	Wilmington
	J. J. Barnes, Fayetteville, N. C.		

ITEM	SYSTEM	SERVICE	REFERENCE DRAWING	QUAN	VALVE INFORMATION				ACTUATOR INFO.					
					FAIL POS. Open/Close	VALVE CODE NO.	BODY STYLE	SIZE	QTY	CAPACITY GPM @ 150 PSI	ACTUATOR TYPE	PILOT YES/NO	REMARKS	
CV-1	FCU-1	H/C		48	X	654B309	3-way	3"	4.8	.9		Y2LV-7.2		
CV-1	FCU-2	H/C		64	X	654B309	3-way	3"	4.8	1.3				
CV-1	FCU-3	H/C		24	X	654B309	3-way	4"	4.8	1.8				
CV-1	FCU-4	H/C		32	X	654B309	3-way	3"	4.8	1.7				
CV-1	FCU-5	H/C		2	X	654B309	3-way	4"	4.8	3.3				
CV-1	FCU-6	H/C		2	X	654B309	3-way	3"	4.8	4.8				
CV-1	FCU-7	H/C		6	X	654B309	3-way	3"	4.8	5.7				
CV-2	FT-1	HW		8	X	654B307	2-way	3"	2.4	4.2				
CV-2	FT-2	HW		8	X	654B307	2-way	3"	2.4	4.2				
CV-3	Generator	Steam		2	X	V90AA-13	2-way	1 1/2"		270	5	M81AAA-12		
CV-4	Generator	Steam		2	X	FD-3970-9	2-way	2"		300	5	VA-3200-11		
CV-5	Changeover	HW		2	X	DMCO 4912-511	B'fly	4"				M81AAA-12		
CV-6	Changeover	Ch. H.		2	X	DMCO 4912-511	B'fly	4"				M81AAA-12		
CV-7	AHU-1	H/C		2	X	V90DB-4	3-way	1 1/2"	13	225		M81AAA-12		
CV-7	AHU-2	H/C		2	X	V90DB-3	3-way	1"	8.6	14.9		M81AAA-12		

SEQUENCE OF OPERATION

Air Handling Units #1 & #2 Control
The air handling unit shall be energized by switch AS-3 located in the mechanical equipment room. When the unit fan is energized, damper actuator DA-1 shall open the outdoor air damper D-1 to 100% outdoor air. Thermostat TC-3 shall open valve CV-7 in a two-position manner as required to maintain a supply air temperature of 60.5°F for cooling and 75°F for heating. Thermostat TS-4 shall reset the discharge thermostats TC-5 for heating or cooling as required. Low limit thermostat LLL-1 is provided to de-energize the unit fan and close the outdoor air damper if the air temperature across the coil drops below 35°F.

Fallout Filter Bypass Control
"OFF-ON" switch MS-6, located in space 203 shall energize the bypass fan, open the bypass damper, and close the main duct damper to provide filtered outdoor air when desired.

Fan-Coil Unit Control
Thermostat TC-1 is provided to control the two-position three-way valve CV-1 as required to maintain desired room temperature. Thermostat TS-1 shall reset the room thermostat TC-1 for heating or cooling as required. "HIGH-MED-LOW" switch MS-1 shall control fan speed.

Finned Tube Radiation Control
Two-way control valve CV-2 shall be controlled as required by heating thermostat TC-2.

Hot Water Generator Control
Thermostat TC-3 is provided to control steam valve CV-3 in a two-position manner as required to maintain 120°F domestic hot water temperature.

Hot Water Converter Control
Steam valve CV-4 shall be modulated by controller TC-4. The temperature of the hot water supply as sensed by element TE-1 shall be reset according to the temperature of the outdoor air as sensed by element TE-2. Switch MS-2 is provided to override the controller for manual operation. Flow switch FS-1 is provided to prohibit operation of the steam valve if water is not flowing through the circuit. Normally closed relay contacts R-2-1 shall de-energize the steam valve actuator if cooling is required.

Pump #1 Control
Switch MS-3, located in the mechanical equipment room is provided to energize the pump manually.

Changeover Controls
Three-way valves CV-5 and CV-6 shall be positioned to provide heating or cooling as required. Outdoor air thermostat TS-2 is provided to position valves CV-5 and CV-6 automatically. Switch MS-4 is provided to override the outdoor air thermostat for manual selection. Thermostat TS-3 shall prevent cooling changeover until system water temperature has decreased sufficiently to prevent the introduction of hot water to the chiller.

Exhaust Fans #6, #7, & #8 Control
Thermostat TC-6 is provided to energize the exhaust fan to maintain room temperature.

JOHNSON CONTROLS BILL OF MATERIAL

QTY	CODE NO.	DESCRIPTION	CHANGE SETTING	REMARKS	TASK
MS-1	178 X	Fan Speed Switch		By Others	
MS-2	2 X	OFF-AUTO Switch			
MS-3	2 X	HAND-OFF-AUTOSwitch		By Others	
MS-4	2 X	SHUTTER-AUTO-WINTER Switch			
MS-5	4 X	HAND-OFF-AUTO Switch		By Others	
MS-6	4 X	BYPASS ON-OFF Switch			
TC-1	178 R	TS2AAB-1		Room Thermostat	
TC-2	16 R	T266-18		Heating Thermostat	
TC-3	2 R	A19ABC-40		Hot Water Thermostat	
TC-4	2 R	TC-4100-32		Temperature Controller	
TC-5	8 R	A39ABC-24		Duct Thermostat	
TC-6	6 R	T266-18		Cooling Thermostat	
TS-1	178 R	A19DAC-1		Changeover Thermostat	
TS-2	2 R	A19ABC-24		Changeover Thermostat	
TS-3	2 R	A19ABC-24		Changeover Thermostat	
TS-4	4 M	T-7900-1		Changeover Thermostat	
TE-1	2 R	TE-1700-7		Temperature Sensor	
TE-2	2 R	TC-1300-1		Temperature Sensor	
TF-1	178 X	120/24v Transformer			
TF-2	2 X	120/24v Transformer			
TF-3	4 X	120/24v Transformer			
TF-4	4 X	120/24v Transformer			
FS-1	2 R	W61KD-11		Water Flow Switch	
TL-1	4 R	ATA-1		Low Limit Thermostat	
R-1	178 X	24v SPNO Relay			
R-2	2 X	24v SPNO Relay			
R-3	2 X	24v DPDT Relay			
R-4	2 X	24v DPDT Relay			
R-5	4 X	24v DPDT Relay			

JOHNSON CONTROLS
DAMPER SCHEDULE

FORM 1225 REV. 6/74 (REV. 4-4-01)

PROJECT/ADDRESS	Force Troops Complex	SHEET NO.	1 OF 1
CONTRACT NO.	BEQ - 3rd Increment	CONTRACT NO.	5129-0017
BUILDING DESIGNATION	Camp Lejeune, N. C.	PREPARED BY	Ed Guy
MECHANICAL ENGINEER	Barracks #1 (Barracks #2 Identical)	DATE	12/5/75
MECHANICAL CONTRACTOR	J. J. Barnes, Fayetteville, N. C.	BRANCH	Wilmington, N. C. 179

ITEM	SYSTEM	SERVICE	REFERENCE DRAWING	QUAN	DAMPER INFORMATION				ACTUATOR INFORMATION				REMARKS
					FAIL POS. Open/Close	DAMPER TYPE	DAMPER SIZE W x H	* Refer to Install. Detail	QTY	SIZE	CODE NO.	PILOT YES/NO	
D-1	AHU-1	O.A.		1	X	D-1300	32	32		1	M81AGA-3		Electric
D-1	AHU-2	O.A.		1	X	D-1300	32	32		1	M81AGA-3		Electric
D-2	AHU-1	Main Duct		1	X	D-1300	12	12		1	M81AGA-3		Electric
D-2	AHU-2	Main Duct		1	X	D-1300	12	12		1	M81AGA-3		Electric
D-3	AHU-1	ByPass		1	X	D-1300	12	12		1	M81AGA-3		Electric
D-3	AHU-2	ByPass		1	X	D-1300	12	12		1	M81AGA-3		Electric

DRAWING TITLE		SEQUENCE OF OPERATION, BILL OF MATERIAL, VALVE AND DAMPER SCHEDULE	
REFERENCE DRAWINGS	NO.	REVISION	LOCATION
SALES ENGR.	APPLICATION ENGR.	DRAWN	APPROVED
S. FORREST	ED GUY	DATE	DATE
PROJECT	BEQ FORCE TROOPS COMPLEX 3rd INCREMENT CAMP LEJEUNE, N.C.	JOHNSON CONTROLS, INC.	4304 MARKET STREET WILMINGTON, N.C. 28401
CONTRACT NUMBER	5129-0017	DRAWING NUMBER	2 OF 2

