LETTER OF TRANSMITTAL

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TO: JACOBS ENGINEERING GROUP

VIRGINIA BEACH, VIRGINIA

DATE: MAY 31, 2016

JOB #: 16-1002

ATTN: GREG HATCH - PROGRAM MGR

RE: JEB LITTLE CREEK - 33 BUILDINGS
RETRO COMMISSIONING
NORFOLK, VIRGINIA
BUILDING 112

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WE ARE SENDING YOU THE FOLLOWING ITEMS: **BUILDING** 112

■ Survey/RetroCommissioning Report ☐ List of Key Personnel ☐ Schedule of Prices ☐ Proposal ☐ Other

☐ TAB Report ☐ TAB Qualifications ☐ Pre-Engineering TAB Report

COPIES	DATE	NO.	DESCRIPTION
1	05/31/16		BUILDING 112

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For approval ☐ Approved as submitted ☐ Resubmit _ copies for approval ☐ For your use

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☐ Return _ corrected prints ☐ For review & comments

REMARKS: _____

SIGNED: Cheryl Strickland, Administration

BLDG 112

JEB LITTLE CREEK
RETROCOMMISSIONING

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA		TEST CODE AHU A		READINGS:
SYSTEM		AHU		
LOCATION / AREA		MECHANICAL ROM		CHILLED WATER COIL-
MANUFACTURER		MCQUAY		DP AIR: N/ACC
MODEL NUMBER		LSL1280Y		HILLED WATER COIL-
SERIAL NUMBER		N/ACC		DP WATER: N/ACC
MOTOR MAKE		MAGNETEK		HOT WATER COIL-
MOTOR CAT. NO.		R416		DP AIR: N/ACC
MOTOR HP / RPM / FRAME		15.0 / 1750 / S254T		HOT WATER COIL-
VOLTS / PHASE / HERTZ		208 - 230 / 460 / 3 / 60		DP WATER: N/ACC
F.L. AMPS / SERVICE FACTOR		40.5 / 38 / 19 / 1.15		CHILLED WATER GPM- 112
				@COIL: BASED ON ULTRASONIC
				HOT WATER GPM- 16.6
				@COIL: BASED ON ULTRASONIC
NO. FILTERS / SIZE				COIL PUMP AMPS: N/ACC
KEY	**TEST DATA**	**DESIGN**	**ACTUAL**	TOTAL COILS-
@2	SUPPLY CFM		11655	DP AIR: 1.26"
@2	RETURN CFM		9806	
@2	OUTSIDE AIR CFM (MIN.)		1849	
@1	VOLTAGE		473 / 474 / 471	
@1	AMPERAGE		12.4 / 12.4 / 11.9	
DATE OF TEST		05/23/16		

REMARKS: Note: Ports not available to obtain DP water.

DUCT TRAVERSE READINGS

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

SYSTEM: AHU - 1 AREA SERVED: VARIOUS

READING #	RETURN			OUTSIDE AIR		
1	1279	1495		773		
2	1270	1397		616		
3	1208	1353		654		
4	1204	1029		618		
5	1378	1175		615		
6	1345	1107		681		
7	1350	1056		727		
8	1347	984		625		
9	1418	642		608		
10	1461	539		608		
11	1465	560		654		
12	1256	389		624		
13	1445	356		740		
14	1540	478		660		
15	1480	241		805		
16	1412	307		638		
17	1476					
18	1541					
19	1448					
20	1268					
TOTAL		40699		10646		
DIVIDED BY		36		16		
AVG.VELOCITY		1131		665		
DUCT SIZE (IN.)		52 X 24		20 X 20		
NET AREA (SQ. FT.)		8.67		2.78		
ACTUAL CFM		9806		1849		
STATIC PRESS.		-.71"		.09"		
TEMPERATURE(°F)		75		58		
DATE OF TEST		05/23/16		15/23/16		

