NEUDORFER ENGINEERS INC.

TEST REPORT TYPE:
PRE-CONSTRUCTION SURVEY

Legacy Meridian Park MOB 1

Project Completion Date: **09/12/17**
Revision Date: **Revision Number:**

SEATTLE
5516 1st Avenue South
Seattle, Washington 98108
Phone (206) 621-1810
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2501 SE Columbia Way, Suite 230
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Phone (503) 235-8924
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Legacy Meridian Park MOB 1

Table of Contents

Neudorfer Engineers, Inc.
Consulting Engineers Seattle, Washington - Portland, Oregon
www.NeudorferEngineers.com

Report Title

CERTIFIED TEST: PRE-CONSTRUCTION SURVEY

Project: Legacy Meridian Park MOB 1

NEI Job#: 2017-952

Mechanical Engineer:

Architect:

HVAC Contractor: Total Mechanical

TAB Firm: Neudorfer Engineers Inc
Test Engineer: Philip Kuning

5516 1st Ave South
Seattle, Washington 98108
Phone (206) 621-1810
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2501 SE Columbia Way, Suite 230
Vancouver, Washington 98661
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CERTIFICATION

Legacy Meridian Park MOB 1

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems. Any variances from design quantities, which exceed NEBB tolerances, are noted in the Test-Adjust-Balance Report Project Summary.

Significant / Noteworthy Remarks are noted on the General Remarks and General Field Notes pages. Other remarks are noted on individual test sheets.

Noted deficiencies are not the TAB firms responsibility to repair. Prior to issuance of this report, Deficiency Reports are forwarded to our contracted agent.

Warranty is limited to one year from date of this report. Within that time, any discrepancies, ambiguities, or omissions found in this report will be retested, adjusted, or balanced as needed. A written notification will be required.

Submitted and Certified by:

NEBB TAB Firm: **Neudorfer Engineers Inc**

Certification No: **3414**

Expiration Date: **March 31, 2019**

Certification Date: **March 31, 2017**

(Date completed) *Signed and Sealed by:*

NEBB Supervisor: **Mike Vawter P.E.**

NEBB Supervisor: **Eric Stotts**

Terms and Abbreviations

Project: **Legacy Meridian Park MOB 1**

AC or ACU Air Conditioner or Air Conditioning Unit
AH or AHU Air Handler or Air Handling Unit
AVG Average
BHP Brake Horsepower
CAV Constant Air Volume
CBV Calbirated Balancing Valve (Circuit Setter)
CC Cooling Coil
CD Ceiling Diffuser
CFM Cubic Feet per Minute
CH Chiller
CHWS Chilled Water Supply
CHWR Chilled Water Return
e-Pioneer Place
m exhaust fans Circulating Pump
CR Ceiling Register
2016-993 Computer Room Air Conditioner
CRU Computer Room Unit
CT Cooling Tower
CU Condenser Unit
CUH Cabinet Unit Heater
CWS Condenser Water Supply
CWR Condenser Water Return
DAT Discharge Air Temperature
DB Dyr Bulb
DD Direct Drive
DDC Direct Digital Controls: EMS Control System for the HVAC
Des. Design
Dia. Diameter
Disch. Discharge
EA Exhaust Air
EAT Entering Air Temperature
Economizer Controls and components that allow an air handler to logically utilize outdoor air for cooling as opposed to the use of mechanical cooling.
EF Exhaust Fan
EG Exhaust Grille
EMCS Energy Management Control System
ERU Energy Recovery Unit
E.S.P. External Static Pressure
HRC Heat Recovery Coil
EWT Entering Water Temperature
FCU Fan Coil Unit
FD Fire Damper
FLA Full Load Amperage: Maximum amperage a motor can draw.
Flow Hood Instrument that captures air and converts the reading to CFM.
FHT Fume Hood Test
FPB Fan Powered Box
FPM Feet per Minute
FR Field Report
FT Foot, Feet
FTU Fan Terminal Unit
GPM Gallons per Minute
HC Heating Coil
TDH Pressure Difference across the entering and leaving side of a pump.
HEPA High Efficiency Particulate Arrestance
HP Horsepower
HVAC Heating Ventilation and Air Conditioning
HWS Heating Water Supply
HWR Heating Water Return
HX Heat Exchanger
HZ Hertz, cycle per second
in. inches
in.w.g. inches of water gauge
Kfactor Correction factor to the free area need to calculate CFM.
KW Kilowatts
LAT Leaving Air Temperature
LWG Low Wall Grille
LWR Low Wall Register
LWT Leaving Water Temperature
MAU Make-up Air Hangling Unit
MBH 1,000 BTUH
N/A Not Applicable
OSA Outside Air
OBD Opposed Blade Damper
∆P Pressure Drop.
PH Phase
PSI Pounds per Square Inch
RA Return Air
RAT Return Air Temperature
RF Return Fan
RH Relative Humidity
RHC Reheat Coil
RPM Revolutions per Minute
RTU Roof Top Unit
SA Supply Air
SAT Supply Air Temerature
S.F. Service Factor
SF Supply Fan
SFD Smoke/Fire Damper
SP Static Pressure
sq.ft. square feet
Suct. Suction
SWG Sidewall Grille
SWR Sidewall Register
TAB Test; Adjust; and Balance
TSP Total Static Pressure: Difference between the entering and leaving static pressure of a fan.
UH Unit Heater
VAV Variable Air Volume; box that contains a motorized damper that modulates airflow.
VD Volume Damper
VFD Variable Frequency Drive
Velgrid Instrument that reads used to read velocity in feet per minute.
VVT Variable Volume Terminal
WC Water Column
W.G. Water Gauge
WB Wet Bulb

