



**SUBMITTAL REVIEW COMMENTS**

RETURNED TO:

COMPANY: Moody Nolan Architects  
ATTN: Drew Deering  
SENT VIA: Email

DATE: March 6, 2018  
REVIEWED BY: Mike J. Taube

PROJECT NAME: McCormick Event Center  
IMEG #: 14.0894.00  
SECTION NO.: 23 05 93  
DESCRIPTION: Test & Balance Report

CONTRACTOR: F.E. Moran  
CTR. SUBMITTAL #: 230593-003  
SUBMITTAL DATE: February 21, 2018  
DATE RECEIVED: February 26, 2018

This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Notations made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the contract documents. Approval of a specific item shall not include approval of an assembly of which the item is a component. The contractor is solely responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordination of his or her work with that of all other trades; and performing all work in a safe and satisfactory manner.

ACTION KEY:

A	APPROVED				
	B	NOTATIONS, NO RESUBMITTAL (REFER TO NOTATIONS)			
		C	REVISE & RESUBMIT (REFER TO NOTATIONS)		
			F	REJECTED (REFER TO NOTATIONS)	
				NS	NOT SUBMITTED
		ITEM	NOTATIONS		
		General Comments:	<ul style="list-style-type: none"> <li>Note: IMEG had shown coil circulation pumps for all AHU heating coils as part of the permit design. No coil circulation pumps were installed as part of the construction process.</li> <li>Note: Fan powered boxes were reviewed for balancing content only. FPB were not indicated on the Permit Set design.</li> </ul>		
	B	CWP-1, CWP-2	<ul style="list-style-type: none"> <li>Brake horsepower should not be within 10% of the motor horsepower.</li> <li>Balanced values are acceptable.</li> </ul>		
	B	P-3, P-4	<ul style="list-style-type: none"> <li>Brake horsepower should not be within 10% of the motor horsepower.</li> <li>Balanced values are acceptable.</li> </ul>		
A		Chilled Water: AHU-1B.1, AHU-1C.1, AHU-1C.2, AHU-4A.1, AHU-4B.1, AHU-4B.2, AHU-4C.1, AHU-4C.2, AHU-5A.1, AHU-5D.1, AHU-5D.2			
A		Heating Water: AHU-1B.1, AHU-1C.1, AHU-1C.2, AHU-4A.1, AHU-4B.1, AHU-4B.2, AHU-4C.1, AHU-4C.2, AHU-5A.1, AHU-5D.1, AHU-5D.2			

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				<table border="1"> <thead> <tr> <th>ITEM</th> <th>NOTATIONS</th> </tr> </thead> <tbody> <tr> <td>FCU-1A.1, FCU-1-1A.3, FCU-1B.1, FCU-1B.2, FCU-1C.1, FCU-1C.2, FCU-1C.3, FCU-1C.4, FCU-2A.1, FCU2A.2, FCU-2A.3, FCI-2B.1, FCU-2C.1, FCU-3A.1, FCU-3B.1, FCU-3C.1, FCU-4A.1, FCU-5C.1</td> <td> <ul style="list-style-type: none"> <li>Fan coil unit flow for units listed are acceptable.</li> <li>Note: Not all of the Permit Design fan coil units were provided during the construction process. This has been documented during the submittal process by IMEG.</li> </ul> </td> </tr> <tr> <td>Terminal Air Boxes</td> <td> <ul style="list-style-type: none"> <li>VAV-047 is greater than 10% of design value.</li> <li>VAV-066A, VAV-066B, VAV-066C, VAV-066D, VAV-066G, VAV-301, VAV-302, VAV-303, VAV-304, VAV-305, VAV-306, VAV-307, VAV-308, VAV-309, VAV-310, VAV-311, VAV-C002, VAV-C004, VAV-C005, VAV-C104. Design calls for less than .5 GPM which can't be accurately balanced. Balanced flow is .5 GPM which is correct.</li> </ul> </td> </tr> <tr> <td>Cabinet Heaters</td> <td></td> </tr> <tr> <td>Unit Heaters</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td> <ul style="list-style-type: none"> <li>Not in original Permit Design.</li> <li>Found no issues related to water balancing.</li> </ul> </td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td> <ul style="list-style-type: none"> <li>Locations of Radiation not listed on balancing report. Locations not verified against plans.</li> <li>IMEG assumes thermostatic valves presets were set for scheduled design GPM as none are listed in the balancing report.</li> </ul> </td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Heat Exchangers</td> </tr> </tbody> </table>	ITEM	NOTATIONS	FCU-1A.1, FCU-1-1A.3, FCU-1B.1, FCU-1B.2, FCU-1C.1, FCU-1C.2, FCU-1C.3, FCU-1C.4, FCU-2A.1, FCU2A.2, FCU-2A.3, FCI-2B.1, FCU-2C.1, FCU-3A.1, FCU-3B.1, FCU-3C.1, FCU-4A.1, FCU-5C.1	<ul style="list-style-type: none"> <li>Fan coil unit flow for units listed are acceptable.</li> <li>Note: Not all of the Permit Design fan coil units were provided during the construction process. This has been documented during the submittal process by IMEG.</li> </ul>	Terminal Air Boxes	<ul style="list-style-type: none"> <li>VAV-047 is greater than 10% of design value.</li> <li>VAV-066A, VAV-066B, VAV-066C, VAV-066D, VAV-066G, VAV-301, VAV-302, VAV-303, VAV-304, VAV-305, VAV-306, VAV-307, VAV-308, VAV-309, VAV-310, VAV-311, VAV-C002, VAV-C004, VAV-C005, VAV-C104. Design calls for less than .5 GPM which can't be accurately balanced. Balanced flow is .5 GPM which is correct.</li> </ul>	Cabinet Heaters		Unit Heaters						<ul style="list-style-type: none"> <li>Not in original Permit Design.</li> <li>Found no issues related to water balancing.</li> </ul>					<ul style="list-style-type: none"> <li>Locations of Radiation not listed on balancing report. Locations not verified against plans.</li> <li>IMEG assumes thermostatic valves presets were set for scheduled design GPM as none are listed in the balancing report.</li> </ul>					Heat Exchangers
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THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SUBMITTAL REFERENCED ABOVE.