REMARKS: All data on this sheet measured using Shortridge Airdata Multimeter with Airfoil.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-1	
LOCATION / AREA	OFFICE AREA	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	SHB301B	
SERIAL NUMBER	5XL82272-00	
MOTOR MAKE	N/ACC	HOT WATER COIL-
MOTOR MODEL NO.	N/ACC	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	1 / N/ACC	
VOLTS / PHASE / HERTZ	230 / 460 / 3 / 60	TOTAL COILS:
F.L. AMPS / SERVICE FACTOR	— / N/ACC	DP AIR: N/ACC

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		1772	
@1	VOLTAGE	460	469 / 467 / 470	
@1	AMPERAGE	—	1.1 / 1.2 / 1.1	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply CFM basedon flow hood readings.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-2	
LOCATION / AREA	MAIN FLOOR SPACE	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	SHB301B	
SERIAL NUMBER	5XL82273-00	
MOTOR MAKE	N/ACC	HOT WATER COIL-
MOTOR MODEL NO.	N/ACC	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	1 / N/ACC	
VOLTS / PHASE / HERTZ	230 / 460 / 3 / 60	TOTAL COILS
F.L. AMPS / SERVICE FACTOR	— / N/ACC	DP AIR: .33"

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		1903	
@1	VOLTAGE	460	471 / 470 / 471	
@1	AMPERAGE	—	1.2 / 1.1 / 1.2	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply CFM basedon flow hood readings.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-3	
LOCATION / AREA	MAIN FLOOR SPACE	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	SHB301B	
SERIAL NUMBER	5XL82274-00	
MOTOR MAKE	N/ACC	HOT WATER COIL-
MOTOR MODEL NO.	N/ACC	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	1 ½ / N/ACC	
VOLTS / PHASE / HERTZ	230 / 460 / 3 / 60	TOTAL COILS
F.L. AMPS / SERVICE FACTOR	— / N/ACC	DP AIR: .40"

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		2282	
@1	VOLTAGE	460	467 / 466 / 468	
@1	AMPERAGE	—	1.8 / 1.7 / 1.9	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply based on flow hood readings.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-5	
LOCATION / AREA	CONFERENCE ROOM A	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	TSH121FR	
SERIAL NUMBER	7XL0033201	
MOTOR MAKE	N/ACC	HOT WATER COIL-
MOTOR MODEL NO.	N/ACC	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	1/5 / N/ACC (2 MOTORS)	
VOLTS / PHASE / HERTZ	115 / 1 / 60	TOTAL COILS
F.L. AMPS / SERVICE FACTOR	2.5 / N/ACC	DP AIR: .05"

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		774	
@1	VOLTAGE	115	117	
@1	AMPERAGE	2.5	2.0	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply CFM based on flow hood readings.
Motor / filters access missing screws. Access has gaps allowing air leakage bypass filters.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA		TEST CODE AHU C		READINGS:
SYSTEM		FCU-6		
LOCATION / AREA		CONFERENCE ROOM B		CHILLED WATER COIL-
MANUFACTURER		MCQUAY		DP AIR: N/ACC
MODEL NUMBER		TSH121FR		
SERIAL NUMBER		7XL0033101		
MOTOR MAKE		N/ACC		HOT WATER COIL-
MOTOR MODEL NO.		N/ACC		DP AIR: N/ACC
MOTOR HP / RPM / FRAME		1/5 / N/ACC (2 MOTORS)		
VOLTS / PHASE / HERTZ		115 / 1 / 60		TOTAL COILS
F.L. AMPS / SERVICE FACTOR		2.5 / N/ACC		DP AIR: .10"
KEY	**TEST DATA**	**DESIGN**	**ACTUAL**	
@2	SUPPLY CFM		847	
@1	VOLTAGE	115	117	
@1	AMPERAGE	2.5	2.1	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply CFM based on flow hood readings.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-7	
LOCATION / AREA	ROOM 203	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	SHB121B	
SERIAL NUMBER	5XL82275-00	
MOTOR MAKE	MAGNETEK	HOT WATER COIL-
MOTOR CAT. NO.	H581	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	3/4 / 1725 / HA56	
VOLTS / PHASE / HERTZ	200 - 230 / 460 / 3 / 60	
F.L. AMPS / SERVICE FACTOR	2.5 - 2.6 / 1.3 / 1.25	TOTAL COILS
		DP AIR: .40"

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		832	
@1	VOLTAGE	460	471 / 468 / 469	
@1	AMPERAGE	1.3	1.0 / 1.1 / 1.0	
DATE OF TEST		05/24/16		

REMARKS: Note: Supply CFM based on flow hood readings.