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Legacy Meridian Park MOB 1

INSTRUMENT CALIBRATIONS

Instrument Type	Air Data Meter with Flowhood	Instrument Serial #	**M90216**
Instrument Manufacturer	**Shortridge**	Calibration Date	**5/1/2017**
Instrument Model Number	**ADM 870**		

Instrument Type	Differential Pressure Water Meter	Instrument Serial #	**W14090**
Instrument Manufacturer	**Shortridge**	Calibration Date	**2/6/2017**
Instrument Model Number	**HDM-250**		

Instrument Type	Psychrometer	Instrument Serial #	**8084305**
Instrument Manufacturer	**Extech**	Calibration Date	**11/23/2016**
Instrument Model Number	**RH390**		

Instrument Type	Tachometer	Instrument Serial #	**166489**
Instrument Manufacturer	**Hasler Bern**	Calibration Date	**11/11/2016**
Instrument Model Number	**TYPE-B**		

Instrument Type	Amp Probe	Instrument Serial #	**78212531**
Instrument Manufacturer	**Fluke**	Calibration Date	**11/16/2016**
Instrument Model Number	**36 Clamp Meter**		

Instrument Type	Digital Thermometer	Instrument Serial #	**7190028**
Instrument Manufacturer	**Fluke**	Calibration Date	**11/15/2016**
Instrument Model Number	**52**		

Instrument Type	Manometer	Instrument Serial #	**M90216**
Instrument Manufacturer	**Shortridge**	Calibration Date	**5/1/2017**
Instrument Model Number	**ADM 870**		

Instrument Type	Thermal Anemometer	Instrument Serial #	**AVM440742003**
Instrument Manufacturer	**Alnor Instruments**	Calibration Date	**11/21/2016**
Instrument Model Number	**AVM 440**		

TEST & BALANCE REPORT SUMMARY

This project has been balanced per plans and specifications using the National Environmental Balancing Bureau (NEBB) standards and procedures.

This data was recorded for an airflow survey of roof top units M1 & M2. The measurements were taken during the warmest part of the day with the economizer dampers closed and the exhaust fans off.

RTU-14 (M1)

OA temperature – 79.02 degrees F
RA temperature – 70.97 degrees F
MA temperature – 73.02 degrees F
SA discharge temperature – 52.42 degrees F

SF speed - 84.23%
SP set point – 1.75" H2O
SP actual – 1.746 ' H2O

SA 1st Floor – 3,210
SA 2nd Floor – 7,600
SA 3rd Floor – 6,256
SA total – 17,066

RA 1st Floor (1) – 3,503
RA 1st Floor (2) – 1,887
RA 2nd Floor (1) – 5,172
RA 1st Floor (2) – 1,525
RA 3rd Floor (1) – 5,723
RA 1st Floor (2) – 6,007
RA total – 23,817

RTU-15(M2)

OA temperature – 79.02 degrees F
RA temperature – 70.40 degrees F
MA temperature – 72.26 degrees F
SA discharge temperature – 55.62 degrees F

SF speed – 86.10%
SP set point – 1.75" H2O
SP actual – 1.746 ' H2O

SA 1st Floor – 6,533
SA 2nd Floor – 6,244
SA 3rd Floor – 6,972
SA total – 19,749

RA 1st Floor (1) – 1,323
RA 1st Floor (2) – 2,195
RA 2nd Floor (1) – 1,890
RA 2nd Floor (2) – 2,801
RA 3rd Floor (1) – 2,338
RA 3rd Floor (2) – 636
RA total – 11,183

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Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-14 (M1)

Tested By: Philip Kuning
Date: 9/14/2017

Test Data	
RTU-14 (M1)/Supply Fan (x 2)	
Motor Volts T1-T2	477 Volts
Motor Volts T2-T3	482 Volts
Motor Volts T1-T3	483 Volts
Motor Amps T1	35.3 Amps
Motor Amps T2	36.0 Amps
Motor Amps T3	35.8 Amps

Motor Data	
RTU-14 (M1)/Supply Fan (x 2)	
Drive Type	Belt Drive
Motor Manufacturer	Magnatek
Motor Frame	S286T
Motor HP	30 HP
Motor RPM	1760 RPM
Motor Rated Volts	460 Volts
Motor Phase	3
Motor Hertz	60 Hz
Motor FL Amps	35 Amps
Motor Service Factor	1.15
Motor Efficiency	93.0 %
Motor Power Factor	88.0 PF

Test Pressures	
SF Suction SP	-1.4 in. wc

Log:

RTU-14 (M1)	9/13/2017	Philip Kuning	SF discharge SP location unavailable.
RTU-14 (M1)/Supply Fan (x 2)	9/13/2017	Philip Kuning	VFD hertz are not displayed on controls.

Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-14 (M1)/RA 1st Floor (1)

Tested By: Philip Kuning
Date: 9/14/2017

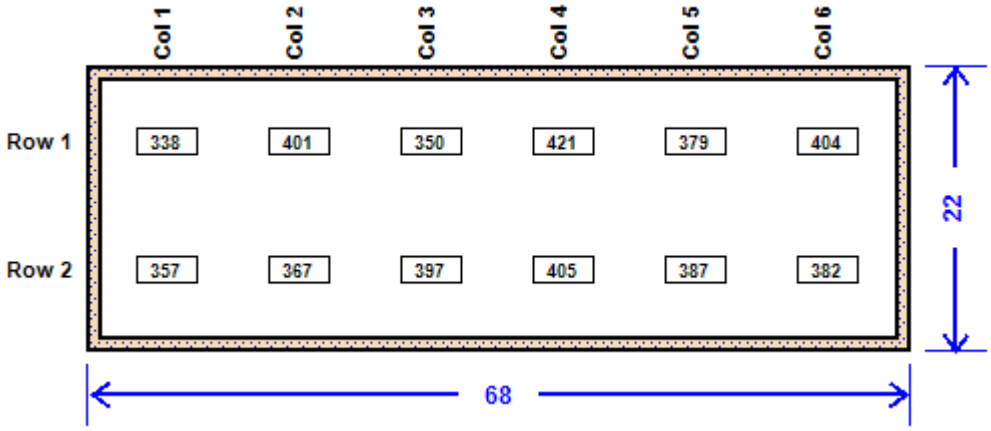
Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	68 in.
Insulation Width	1 in.
Air Flow Area	9.17 sq. ft.
Number Of Rows	2
Readings Per Row	6
Total Readings	12

Final Data	
Sum of Readings	4588
Average Reading	382 FPM
Actual Total Flow	3503 CFM

Log:

RTU-14 (M1)/RA 1st Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

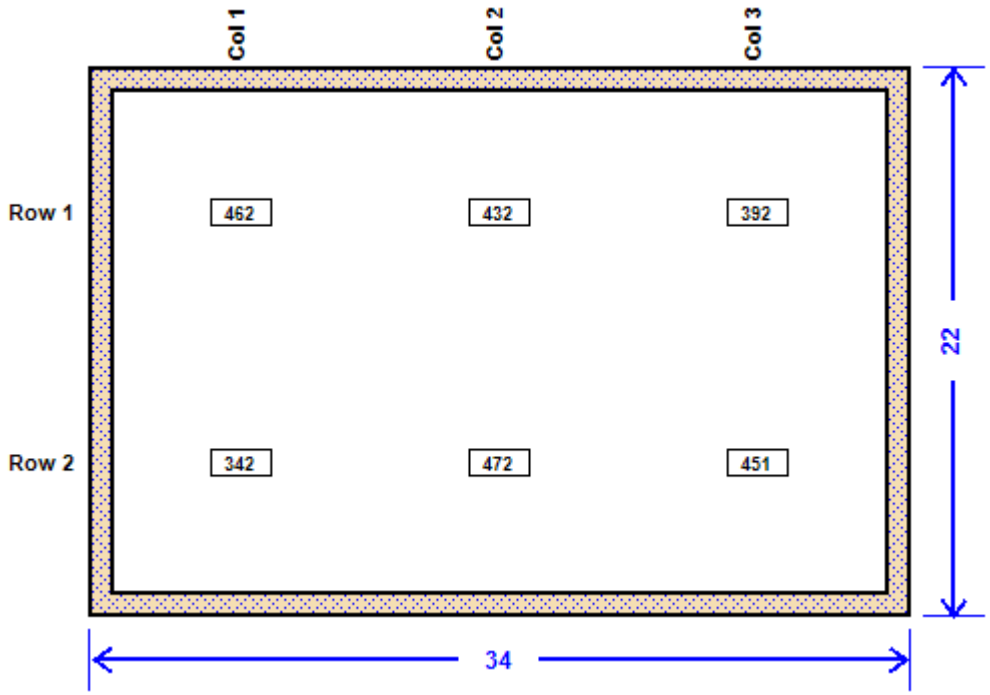
SYSTEM/UNIT: RTU-14 (M1)/RA 1st Floor (2)

Tested By: Philip Kuning
Date: 9/14/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	34 in.
Insulation Width	1 in.
Air Flow Area	4.44 sq. ft.
Number Of Rows	2
Readings Per Row	3
Total Readings	6

Final Data	
Sum of Readings	2551
Average Reading	425 FPM
Actual Total Flow	1887 CFM

Traverse Data Points



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Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-14 (M1)/RA 2nd Floor (1)

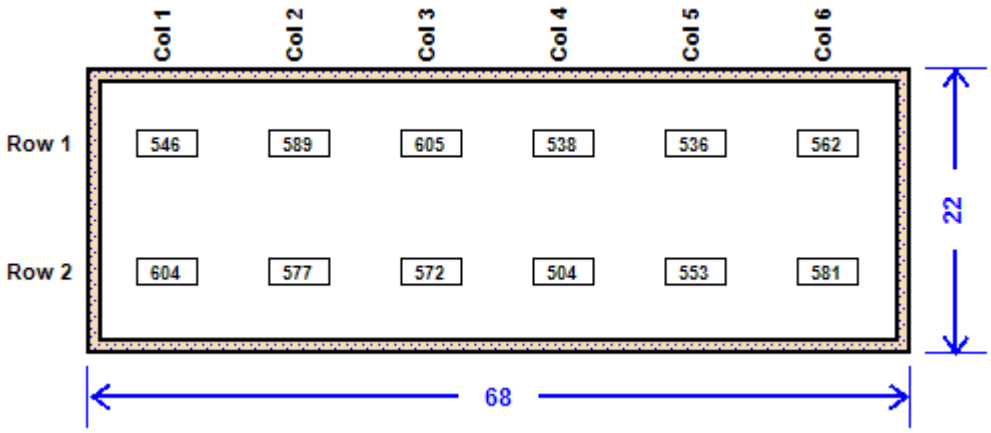
Tested By: Philip Kuning
Date: 9/14/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	68 in.
Insulation Width	1 in.
Air Flow Area	9.17 sq. ft.
Number Of Rows	2
Readings Per Row	6
Total Readings	12

Final Data	
Sum of Readings	6767
Average Reading	564 FPM
Actual Total Flow	5172 CFM

Log:				
	RTU-14 (M1)/RA 2nd Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

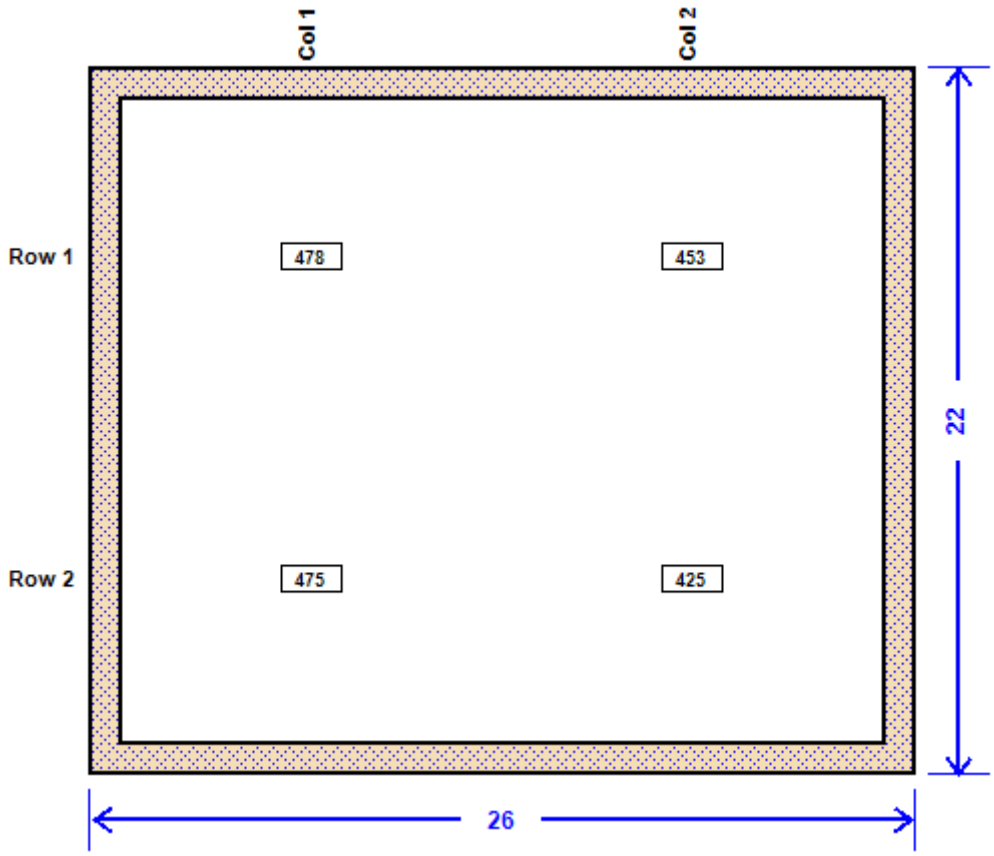
SYSTEM/UNIT: RTU-14 (M1)/RA 2nd Floor (2)

Tested By: Philip Kuning
Date: 9/14/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	26 in.
Insulation Width	1 in.
Air Flow Area	3.33 sq. ft.
Number Of Rows	2
Readings Per Row	2
Total Readings	4

Final Data	
Sum of Readings	1831
Average Reading	458 FPM
Actual Total Flow	1525 CFM

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-14 (M1)/RA 3rd Floor (1)

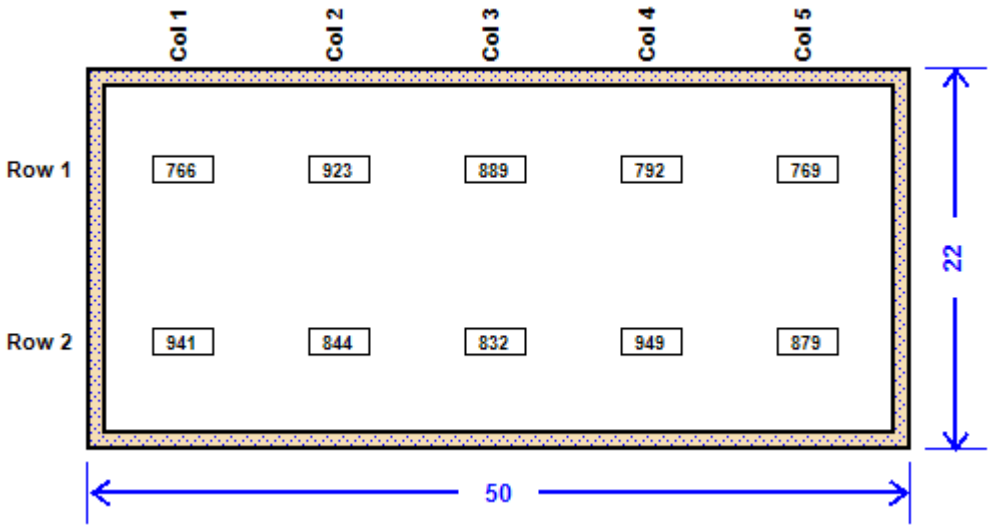
Tested By: Philip Kuning
Date: 9/14/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	50 in.
Insulation Width	1 in.
Air Flow Area	6.67 sq. ft.
Number Of Rows	2
Readings Per Row	5
Total Readings	10