**MOODY·NOLAN**

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**SHOP DRAWING REVIEW**

This review is for general conformance with the design concept and the contractor remains responsible for:


- a. Compliance with the contract documents.
- b. Confirming and correlating quantities and dimensions.
- c. Selecting fabrication process and techniques of construction.
- d. Coordination of the work with the other trades.

REVIEWED WITH NO CORRECTIONS
  REVISE AND RESUBMIT
  REVIEWED WITH CORRECTIONS NOTED
  NOT REVIEWED

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This review neither extends nor alters any contractual obligations of the architect or contractor, and does not authorize changes in the contract sum or contract time.

BY: DD      DATE: 03/14/18

 <div style="display: inline-block; vertical-align: middle;"> <p style="margin: 0;">MPEA McCormick Place Event Center PD3 Design Build</p> </div>						
CBOP Reviewer	Initials	Review Date				
	<b>SAG</b>	<b>2/26/18</b>				
MNI Project # 14175.01	312-929-2516					
<p>Review by Architect is for limited purpose of checking for general conformance with information given and the design concept expressed in the Contract Documents. Review of submittals is not for the purpose of determining the accuracy and completeness of other details and information such as dimensions and quantities, or installation, or performance of equipment or systems, all of which remain the responsibility of the Subcontractor. Any action shown is subject to the requirements of the Contract Documents. Subcontractor is solely responsible for dimensions and quantities, which shall be confirmed and coordinated at the jobsite, and for fabrication processes, means, methods and procedures of construction, and coordination of Subcontractor's work with that of other trades, and the satisfactory performance of Subcontractor's work in conformance with the Contract Documents.</p>						
Submittal No.:	<b>230593-003</b>					
Subcontractor/Vendor:	<b>FE Moran</b>					
Review Company	Action				Reviewed By	Review Date
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	
Moody Nolan, Inc						
<p>A = Reviewed                  B = Make Corrections Noted.                  C = Make Corrections Noted. Re-submit Corrected Copy.                  D = Revise and Re-submit.                  E = Not Reviewed</p>						

MNI Comments:

**NOBLE AIR, LLC  
TEST AND BALANCE REPORT**

**PROJECT:** MCCORMICK PLACE – EVENT CENTER  
HYDRONIC REPORT

**LOCATION:** 200 EAST CERMAK ROAD  
CHICAGO, IL 60616

**ARCHITECT:** PRAIRIE DISTRICT 3 PARTNERS

**ENGINEER:** KJWW

**CONTRACTOR:** DEKAYO CORPORATION



\* AIR \* HYDRONIC \* LEAK TESTING \*

THIS IS TO CERTIFY THAT NOBLE AIR, LLC HAS BALANCED THE SYSTEMS DESCRIBED HEREIN TO THEIR OPTIMUM PERFORMANCE CAPABILITIES. THE TESTING AND BALANCING HAS BEEN PERFORMED IN ACCORDANCE WITH THE STANDARD REQUIREMENTS AND PROCEDURES OF TABIC, SMACNA AND ASHRAE AND THE RESULTS OF THESE ARE HEREIN RECORDED.

February 21, 2018  
DATE

  
ALAN R. SMITH

# NOBLE AIR, LLC

**HYDRONIC PUMP REPORT**
**DATE: February 14, 2018**

<b>JOB NAME:</b>	McCormick Place - Event Center	<b>JOB NUMBER:</b>	17-049-V1
<b>ADDRESS:</b>	200 East Cermak Road		
<b>CITY AND STATE:</b>	Chicago, IL 60616		
<b>BUILDING NUMBER:</b>	Event Center		
<b>SYSTEM:</b>	CWP - 1	<b>EQUIPMENT LOCATION:</b>	Event Center 1st Flr Mech Rm
<b>AREA SERVED:</b>	Chilled Water System		

PUMP DATA		MOTOR DATA	
MANUFACTURER	B & G	MANUFACTURER	Baldor
MODEL NO.	e - 1510	MODEL / SERIAL NO.	M42E245W387G1
SIZE	6E x 10.75	FRAME SIZE	326 T
SERIAL NO.	C231342 - 02J61	SERVICE FACTOR	1.15
SEAL TYPE	N/A	PF / EFF	87 / 94.5
		HORSEPOWER	50.0
STARTER DATA		HEATER DATA	
MANUFACTURER	DanFoss VFD	HEATER SIZE	DanFoss VFD
STARTER SIZE	DanFoss VFD	RATING	DanFoss VFD

GPM	DESIGN	UNITS	ACTUAL
PUMP GPM	1440.0	GPM	1500.0
TERMINAL GPM	2289.7	GPM	2231.3
TOTAL HEAD	100.0'	FT / WATER	96.6'
RPM	1800.0	RPM	1775.0
DISCHARGE PRESSURE	N/A	PSI / FT / WATER	123.0
SUCTION PRESSURE	N/A	PSI / FT / WATER	80
IMPELLER	10.75"	INCHES	10.75
BLOCK TIGHT	110.0'	FT / WATER	99.3
VOLTAGE / PHASE	230 / 460 / 3.0	VOLTS / PHASE / HZ	460 / 3 / 60 ①
AMPERAGE / PHASE	114 / 57 / 3.0	AMPS	56.4 / 3.0 ①
BRAKE HP	50.0	BHP	49.5
INSTALLED GAUGE	DISCHARGE	PSI	96.5
READINGS (PSI)	SUCTION	PSI	54.7
VALVE MAKE/MODEL	N/A	PSI	41.8
VALVE POSITION	100% Open	SPECIFIC GRAVITY	1.0