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

FAN DATA	TEST CODE AHU C	READINGS:
SYSTEM	FCU-8	
LOCATION / AREA	OFFICE AREA	CHILLED WATER COIL-
MANUFACTURER	MCQUAY	DP AIR: N/ACC
MODEL NUMBER	TSH101FR	
SERIAL NUMBER	7XL0032301	
MOTOR MAKE	N/ACC	HOT WATER COIL-
MOTOR MODEL NO.	N/ACC	DP AIR: N/ACC
MOTOR HP / RPM / FRAME	1/5 / 1/15 / N/ACC (2 MOTORS)	
VOLTS / PHASE / HERTZ	115 / 1 / 60	
F.L. AMPS / SERVICE FACTOR	2.5, 1.5 / N/ACC	TOTAL COILS
		DP AIR: .06"

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		791	
@1	VOLTAGE	115	117	
@1	AMPERAGE	2.5, 1.5	2.8	
DATE OF TEST				

REMARKS: Note: Unable to take individual amperage readings. Actual amperage for both motors.

PUMP TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

DATA	HWP - 2	CWP - 1
DESIGN		
LOCATION	MECHANICAL ROOM	MECHANICAL ROOM
SERVICE	HOT WATER	CHILLED WATER
MANUFACTURER	BELL & GOSSETT	—
MODEL NUMBER	11.5X9.5 8.75 BF	—
GPM / FT. HEAD	54 / 77'	—
IMPELLER DIAM. (IN.)	8.75"	—
CIRCUIT SETTER SIZE / TYPE	2 ½" / KEYSTONE	N/A
MOTOR MFR./FRAME	U.S. MOTORS / 182JM	MARATHON / 213T
MOTOR HORSEPOWER / RPM	3 / 1730	7.5 / 1760
VOLTS/PHASE/HERTZ	208 - 230 / 460 / 3 / 60	208 - 230 / 460 / 3 / 60
F.L. AMPS/S.F.	9.5 - 9.0 / 4.5 / 1.15	21 - 19.6 / 9.8 / 1.15
ACTUAL		
FINAL DISCHG/SUCTION PRESS. (FT.)	—	N/ACC / 38.2
FINAL DIFF. PRESSURE (FT.)	—	—
FINAL GPM (based on ultrasonic)	54	277.7
CIRCUIT SETTER FINAL PRESS./SETTING	2.39 PSI / 30	—
CIRCUIT SETTER FINAL GPM	—	—
VOLTAGE T_1-T_2 T_2-T_3 T_3-T_1	472 / 471 / 472	472 / 472 / 471
AMPERAGE T_1 T_2 T_3	3.6 / 3.8 / 3.7	9.3 / 9.2 / 9.0

REMARKS: Note: No ports available to obtain pump pressures on HWP-2.
Note: Port on discharge side of pump is corroded. Unable to get pressure.
CWP-1 No tag on pump for data.

AIR COOLED CHILLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 112

SYSTEM: EQUIP. LOCATION: OUTSIDE

UNIT	CHLR	MANUFACTURER	TRANE
MODEL NO.	RTAA0804XN01A		
SERIAL NO.	U02L07349		

CHILLED WATER GPM		277.7			
CHILLED WATER DP WATER		N/ACC			
SUPPLY WATER TEMP		44.6			
RETURN WATER TEMP		47.3			

COMPRESSOR MAKE / MODEL: TRANE / SCROLL HELIROTOR

REMARKS: