LETTER OF TRANSMITTAL

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TO: JACOBS ENGINEERING GROUP

Virginia Beach, Virginia

DATE: July 7, 2016

JOB #: 16-1002

ATTENTION: Greg Hatch - Program Mgr

RE: JEB Little Creek - 33 Buildings

Retro Commissioning

Norfolk, Virginia

Bldg 3016

Email: ATTN: GREGORY HATCH Gregory.Hatch@Jacobs.com / greg.hatch@jacobs.com
Phil Dabrowski Phil.dabrowski@jacobs.com
Sandi Roberts Sandi.roberts@jacobs.com

WE ARE SENDING YOU THE FOLLOWING ITEMS: **BUILDING 3016**

■ 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	7/7/16		BUILDING 3016

THESE ARE TRANSMITTED AS CHECKED BELOW:

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

☐ Approved as noted ☐ Submit _ copies for distribution ■ AS REQUESTED

☐ Return _ corrected prints ☐ For review & comments

REMARKS: _____

SIGNED: Cheryl Strickland, Administration

BLDG 3016

JEB LITTLE CREEK
RETROCOMMISSIONING

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A	READINGS:
SYSTEM	AHU - 1	
LOCATION / AREA	MECHANICAL ROOM	CHILLED WATER COIL-
MANUFACTURER	YORK	DP AIR: .20"
MODEL NUMBER	BC0061330	CHILLED WATER COIL-
SERIAL NUMBER	DLMM-30019B	DP WATER: 17.1'
MOTOR MAKE	CENTURY	HOT WATER COIL-
MOTOR PART NO.	850121M0J	DP AIR:.45"
MOTOR HP / RPM / FRAME	7.5 / 1760 / S213T	HOT WATER COIL-
VOLTS / PHASE / HERTZ	230 / 460 / 3 / 60	DP WATER: N/A
F.L. AMPS / SERVICE FACTOR	19.4 / 9.7 / 1.15	CHILLED WATER GPM- 60 (.88')
		@COIL: TA STAF 2½N 8.0
		HOT WATER GPM- N/A
		@COIL: TA SFAD 2 1.9
		COIL PUMP AMPS: N/A

KEY	TEST DATA	DESIGN	ACTUAL	
@2	SUPPLY CFM		4906	
@2	RETURN CFM		0	
@2	OUTSIDE AIR CFM (MIN.)		4906	
@1	VOLTAGE	460	460	
@1	AMPERAGE	9.7	5.5 @ 60 HZ	
DATE OF TEST		07/01/16		

REMARKS: Note: Outside air is open 100% due to high CO2 count.

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 1

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AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A
SYSTEM	AHU - 1
LOCATION / AREA	RETURN FAN
MANUFACTURER	COOK
MODEL NUMBER	245 SQN 2455QNB
SERIAL NUMBER	066S76401200 / 0010201
MOTOR MAKE	WEG
MOTOR MODEL NO.	001180T3E143T
MOTOR HP / RPM / FRAME	1.0 / 1730 / E143 / 5T
VOLTS / PHASE / HERTZ	208 - 230 / 460 / 3 / 60
F.L. AMPS / SERVICE FACTOR	3.0 - 2.9 / 1.45 / 1.15

KEY	TEST DATA	DESIGN	ACTUAL
@2	RETURN CFM		1769
@1	VOLTAGE	460	460
@1	AMPERAGE	1.45	1.3 @ 48.2 HZ

DATE OF TEST	07/01/16

REMARKS:

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 2

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AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A	READINGS:
SYSTEM	AHU - 2	
LOCATION / AREA	MECHANICAL ROOM	CHILLED WATER COIL-
MANUFACTURER	YORK	DP AIR: .20"
MODEL NUMBER	BC0061230	CHILLED WATER COIL-
SERIAL NUMBER	DLMM-30018B	DP WATER: 3.15'
MOTOR MAKE	U.S. MOTORS	HOT WATER COIL-
MOTOR MODEL NO.	D5E2D	DP AIR: .08"
MOTOR HP / RPM / FRAME	5 / 1760 / 184T	HOT WATER COIL-
VOLTS / PHASE / HERTZ	208 - 230 / 460 / 3 / 60	DP WATER: N/A
F.L. AMPS / SERVICE FACTOR	13.9 - 13.4 / 6.7 / 1.15	CHILLED WATER GPM- 41 (19.6')
		@COIL: TA STAD 2 2.0
		HOT WATER GPM- N/A
		@COIL: TA STAD 1 ½ 1.1
		COIL PUMP AMPS: N/A

KEY	TEST DATA	DESIGN	ACTUAL
@2	SUPPLY CFM		4966
@2	RETURN CFM		4205
@2	OUTSIDE AIR CFM (MIN.)		761
@1	VOLTAGE	460	460
@1	AMPERAGE	6.7	4.9 @ 60 HZ
DATE OF TEST		07/01/16	

REMARKS:

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 3

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A
SYSTEM	AHU - 2
LOCATION / AREA	RETURN FAN
MANUFACTURER	COOK
MODEL NUMBER	245 SQN 245SQNB
SERIAL NUMBER	066S7641200 / 0011501
MOTOR MAKE	WEG
MOTOR MODEL NO.	001180T3E143T
MOTOR HP / RPM / FRAME	1.0 / 1730 / E143 / 5T
VOLTS / PHASE / HERTZ	208 - 230 / 460 / 3 / 60
F.L. AMPS / SERVICE FACTOR	3.0 - 2.9 / 1.45 / 1.15

KEY	TEST DATA	DESIGN	ACTUAL
@2	RETURN CFM		4335
@1	VOLTAGE	460	460
@1	AMPERAGE	1.45	1.8 @ 51.1 HZ

DATE OF TEST	07/01/16

REMARKS: Note: Motor is operating over SFA (1.75A).

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AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A	READINGS:
SYSTEM	AHU - 3	
LOCATION / AREA	MECHANICAL ROOM	CHILLED WATER COIL-
MANUFACTURER	YORK	DP AIR: .18"
MODEL NUMBER	CC061230	CHILLED WATER COIL-
SERIAL NUMBER	DLMM-30024B	DP WATER: 3.27'
MOTOR MAKE	BALDOR	HOT WATER COIL-
MOTOR CAT. NO.	M3311T	DP AIR: .13"
MOTOR HP / RPM / FRAME	7.5 / 1750 / 213T	HOT WATER COIL-
VOLTS / PHASE / HERTZ	230 / 460 / 3 / 60	DP WATER: N/A
F.L. AMPS / SERVICE FACTOR	19.2 / 9.6 / 1.15	CHILLED WATER GPM- 68 (16.5')
		@COIL: TA STAF 2½N 3.3
		HOT WATER GPM- N/A
		@COIL: TA STAD 1¼ 1.2
		COIL PUMP AMPS: N/A

KEY	TEST DATA	DESIGN	ACTUAL
@2	SUPPLY CFM		5570
@2	RETURN CFM		5051
@2	OUTSIDE AIR CFM (MIN.)		519
@1	VOLTAGE	460	460
@1	AMPERAGE	9.6	8.0 @ 58 HZ

DATE OF TEST	07/01/16	

REMARKS:

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 5

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AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A
SYSTEM	AHU - 3
LOCATION / AREA	RETURN FAN
MANUFACTURER	COOK
MODEL NUMBER	245 SQN 245SQNB
SERIAL NUMBER	066S76401200 / 0012801
MOTOR MAKE	A. O. SMITH
MOTOR CAT. NO.	E100
MOTOR HP / RPM / FRAME	1 / 1745 / X143T
VOLTS / PHASE / HERTZ	200 - 230 / 460 / 3 / 60
F.L. AMPS / SERVICE FACTOR	3.4 - 3.0 / 1.5 / 1.15

KEY	TEST DATA	DESIGN	ACTUAL
@2	RETURN CFM		5051
@1	VOLTAGE	460	460
@1	AMPERAGE	1.5	1.6 @ 47.5 HZ

DATE OF TEST	07/01/16

REMARKS:

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 6

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DUCT TRAVERSE READINGS

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

SYSTEM: AHU - 1, 2 AREA SERVED: VARIOUS

READING #	AHU - 1 SUPPLY AIR	AHU - 1 RET / EXH		AHU - 2 SUPPLY AIR	AHU - 2 RET / EXH	AHU - 2 OUTSIDE AIR
1	682	326	251	398	1135	48
2	208	332	266	390	1255	31
3	649	344	214	445	1393	47
4	149	327	157	438	1452	59
5	595	291	185	426	1196	74
6	145	315		395	1217	0
7	747	291		419	1360	62
8	135	301		439	1114	105
9		269			1298	47
10		269			1039	105
11		315			893	78
12		254			918	93
13		236			1381	
14		273			934	
15		297			914	
16		330			1167	
17		295			1251	
18		315			1137	
19		292			995	
20		332			1132	
TOTAL	3310		7077	3350	23181	758
DIVIDED BY	8		25	8	20	12
AVG.VELOCITY	413		283	418	1156	63
DUCT SIZE (IN.)	57 X 30		30 X 30	57 X 30	30 X 18	20 X 87
NET AREA (SQ. FT.)	11.88		6.25	11.88	3.75	12.08
ACTUAL CFM	4906		1769	4966	4335	761
STATIC PRESS.	—		-.04"	—	.05"	—
TEMPERATURE(°F)	80		73	80	70	—
DATE OF TEST	07/01/16		07/01/16	07/01/16	07/01/16	07/01/16

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

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DUCT TRAVERSE READINGS

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

SYSTEM: AHU - 3 AREA SERVED: VARIOUS

READING #	AHU-3 SUPPLY AIR		AHU - 3 OUTSIDE AIR			
1	381		87			
2	370		43			
3	384		44			
4	391		0			
5	399		0			
6	372		84			
7	366		94			
8	393		51			
9			53			
10			30			
11			0			
12			31			
13						
14						
15						
16						
17						
18						
19						
20						
TOTAL	3056		517			
DIVIDED BY	8		12			
AVG.VELOCITY	382		43			
DUCT SIZE (IN.)	70 X 30		20 X 87			
NET AREA (SQ. FT.)	14.58		12.08			
ACTUAL CFM	5570		519			
TEMPERATURE(°F)	75		87			
DATE OF TEST	07/01/16		07/01/16			

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

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 8

AIR HANDLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

FAN DATA	TEST CODE AHU A	READINGS:
SYSTEM	AHU - 4	
LOCATION / AREA	ROOM 133	CHILLED WATER COIL-
MANUFACTURER	YORK	DP AIR: .02"
MODEL NUMBER	X11-027X033-BAEA046A	CHILLED WATER COIL-
SERIAL NUMBER	AJMMXT0054	DP WATER: N/A
MOTOR MAKE	BALDOR	HOT WATER COIL-
MOTOR CAT. NO.	M3154T	DP AIR: .51"
MOTOR HP / RPM / FRAME	1.5 / 1740 / 145T	HOT WATER COIL-
VOLTS / PHASE / HERTZ	208 - 230 / 460 / 3 / 60	DP WATER: N/A
F.L. AMPS / SERVICE FACTOR	4.5 - 4.2 / 2.1 / 1.5	CHILLED WATER GPM- 9.5 GPM (1.59')
		@COIL: TA STAD 2 1.8
		HOT WATER GPM- N/A
		@COIL: TA STAD 3/4 1.3
		COIL PUMP AMPS: N/A

KEY	TEST DATA	DESIGN	ACTUAL
@2	SUPPLY CFM		1206
@2	RETURN CFM		691
@2	OUTSIDE AIR CFM (MIN.)		515
@1	VOLTAGE	460	460
@1	AMPERAGE	2.1	1.9 @ 60 HZ
DATE OF TEST		07/06/16	

REMARKS: Note: Motor compartment extrmemly dirty. Possibly mold. Ports not available to obtain DP water. CW & HW pipes / insulation wet. Possibly water leakage. HW coil not operaitonal. Building in "summer" mode.

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VELOCITY READINGS

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

SYSTEM: AHU - 4 AREA SERVED: MULTI PURPOSE ROOM

READING #	RETURN		OUTSIDE AIR			
1	443		297			
2			383			
3			336			
4			199			
5			399			
6			515			
7			109			
8			249			
9			457			
10			108			
11			418			
12			286			
13			120			
14			249			
15			298			
16						
17						
18						
19						
20						
TOTAL	443		4423			
DIVIDED BY	1		15			
AVG. VELOCITY	443		294			
DUCT SIZE (IN.)	14 X 16		18 X 14			
NET AREA (SQ. FT.)	1.56		1.75			
ACTUAL CFM	691		515			
STATIC PRESSURE	—		-1.07"			
TEMPERATURE °F	80		74			
DATE OF TEST	07/06/16		07/06/16			

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

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 10

AIR COOLED CHILLER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

SYSTEM: CHILLER EQUIP. LOCATION: OUTSIDE

UNIT	CHLR		MANUFACTURER.	DAIKIN	
MODEL NO.	AGZ-100EPMNN-ER00				
SERIAL NO.	STNU151200021				
CHILLED WATER GPM		225.6			
CHILLED WATER DP WATER		11.7'			
SUPPLY WATER TEMP		47			
RETURN WATER TEMP		52			

COMPRESSOR MAKE / MODEL: COPELAND / SCROLL

REMARKS:

PUMP TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

DATA	HWP	
DESIGN		
LOCATION	MECHANICAL ROOM	
SERVICE	HOT WATER	
MANUFACTURER	BELL & GOSSETT	
MODEL NUMBER	1510 BF 8.500 1.5 B.C.	
GPM / FT. HEAD	85 / 77'	
IMPELLER DIAM. (IN.)	8.5	
CIRCUIT SETTER SIZE / TYPE	CB-EF / B & G	
MOTOR MFR./FRAME	U.S. ELECRICAL MOTORS / 184T	
MOTOR HORSEPOWER / RPM	5.00 / 1760	
VOLTS/PHASE/HERTZ	208 - 230 / 460 / 3 / 60	
F.L. AMPS/S.F.	13.90 - 13.40 / 6.70 / 1.15	
ACTUAL		
FINAL DISCHG/SUCTION PRESS. (FT.)	* 1	
FINAL DIFF. PRESSURE (FT.)		
CIRCUIT SETTER FINAL PRESS./SETTING		
CIRCUIT SETTER FINAL GPM		
VOLTAGE T_1-T_2 T_2-T_3 T_3-T_1		
AMPERAGE T_1 T_2 T_3		

REMARKS: * 1 Building is in "summer" mode. HW System shut down for season.

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BOILER TEST REPORT

PROJECT: JEB LITTLE CREEK RETRO COMMISSIONING BUILDING: 3016

UNIT DATA	UNIT # HEX	
LOCATION / AREA	MECHANICAL ROOM	
MANUFACTURER	BELL & GOSSETT	
PART NUMBER	BY526010036001	
SERIAL NUMBER	925854-03	

TEST DATA	DESIGN	ACTUAL	DESIGN	ACTUAL
HOT WATER FLOW (GPM)		* 1		
HOT WATER DP WATER				
SUPPLY WATER TEMPERATURE				
RETURN WATER TEMPERATURE				
FLU GAS AIR TEMPERATURE				

REMARKS: * 1 Building is in "summer" mode. HW System shut down for season.

DATE: 07/01/16 - 07/06/16 BY: PHH / CDM SHEET: 13