**①Volts and amps per VFD read out.**
**18 PSI ΔP set point.**

COMMENTS: ALL PSI READINGS TO BE MULTIPLIED BY 2.31 TO REFLECT FEET OF WATER

# NOBLE AIR, LLC

## HYDRONIC PUMP REPORT

DATE: February 14, 2018

<b>JOB NAME:</b>	McCormick Place - Event Center	<b>JOB NUMBER:</b>	17-049-V1
<b>ADDRESS:</b>	200 East Cermak Road		
<b>CITY AND STATE:</b>	Chicago, IL 60616		
<b>BUILDING NUMBER:</b>	Event Center		
<b>SYSTEM:</b>	CWP - 2	<b>EQUIPMENT LOCATION:</b>	Event Center 1st Flr Mech Rm
<b>AREA SERVED:</b>	Chilled Water System		

PUMP DATA		MOTOR DATA	
MANUFACTURER	B & G	MANUFACTURER	Baldor
MODEL NO.	e - 1510	MODEL / SERIAL NO.	M42E245W387G1
SIZE	6E x 10.75	FRAME SIZE	326 T
SERIAL NO.	C231342 - 01J61	SERVICE FACTOR	1.15
SEAL TYPE	N/A	PF / EFF	87 / 94.5
		HORSEPOWER	50.0
STARTER DATA		HEATER DATA	
MANUFACTURER	VFD	HEATER SIZE	VFD
STARTER SIZE	VFD	RATING	VFD

GPM	DESIGN	UNITS	ACTUAL
PUMP GPM	1440.0	GPM	1600.0
TERMINAL GPM	2289.7	GPM	2231.3
TOTAL HEAD	100.0'	FT / WATER	87.1'
RPM	1800.0	RPM	1775.0
DISCHARGE PRESSURE	N/A	PSI / FT / WATER	125.0
SUCTION PRESSURE	N/A	PSI / FT / WATER	78
IMPELLER	10.75	INCHES	10.75"
BLOCK TIGHT	110.0'	FT / WATER	108.6'
VOLTAGE / PHASE	230 / 460 / 3.0	VOLTS / PHASE / HZ	460 / 3 / 60 ①
AMPERAGE / PHASE	114 / 57 / 3.0	AMPS / PHASE	55.9 / 3.0 ①
BRAKE HP	50.0	BHP	49.0
INSTALLED GAUGE	DISCHARGE	PSI	103.1
READINGS (PSI)	SUCTION	PSI	56.4
VALVE MAKE/MODEL	N/A	PSI	46.7
VALVE POSITION	100% Open	SPECIFIC GRAVITY	1.0

①Volts and amps per VFD read out.

18 PSI ΔP.

COMMENTS: ALL PSI READINGS TO BE MULTIPLIED BY 2.31 TO REFLECT FEET OF WATER

# NOBLE AIR, LLC

**HYDRONIC PUMP REPORT**

**DATE: February 14, 2018**

<b>JOB NAME:</b>	McCormick Place - Event Center	<b>JOB NUMBER:</b>	17-049-V1
<b>ADDRESS:</b>	200 East Cermak Road		
<b>CITY AND STATE:</b>	Chicago, IL 60616		
<b>BUILDING NUMBER:</b>	Event Center		
<b>SYSTEM:</b>	P - 3	<b>EQUIPMENT LOCATION:</b>	H 101-C2
<b>AREA SERVED:</b>	HW System Event Center Secc		

PUMP DATA		MOTOR DATA	
MANUFACTURER	B & G	MANUFACTURER	Baldor
MODEL NO.	E1510	CAT. / SERIAL NO.	1201505924 - 000020
SIZE	4EB	FRAME SIZE	156 T
SERIAL NO.	C231339 - 02J61	SERVICE FACTOR	1.15
SEAL TYPE	Carbon Ceramic	PF / EFF	85 / 93
		HORSEPOWER	20.0
STARTER DATA		HEATER DATA	
MANUFACTURER	Danfoss VFD	HEATER SIZE	Danfoss VFD
STARTER SIZE	Danfoss VFD	RATING	Danfoss VFD

GPM	DESIGN	UNITS	ACTUAL	
PUMP GPM	560.0	GPM	700 ①	560 ② ③
TERMINAL GPM	1378.25	GPM	1337.45	
TOTAL HEAD	100.0'	FT / WATER	90.1 ①	
RPM	1800.0	RPM	1765.0 ①	
DISCHARGE PRESSURE	N/A	PSI / FT / WATER	111.6	
SUCTION PRESSURE	N/A	PSI / FT / WATER	63.3	
IMPELLER	10.50	INCHES	10.50	
BLOCK TIGHT	N/A	FT / WATER	111.6'	
VOLTAGE / PHASE	230 / 460 / 3.0	VOLTS / PHASE / HZ	460 / 3 / 460 ①	368 / 3 / 48 ②
AMPERAGE / PHASE	48 / 24.0 / 3.0	AMPS / PHASE	23.7 ①	13.0 ②
BRAKE HP	20.0	BHP	19.75 ①	
INSTALLED GAUGE	DISCHARGE	PSI	66.1 ①	
READINGS (PSI)	SUCTION	PSI	27.1 ①	
VALVE MAKE/MODEL	N/A	PSI	39.0	
VALVE POSITION	100% Open	SPECIFIC GRAVITY	1.0339	

①At 60.0 hertz with all hot water valves at full heat. Single pump operation.

②At 48.0 hertz. Single pump operation 12 PSI ΔP

③GPM by pump curve, final GPM's by pump laws.

COMMENTS: ALL PSI READINGS TO BE MULTIPLIED BY 2.31 TO REFLECT FEET OF WATER

# NOBLE AIR, LLC

**HYDRONIC PUMP REPORT**

**DATE: February 14, 2018**

<b>JOB NAME:</b>	McCormick Place - Event Center	<b>JOB NUMBER:</b>	17-049-V1
<b>ADDRESS:</b>	200 East Cermak Road		
<b>CITY AND STATE:</b>	Chicago, IL 60616		
<b>BUILDING NUMBER:</b>	Event Center		
<b>SYSTEM:</b>	P - 4	<b>EQUIPMENT LOCATION:</b>	H 101 - C2
<b>AREA SERVED:</b>	Hot Water System Event Cente		

PUMP DATA		MOTOR DATA	
MANUFACTURER	B & G	MANUFACTURER	Baldor
MODEL NO.	E1510	MODEL / SERIAL NO.	1201505924 - 000020
SIZE	4EB	FRAME SIZE	256 T
SERIAL NO.	C231339 - 01161	SERVICE FACTOR	85 / 93
SEAL TYPE	Carbon Ceramic	PF / EFF	85 / 93
		HORSEPOWER	20.0
STARTER DATA		HEATER DATA	
MANUFACTURER	DanFoss VFD	HEATER SIZE	Dan Foss VFD
STARTER SIZE	DanFoss VFD	RATING	Dan Foss VFD

GPM	DESIGN	UNITS	ACTUAL	
PUMP GPM	560.0	GPM	750 ①	563 ② ③
TERMINAL GPM	1057.05	GPM	1337.45	
TOTAL HEAD	100.0'	FT / WATER	79.0 ①	
RPM	1800.0	RPM	1765.0 ①	
DISCHARGE PRESSURE	N/A	PSI / FT / WATER	112.3	
SUCTION PRESSURE	N/A	PSI / FT / WATER	63.1	
IMPELLER	10.50	INCHES	10.5"	
BLOCK TIGHT	113'	FT / WATER	113.7'	
VOLTAGE / PHASE	230 / 460 - 3.0	VOLTS / PHASE / HZ	460 / 3 / 60 ①	345 / 3 / 45 ②
AMPERAGE / PHASE	48 / 24.0 - 3.0	AMPS	24.0 ①	13.6 ②
BRAKE HP	20.0	BHP	20.0 ①	
INSTALLED GAUGE	DISCHARGE	PSI	73.9 ①	
READINGS (PSI)	SUCTION	PSI	39.7 ①	
VALVE MAKE/MODEL	N/A	PSI	34.2	
VALVE POSITION	100% Open	SPECIFIC GRAVITY	1.0339	

①At 60.0 hertz with all hot water valves at full heat. Single pump operation

②At 48.0 hertz. Single pump operation 12 PSI ΔP.

③GPM by pump curve, final GPM's by pump laws.

COMMENTS: ALL PSI READINGS TO BE MULTIPLIED BY 2.31 TO REFLECT FEET OF WATER



# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - CHW - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 1B.1	Staff Lounge	3.0	Bray	123.2	Auto	①	123.2
AHU - 1C.2	Back of House	3.0	Bray	79.2	Auto	①	79.2
AHU - 1C.1	Lobby	3.0	Bray	68.1	Auto	①	68.1
AHU - 4A.1	NW Concourse	4.0	Bray	197.1	Auto	①	197.1
AHU - 4B.1	NE Concourse	4.0	Bray	167.3	Auto	①	167.3
AHU - 4B.2	NE Bowl	4.0	Bray	262.7	Auto	①	262.7
AHU - 4C.1	SE Bowl	4.0	Bray	262.7	Auto	①	262.7
AHU - 4C.2	SE Concourse	4.0	Bray	250.9	Auto	①	250.9
AHU - 5A.1	NW Bowl	4.0	Bray	262.7	Auto	①	262.7
AHU - 5D.1	SW Bowl	4.0	Bray	262.7	Auto	①	262.7
AHU - 5D.2	Suites	4.0	Bray	185.7	Auto	①	185.7

Comments:

**①All valves are pressure independent programmed for flow and operating unit flow design PSI range.**

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 1B.1	1B1	6A	Nexus	78.2	65°	66.0"	78.0
AHU - 1C.1	Top	4A	Nexus	21.95	40°	51.0"	22.0
AHU - 1C.1	Bottom	4A	Nexus	21.95	40°	55.0"	23.0
AHU - 1C.2	Top	4A	Nexus	19.05	40°	16.0"	20.0
AHU - 1C.2	Bottom	4A	Nexus	19.05	40°	16.0"	20.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 4A.1	Top	5A	Nexus	26.1	50°	22.0"	26.0
AHU - 4A.1	Mid	5A	Nexus	26.1	60°	22.0"	26.0
AHU - 4A.1	Lower	5A	Nexus	26.1	75°	22.0"	26.0
AHU - 4B.1	Top	4A	Nexus	22.4	50°	52.0"	22.0
AHU - 4B.1	Mid	4A	Nexus	22.4	50°	55.0"	23.0
AHU - 4B.1	Lower	4A	Nexus	22.4	45°	54.0"	23.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 4B.2	Top	4A	Nexus	22.8	55°	53.0"	23.0
AHU - 4B.2	Mid	4A	Nexus	22.8	65°	53.0"	23.0
AHU - 4B.2	Bottom	4A	Nexus	22.8	65°	54.0"	23.0
AHU - 4C.1	Top	4A	Nexus	22.8	50°	53.0"	23.0
AHU - 4C.1	Mid	4A	Nexus	22.8	50°	55.0"	23.0
AHU - 4C.1	Lower	4A	Nexus	22.8	50°	52.0"	22.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 4C.2	Top	5A	Nexus	27.2	40°	26.0"	27.0
AHU - 4C.2	Mid	5A	Nexus	27.2	40°	27.0"	27.0
AHU - 4C.2	Lower	5A	Nexus	27.2	60°	26.0"	27.0
AHU - 5A.1	Top	4A	Nexus	22.8	50°	53.0"	23.0
AHU - 5A.1	Mid	4A	Nexus	22.8	45°	55.0"	23.0
AHU - 5A.1	Lower	4A	Nexus	22.8	45°	55.0"	23.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: AHU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
AHU - 5D.1	Top	4A	Nexus	22.8	45°	53.0"	23.0
AHU - 5D.1	Mid	4A	Nexus	22.8	45°	53.0"	23.0
AHU - 5D.1	Lower	4A	Nexus	22.8	45°	54.0"	23.0
AHU - 5D.2	Top	5A	Nexus	29.8	50°	28.0"	30.0
AHU - 5D.2	Bottom	5A	Nexus	29.8	50°	28.0"	30.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: FCU - CHW - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
FCU - 1A.1	020B	3A	Nexus	5.0	40°	60.0"	5.0
FCU - 1B.1	T002	1B	Nexus	3.0	80°	110.0"	2.8
FCU - 1B.2	039 / 036	1B	Nexus	1.8	35°	50.0"	1.8
FCU - 1C.1	060B	4A	Nexus	12.2	40°	20.0"	12.0
FCU - 1C.2	060B	4A	Nexus	12.2	40°	20.0"	12.0
FCU - 1C3	064	3A	Nexus	3.9	30°	38.0"	4.0
FCU - 1C.4	064	3A	Nexus	3.9	34°	37.0"	4.0
FCU - 2A.1	013	4A	Nexus	12.2	30°	20.0"	12.0
FCU - 2A.2	013	4A	Nexus	12.2	30°	20.0"	12.0
FCU - 2A.3	T101	2A	Nexus	3.0	30°	42.0"	3.0
FCU - 2B.1	T102	2A	Nexus	3.0	35°	42.0"	3.0
FCU - 2C.1	T103	2A	Nexus	3.0	35°	42.0"	3.0
FCU - 3A.1	T201	2A	Nexus	3.0	35°	42.0"	3.0

Comments:

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**NOBLE AIR, LLC**  
**FLOW MEASURING STATION**

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: FCU - CHW - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
FCU - 3B.1	T202	2A	Nexus	3.0	40°	42.0"	3.0
FCU - 3C.1	T203	2A	Nexus	3.0	45°	42.0"	3.0
FCU - 4A.1	T301	2A	Nexus	3.0	35°	42.0"	3.0
FCU - 5C.1	401	2A	Nexus	5.0	40°	110.0	5.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: FCU - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
FCU - 1A.3	020	3B	Nexus	6.3	25°	22.4"	6.5
FCU - 1B.2	39	1A	Nexus	1.0	30°	66.3"	1.0

①

Comments:

①Unit also called AHU - 1A.1.

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 003	003A	1A	Nexus	1.4	30°	124.1"	1.40
VAV - 004A	004A	1A	Nexus	0.22	45°	18.3"	0.50
VAV - 004B	004B	1B	Nexus	0.23	25°	19.1"	0.50
VAV - 004C	004C	1A	Nexus	1.3	20°	121.6"	1.40
VAV - 004D	004B.1	1B	Nexus	0.6	35°	10.1"	0.80
VAV - 004E	004B	1A	Nexus	0.3	40°	18.5"	0.50
VAV - 005	005	1A	Nexus	0.3	40°	17.9"	0.50
VAV - 006	006	1A	Nexus	0.8	40°	42.0"	0.8
VAV - 007	007	1A	Nexus	0.5	35°	18.0"	0.5
VAV - 008	008	1A	Nexus	0.6	20°	42.0"	0.6
VAV - 008B	008B	1A	Nexus	0.5	30°	18.6"	0.50
VAV - 009A	009A	1A	Nexus	0.2	45°	18.1"	0.50
VAV - 009B	009B	1A	Nexus	0.2	45°	18.5"	0.50
VAV - 009C	009B	1A	Nexus	0.8	20°	42.3"	0.80
VAV - 009D	009D	1A	Nexus	0.7	20°	40.5"	0.80

Comments:

Ⓢ Valve not tagged, schedule calls for 1A terminal set as typical. Flow is apparent, unit is heating.

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 009E	009D	1A	Nexus	0.4	30°	19.3"	0.50
VAV - 020A	020A	1A	Nexus	0.1	40°	18.6"	0.50
VAV - 021	021	1A	Nexus	0.5	40°	20.0"	0.50
VAV - 023	025	1A	Nexus	0.3	45°	18.9"	0.50
VAV - 024	024	1A	Nexus	1.0	35°	68.2"	1.10
VAV - 025	025	1A	Nexus	0.5	45°	20.1"	0.50
VAV - 026	026	1A	Nexus	0.7	40°	42.1"	0.80
VAV - 027	027	1A	Nexus	0.15	45°	19.4"	0.50
VAV - 030	030	1A	Nexus	0.4	50°	18.6"	0.50
VAV - 031	031	1A	Nexus	0.6	50°	24.0"	0.60
VAV - 038	038	1A	Nexus	0.2	40°	18.5"	0.50
VAV - 040	040	1A	Nexus	0.2	35°	19.4"	0.50
VAV - 041	041	1A	Nexus	0.2	45°	19.6"	0.50
VAV - 043	043	1A	Nexus	0.2	40°	19.1"	0.50
VAV - 043B	043	1B	Nexus	1.5	40°	32.3"	1.40

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 044	044	1A	Nexus	0.15	45°	18.6"	0.50
VAV - 04B	044B	1A	Nexus	1.0	40°	67.5"	1.00
VAV - 047	047	1C	Nexus	0.5	40°	3.0"	1.10
VAV - 048	048	1A	Nexus	0.6	30°	22.3"	0.60
VAV - 049	049	1A	Nexus	0.4	40°	18.7"	0.50
VAV - 050	050	1A	Nexus	0.6	45°	23.1"	0.60
VAV - 050A	050A	1A	Nexus	0.8	40°	41.0"	0.80
VAV - 051	051	1A	Nexus	0.4	35°	19.3"	0.50
VAV - 051A.1	051A	1A	Nexus	0.3	40°	18.4"	0.50
VAV - 051B	051B	1A	Nexus	0.4	35°	19.7"	0.50
VAV - 051C	051C	1A	Nexus	0.5	30°	19.3"	0.50
VAV - 051D	051D	1A	Nexus	0.5	40°	18.1"	0.50
VAV - 052	052	1A	Nexus	0.2	45°	19.1"	0.50
VAV - 063	063	1A	Nexus	0.8	40°	43.1"	0.80
VAV - 066	066	1B	Nexus	1.8	25°	62.3"	2.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 066A	066A	1A	Nexus	0.1	40°	18.3"	0.50
VAV - 066B	066B	1A	Nexus	0.1	40°	17.9"	0.45
VAV - 066C	066C	1A	Nexus	0.1	40°	18.4"	0.50
VAV - 066D	066E	1A	Nexus	0.2	25°	19.5"	0.50
VAV - 066G	066F	1A	Nexus	0.3	30°	19.2"	0.50
VAV - 070	068	1B	Nexus	2.0	15°	62.1"	2.0
VAV - 072	072B	1C	Nexus	2.2	25°	16.2"	2.3
VAV - 101A	Club Open Area	1C	Nexus	2.0	45°	12.4"	2.0
VAV - 101AB	Club Open Area	1A	Nexus	0.6	30°	25.3"	0.60
VAV - 101B	Club Open Area	1B	Nexus	2.0	40°	60.9"	2.0
VAV - 101C	101	1C	Nexus	2.0	45°	12.6"	2.0
VAV - 101D	101	1B	Nexus	2.0	20°	63.1"	2.0
VAV - 101E	101E	1A	Nexus	0.6	25°	26.1"	0.60
VAV - 105	105	1A	Nexus	0.7	25°	42.2"	0.80
VAV - 106	106	3B	Nexus	3.1	10°	8.5"	3.80

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 107	107	1A	Nexus	0.4	45°	18.6"	0.50
VAV - 108	108	1A	Nexus	0.4	45°	19.4"	0.50
VAV - 109	109	1A	Nexus	0.5	40°	18.1"	0.50
VAV - 115	115	1C	Nexus	3.0	30°	22.3"	3.10
VAV - 116	116	1B	Nexus	3.0	25°	101.3"	2.80
VAV - 121	121	1A	Nexus	0.7	25°	30.3"	0.70
VAV - 122	122	1A	Nexus	0.5	30°	19.6"	0.50
VAV - 131	131	1B	Nexus	1.4	15°	32.6"	1.40
VAV - 133	133	1A	Nexus	0.2	45°	19.3"	0.50
VAV - 134	134	1A	Nexus	0.5	40°	18.8"	0.50
VAV - 135	135	1C	Nexus	0.3	30°	5.0"	1.40
VAV - 200	200	1B	Nexus	0.6	15°	9.5"	0.70
VAV - 203	203	1A	Nexus	0.5	40°	18.6"	0.50
VAV - 204	204	1A	Nexus	0.3	30°	19.1"	0.50
VAV - 205	205	1A	Nexus	0.3	30°	18.2"	0.50

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 206	206	1A	Nexus	0.5	25°	18.4"	0.50
VAV - 207	207	1A	Nexus	0.5	25°	19.3'	0.50
VAV - 208	208	1A	Nexus	0.5	25°	19.6"	0.50
VAV - 209	209	1A	Nexus	0.5	25°	18.1"	0.50
VAV - 210	210	1A	Nexus	0.3	20°	19.5"	0.50
VAV - 211	211	1A	Nexus	0.3	20°	18.9"	0.50
VAV - 212	212	1A	Nexus	0.5	30°	18.7"	0.50
VAV - 213	213	1C	Nexus	2.6	25°	16.3"	2.60
VAV - 214	214	1A	Nexus	0.5	40°	19.1"	0.50
VAV - 214A	214A	1A	Nexus	0.5	40°	18.7"	0.50
VAV - 215	215	1B	Nexus	1.7	15°	52.1"	1.80
VAV - 217	217	1B	Nexus	1.3	15°	32.3"	1.40
VAV - 219	219	1A	Nexus	0.9	30°	58.2"	0.95
VAV - 220	220	1C	Nexus	3.0	25°	22.0"	3.0
VAV - 221	221	1C	Nexus	3.0	20°	21.3"	3.10

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 231	231	1A	Nexus	0.8	30°	41.6"	0.80
VAV - 232	232	1A	Nexus	0.7	20°	39.3"	0.70
VAV - 241	241	1A	Nexus	0.4	30°	18.6"	0.50
VAV - 242	242	1A	Nexus	1.0	20°	67.1"	1.00
VAV - 301	301	1A	Nexus	0.5	40°	19.3"	0.50
VAV - 302	302	1A	Nexus	0.3	45°	18.6"	0.50
VAV - 303	303	1A	Nexus	0.3	45°	19.3"	0.50
VAV - 304	304	1A	Nexus	0.3	45°	18.9"	0.50
VAV - 305	305	1A	Nexus	0.3	45°	18.7"	0.50
VAV - 306	306	1A	Nexus	0.3	40°	18.5"	0.50
VAV - 307	307	1A	Nexus	0.3	45°	19.3"	0.50
VAV - 308	308	1A	Nexus	0.3	40°	19.0"	0.50
VAV - 309	309	1A	Nexus	0.3	35°	19.6"	0.50
VAV - 310	310	1A	Nexus	0.3	35°	18.3"	0.50
VAV - 311	311	1A	Nexus	0.3	40°	18.7"	0.50

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - 312	312	1A	Nexus	0.5	25°	18.9"	0.50
VAV - C002	C002	1A	Nexus	0.1	35°	19.4"	0.50
VAV - C003	C003	1A	Nexus	0.4	40°	19.6"	0.50
VAV - C004	C004	1A	Nexus	0.1	45°	18.3"	0.50
VAV - C005	C005	1A	Nexus	0.2	45°	18.7"	0.50
VAV - C006	049	1C	Nexus	1.7	30°	8.3"	1.9
VAV - C007	049	1A	Nexus	2.7	35°	246.3"	2.0
VAV - C007B	051	1A	Nexus	2.7	30°	251.1"	2.0
VAV - C100B	101B	1B	Nexus	4.0	30°	246.1"	3.80
VAV - C104	C104	1A	Nexus	0.2	35°	19.3"	0.50
VAV - C105B	C106	1C	Nexus	4.0	15°	35.3"	4.00
VAV - C106A	C106A	3B	Nexus	3.4	25°	8.2"	3.80
VAV - C107	C107	1C	Nexus	3.6	15°	30.4"	3.70
VAV - 200	C200	1B	Nexus	1.5	25°	37.4"	1.40
VAV - 201A	C201A	1B	Nexus	0.9	35°	16.5"	1.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - C201B	C201B	1B	Nexus	0.9	35°	16.5"	1.0
VAV - C201C	C201C	1B	Nexus	0.9	35°	17.0"	1.0
VAV - C201D	C201D	1B	Nexus	0.9	35°	17.0"	1.0
VAV - C201E	C201E	1B	Nexus	1.0	40°	16.0"	1.0
VAV - C202A	C202	1C	Nexus	2.4	45°	13.0"	2.4
VAV - 202B	320	1B	Nexus	0.9	35°	16.0"	1.0
VAV - C202C	321	1B	Nexus	0.9	35°	16.5"	1.0
VAV - C202D	202D	1C	Nexus	1.9	40°	12.0"	1.9
VAV - C202E	NE Bowl Area	3B	Nexus	2.4	25°	3.0"	2.4
VAV - C202F	C202F	1C	Nexus	1.9	30°	8.0"	1.9
VAV - C203A	NE Bowl Area	3B	Nexus	2.4	35°	3.0"	2.4
VAV - C203B	203B	3B	Nexus	3.4	55°	6.0"	2.4
VAV - C300A	317	1C	Nexus	2.2	40°	12.0"	2.3
VAV - C300B	300B	1A	Nexus	0.5	45°	18.0"	0.5
VAV - C300C	300C	1B	Nexus	0.9	30°	18.0"	1.0
VAV - C300D	300D	1B	Nexus	0.9	40°	17.5"	1.0
VAV - C300E	300E	1B	Nexus	0.9	40°	17.5"	1.0

Comments:

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## NOBLE AIR, LLC

### FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: VAV - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
VAV - C300F	300F	1B	Nexus	0.9	40°	17.0"	1.0
VAV - C300G	300G	1C	Nexus	1.4	25°	5.0"	1.5
VAV - V004	Tickets	1A	Nexus	0.7	30°	32.0"	0.7

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: HW - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
CAB - S002A	S002	2A	Nexus	4.0	65°	74.0"	4.0
CAB - S002B	S002	3A	Nexus	4.0	35°	36.0"	4.0
CAB - S003	S003	2A	Nexus	2.5	40°	26.0"	2.5
CAB - S004	S004	3A	Nexus	4.0	30°	36.0"	4.0
CAB - S005	S005	3A	Nexus	4.0	30°	38.0"	4.0
CAB - S006A	S006	3A	Nexus	4.0	30°	38.0"	4.0
CAB - S006B	S006	3A	Nexus	4.0	35°	37.0"	4.0
CAB - S007A	S007	1B	Nexus	2.0	45°	66.0"	2.0
CAB - S007B	S007	1B	Nexus	2.0	55°	66.0"	2.0
CAB - S202	S202	3A	Nexus	4.0	35°	37.0"	4.0
CAB - S204	S204	3A	Nexus	4.0	40°	36.0"	4.0
CAB - S205	S205	1B	Nexus	2.0	70°	66.0"	2.0
CAB - S206	S206	1B	Nexus	2.0	45°	66.0"	2.0
CAB - S207	S207	1B	Nexus	2.0	45°	66.0"	2.0
CAB - V001A	V001	3A	Nexus	4.0	25°	36.0"	4.0

Comments:

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## NOBLE AIR, LLC

### FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: CUH - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
CAB - V001B	V001	3A	Nexus	4.0	40°	37.0"	4.0
CAB - V002	V002	3A	Nexus	4.0	40°	36.0"	4.0
CAB - V004A ①	V004	1B	Nexus	2.0	65°	67.0"	2.0
CAB - V004B ①	V004	1B	Nexus	2.0	65°	68.0"	2.0

Comments:

① Also tagged as CAB #15 and CAB #16

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# NOBLE AIR, LLC FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: Air Curtain - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
CUH - V000A	C000	3A	Nexus	4.0	45°	36.0"	4.0
CUH - V000B	C000	3A	Nexus	4.0	40°	36.0"	4.0
CUH - V000D	C000	3A	Nexus	4.0	40°	36.0"	4.0
CUH - V000C	C000	3A	Nexus	4.0	45°	36.0"	4.0

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: UH - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
UH - 000	000	1C	Nexus	3.6	35°	30.0"	3.6
UH - 020	020	1C	Nexus	3.6	40°	30.0"	3.6
UH - 020C	020C	1C	Nexus	3.0	25°	20.0"	3.0
UH - 020E	020E	1C	Nexus	3.6	40°	30.0"	3.6
UH - 035	035	1C	Nexus	3.6	40°	31.0"	3.6
UH - 036	036	1C	Nexus	3.0	25°	20.0"	3.0
UH - 042	042	1B	Nexus	1.3	35°	26.0"	1.3
UH - 052	052	1C	Nexus	1.3	15°	5.0"	1.6
UH - 060	060	1C	Nexus	3.6	25°	30.0"	3.6
UH - 060A	060A	1C	Nexus	3.6	35°	31.0"	3.6
UH - 100	100	1C	Nexus	1.3	15°	5.0"	1.6
UH - 103	103	1B	Nexus	0.9	20°	17.0"	1.0
UH - 130	130	1A	Nexus	0.9	35°	56.0"	1.0
UH - 202	202	1D	Nexus	0.9	90°	200.0"	1.0
UH - 233	233	050S	B & G	0.4	34°	6.0'	0.5

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: UH - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
UH - 240	240	1D	Nexus	0.4	25°	50.0"	0.4
UH - 313	313	1C	Nexus	0.4	15°	3.0"	1.1
UH - 314	314	1D	Nexus	0.4	30°	50.0"	0.4
UH - 318	318	1C	Nexus	3.0	20°	20.0"	3.0
UH - 320	320	2A	Nexus	3.0	35°	42.0"	3.0
UH - 321	321	2A	Nexus	3.0	35°	42.0"	3.0
UH - 330	330	2A	Nexus	3.0	60°	42.0"	3.0
UH - 340	340	1C	Nexus	3.0	25°	20.0"	3.0
UH - 400A	400	2A	Nexus	3.0	40°	42.0"	3.0
UH - 401B	400	2A	Nexus	3.0	45°	42.0"	3.0

Comments:

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## NOBLE AIR, LLC

### FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: FPB - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
FPB - 010A	010	1C	Nexus	2.01	N/A	14.0"	2.60
FPB - 010B	010	1C	Nexus	2.01	N/A	14.0"	2.60
FPB - 010C	010	1C	Nexus	2.01	N/A	14.0"	2.60
FPB - 010D	010	1C	Nexus	2.01	N/A	14.0"	2.60
FPB - 010E	010	1C	Nexus	2.01	N/A	14.0"	2.60
<b>FPB - CWS - 4 Pipe System</b>							
FPB - 010A	010	1C	Nexus	3.48	N/A	28.0"	3.5
FPB - 010B	010	1C	Nexus	3.48	N/A	28.0"	3.5
FPB - 010C	010	1C	Nexus	3.48	N/A	28.0"	3.5
FPB - 010D	010	1C	Nexus	3.48	N/A	28.0"	3.5
FPB - 010F	010	1C	Nexus	3.48	N/A	28.0"	3.5

Comments:

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# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: RAD - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Temp °F	Final GPM
RAD - C000A	000	N/A	N/A	Varies	100% Open	175° F	Varies
RAD - C000B	000	N/A	N/A	Varies	100% Open	169° F	Varies
RAD - C000C	000	N/A	N/A	Varies	100% Open	180° F	Varies
RAD - C000D	000	N/A	N/A	Varies	100% Open	174° F	Varies
RAD - C000E	000	N/A	N/A	Varies	100% Open	161° F	Varies
RAD - C000F	000	N/A	N/A	Varies	100% Open	174° F	Varies
RAD - C000G	000	N/A	N/A	Varies	100% Open	167° F	Varies
RAD - C000H	000	N/A	N/A	Varies	100% Open	178° F	Varies
RAD - C000I	000	N/A	N/A	Varies	100% Open	163° F	Varies
RAD - C000J	000	N/A	N/A	Varies	100% Open	171° F	Varies
RAD - C000K	000	N/A	N/A	Varies	100% Open	166° F	Varies
RAD - C000L	000	N/A	N/A	Varies	100% Open	164° F	Varies
RAD - C000M	000	N/A	N/A	Varies	100% Open	168° F	Varies
RAD - C00N	000	N/A	N/A	Varies	100% Open	162° F	Varies

Comments:

①FTR zones controlled by local DanFoss thermostatic valves.

②Noble Air preset as needed and recorded temps to keep report continuity on RAD terms in building.

Flow is apparent and all terminals are heating.

# NOBLE AIR, LLC

## FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: RAD - HWS - 4 Pipe System

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Temp °F	Final GPM	
RAD - C105A	C105A	1B	Nexus	Varies	100% Open	176°	Varies	①②
RAD - C105	C105A	1B	Nexus	Varies	100% Open	177°	Varies	①②
RAD - C105	C105B	1B	Nexus	Varies	100% Open	172°	Varies	①②
RAD - 006	006	1B	Nexus	Varies	45°	171°	Varies	①②
RAD - C007A	007	1B	Nexus	Varies	45°	173°	Varies	①②
RAD - C007B	007	1B	Nexus	Varies	45°	176°	Varies	①②
RAD - C007C	007	1B	Nexus	Varies	45°	175°	Varies	①②
RAD - C007D	007	1B	Nexus	Varies	45°	174°	Varies	①②
RAD - C007E	007	1B	Nexus	Varies	45°	173°	Varies	①②

Comments:

①FTR zones controlled by local DanFoss thermostatic valves.

②Noble Air preset as needed and recorded temps to keep report continuity an RAD terms in building.

Flow is apparent and all terminals are heating.



## NOBLE AIR, LLC

### FLOW MEASURING STATION

JOB NAME: McCormick Place - Event Center

JOB NO.: 17-049-V1

DATE: February 14, 2018

SYSTEM TYPE: HW Loop for Domestic Water HX

Terminal Number	Service / Location	Size	Model	Design GPM	Test Set	Pressure Drop	Final GPM
HX - 1	Dom HT EXH	4"	TA STAF	250.0	8.0	2.5'	240.00
HX - 2	Dom HT EXH	4"	TA STAF	250.0	8.0	2.6'	245.00

Comments:

① Only 1 HX operates at a time.

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