Final Data	
Sum of Readings	8584
Average Reading	858 FPM
Actual Total Flow	5723 CFM

Log:				
RTU-14 (M1)/RA 3rd Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

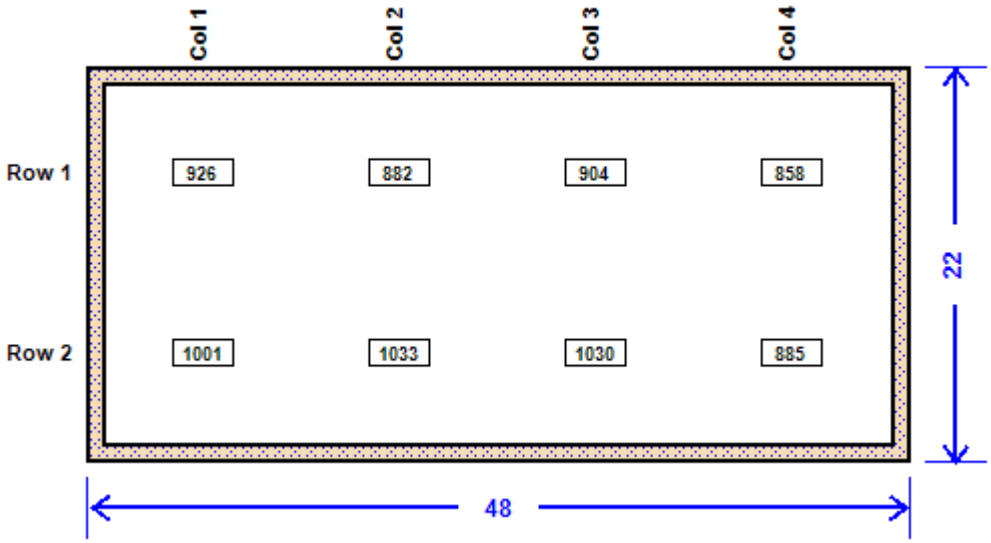
SYSTEM/UNIT: RTU-14 (M1)/RA 3rd Floor (2)

Tested By: Philip Kuning
Date: 9/14/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	22 in.
Outer Width	48 in.
Insulation Width	1 in.
Air Flow Area	6.39 sq. ft.
Number Of Rows	2
Readings Per Row	4
Total Readings	8

Final Data	
Sum of Readings	7519
Average Reading	940 FPM
Actual Total Flow	6007 CFM

Traverse Data Points



Roof Top Unit

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LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

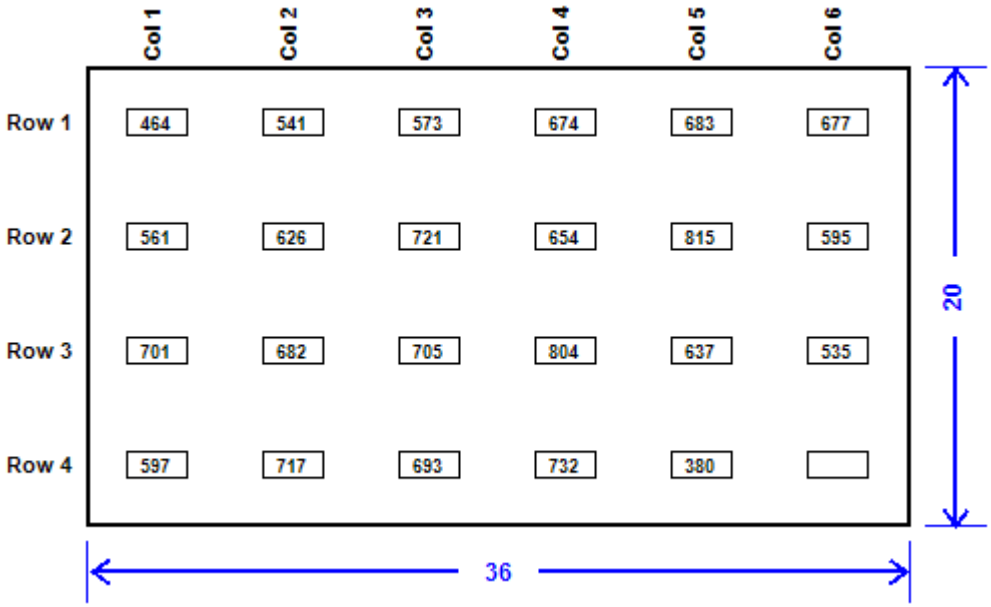
SYSTEM/UNIT: RTU-14 (M1)/SA 1st Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	36 in.
Insulation Width	0 in.
Air Flow Area	5.00 sq. ft.
Number Of Rows	4
Readings Per Row	6
Total Readings	24

Final Data	
Sum of Readings	14767
Average Reading	642 FPM
Actual Total Flow	3210 CFM
Static Pressure	1.80 in.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

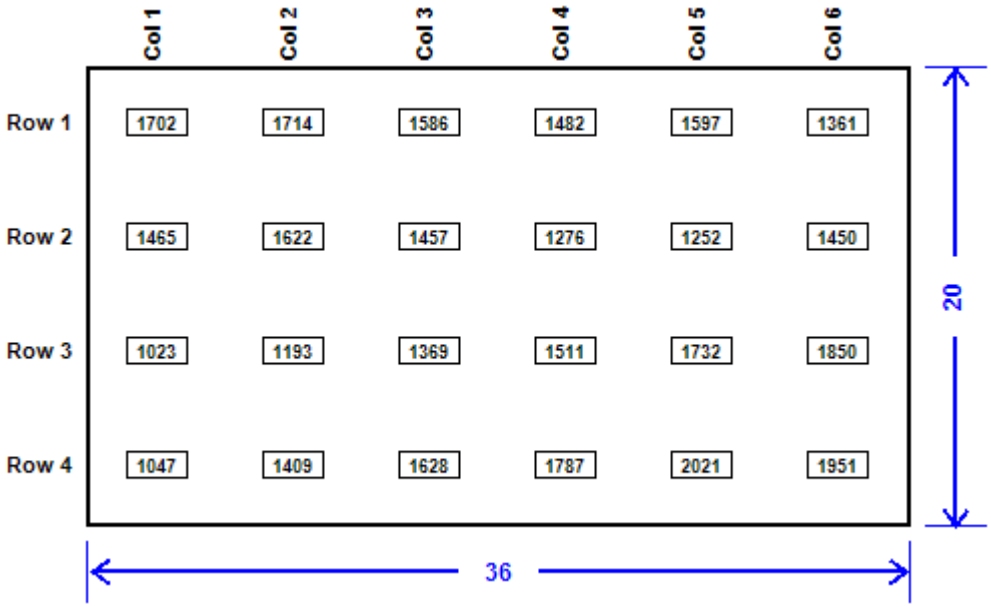
SYSTEM/UNIT: RTU-14 (M1)/SA 2nd Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	36 in.
Insulation Width	0 in.
Air Flow Area	5.00 sq. ft.
Number Of Rows	4
Readings Per Row	6
Total Readings	24

Final Data	
Sum of Readings	36485
Average Reading	1520 FPM
Actual Total Flow	7600 CFM
Static Pressure	1.40 in.

Traverse Data Points



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PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

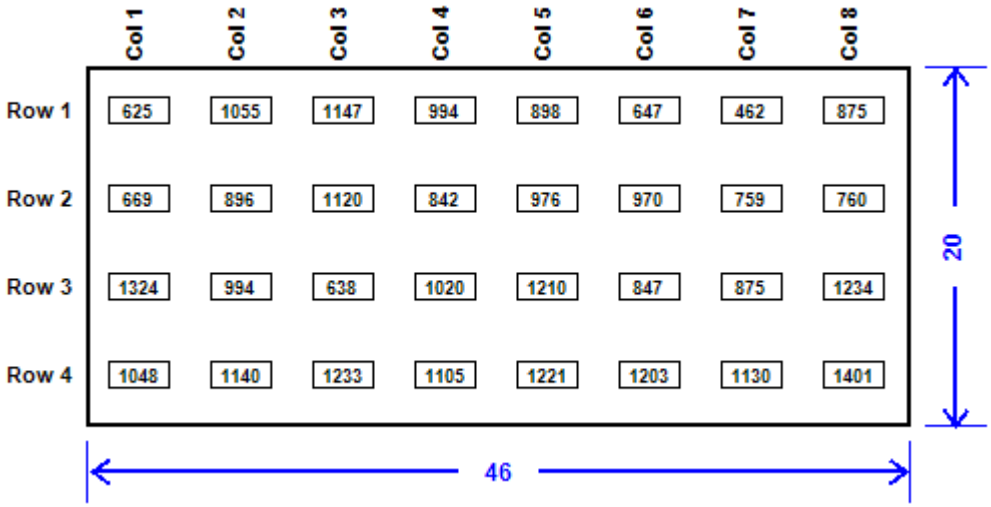
SYSTEM/UNIT: RTU-14 (M1)/SA 3rd Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	46 in.
Insulation Width	0 in.
Air Flow Area	6.39 sq. ft.
Number Of Rows	4
Readings Per Row	8
Total Readings	32

Final Data	
Sum of Readings	31318
Average Reading	979 FPM
Actual Total Flow	6256 CFM
Static Pressure	1.60 in.

Traverse Data Points



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Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)

Tested By: Philip Kuning
Date: 9/14/2017

Test Data	
RTU-15 (M2)/Supply Fan (x 2)	
Motor Volts T1-T2	476 Volts
Motor Volts T2-T3	480 Volts
Motor Volts T1-T3	480 Volts
Motor Amps T1	24.8 Amps
Motor Amps T2	25.0 Amps
Motor Amps T3	30.1 Amps

Motor Data	
RTU-15 (M2)/Supply Fan (x 2)	
Drive Type	Belt Drive
Motor Manufacturer	Magnatek
Motor Frame	324T
Motor HP	40 HP
Motor RPM	1770 RPM
Motor Rated Volts	460 Volts
Motor Phase	3
Motor Hertz	60 Hz
Motor FL Amps	47.1 Amps
Motor Service Factor	1.15
Motor Efficiency	91.0 %
Motor Power Factor	88.0 PF

Test Pressures	
SF Suction SP	-1.3 in. wc

Log:

RTU-15 (M2)	9/13/2017	Philip Kuning	SF discharge SP location unavailable.
RTU-15 (M2)/Supply Fan (x 2)	9/13/2017	Philip Kuning	VFD hertz are not displayed on controls.

Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 1st Floor (1)

Tested By: Philip Kuning
Date: 9/13/2017

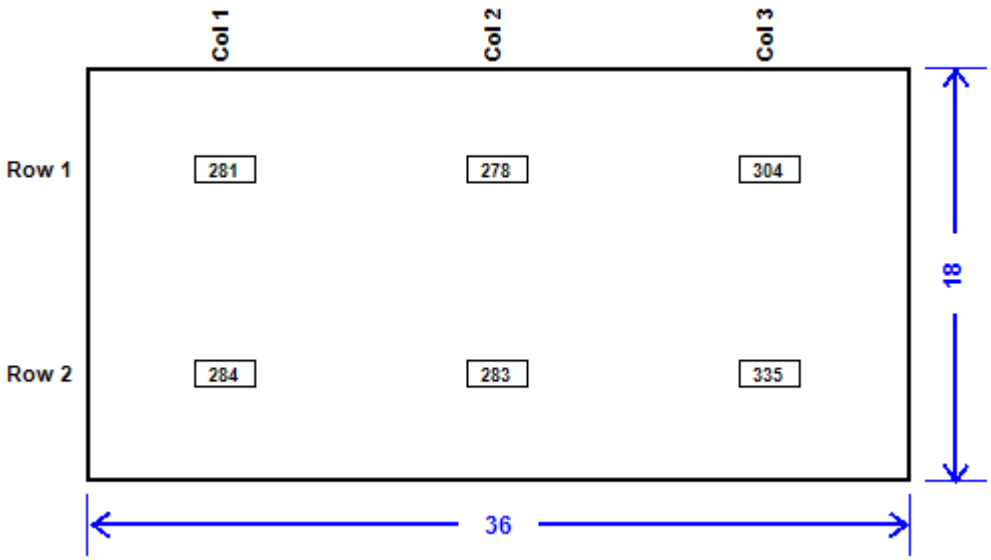
Unit Data	
Type of Traverse	Rectangular
Outer Height	18 in.
Outer Width	36 in.
Insulation Width	0 in.
Air Flow Area	4.50 sq. ft.
Number Of Rows	2
Readings Per Row	3
Total Readings	6

Final Data	
Sum of Readings	1765
Average Reading	294 FPM
Actual Total Flow	1323 CFM

Log:

RTU-15 (M2)/RA 1st Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



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DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 1st Floor (2)

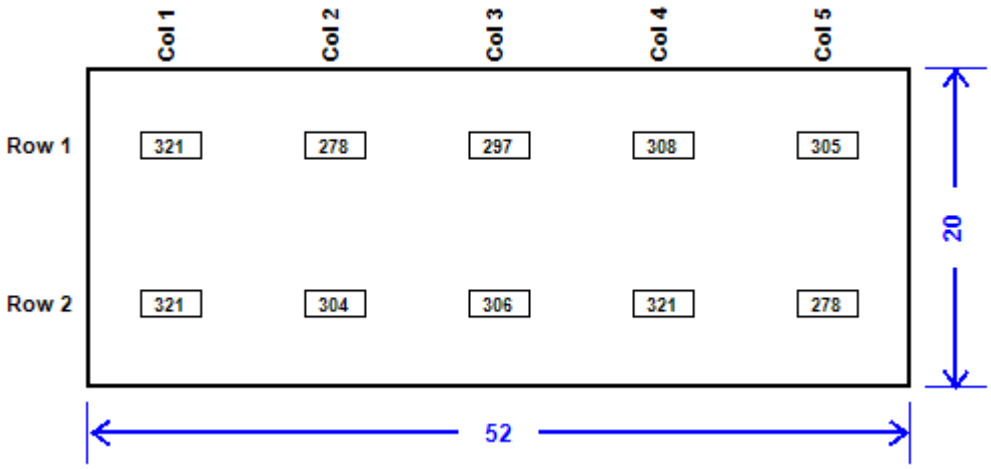
Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	52 in.
Insulation Width	0 in.
Air Flow Area	7.22 sq. ft.
Number Of Rows	2
Readings Per Row	5
Total Readings	10

Final Data	
Sum of Readings	3039
Average Reading	304 FPM
Actual Total Flow	2195 CFM

Log:				
RTU-15 (M2)/RA 1st Floor (2)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



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LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 2nd Floor (1)

Tested By: Philip Kuning
Date: 9/13/2017

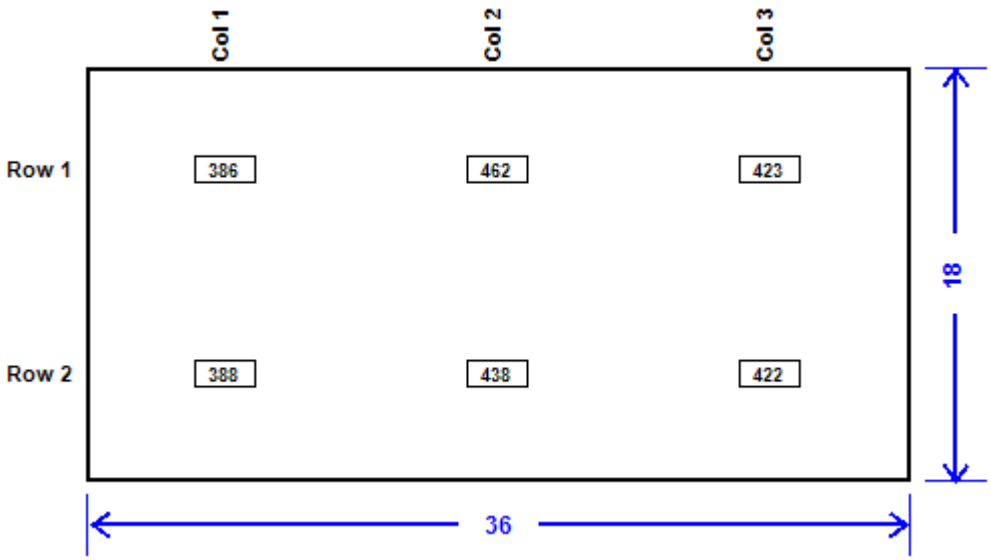
Unit Data	
Type of Traverse	Rectangular
Outer Height	18 in.
Outer Width	36 in.
Insulation Width	0 in.
Air Flow Area	4.50 sq. ft.
Number Of Rows	2
Readings Per Row	3
Total Readings	6

Final Data	
Sum of Readings	2519
Average Reading	420 FPM
Actual Total Flow	1890 CFM

Log:

RTU-15 (M2)/RA 2nd Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



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DATE: 9/14/2017
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AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 2nd Floor (2)

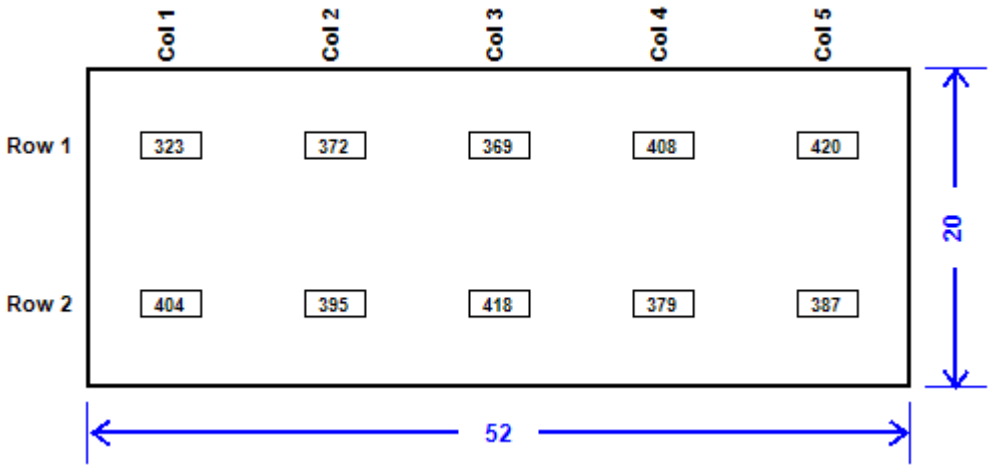
Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	52 in.
Insulation Width	0 in.
Air Flow Area	7.22 sq. ft.
Number Of Rows	2
Readings Per Row	5
Total Readings	10

Final Data	
Sum of Readings	3875
Average Reading	388 FPM
Actual Total Flow	2801 CFM

Log:				
RTU-15 (M2)/RA 2nd Floor (2)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 3rd Floor (1)

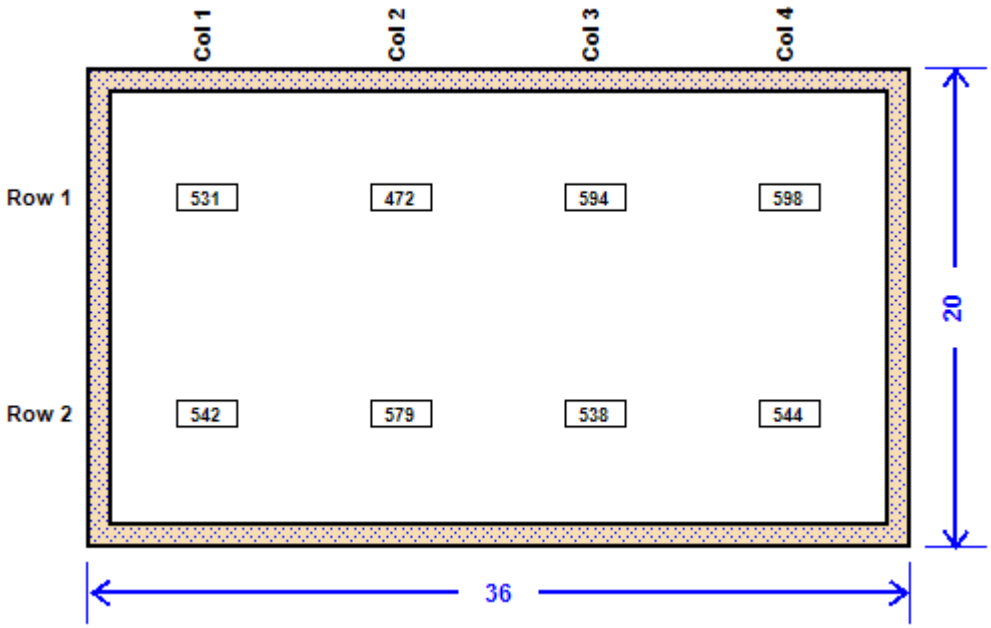
Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	36 in.
Insulation Width	1 in.
Air Flow Area	4.25 sq. ft.
Number Of Rows	2
Readings Per Row	4
Total Readings	8

Final Data	
Sum of Readings	4398
Average Reading	550 FPM
Actual Total Flow	2338 CFM

Log:				
	RTU-15 (M2)/RA 3rd Floor (1)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Neudorfer Engineers. Inc.
Consulting Engineers Seattle Portland
www.NeudorferEngineers.com

Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/RA 3rd Floor (2)

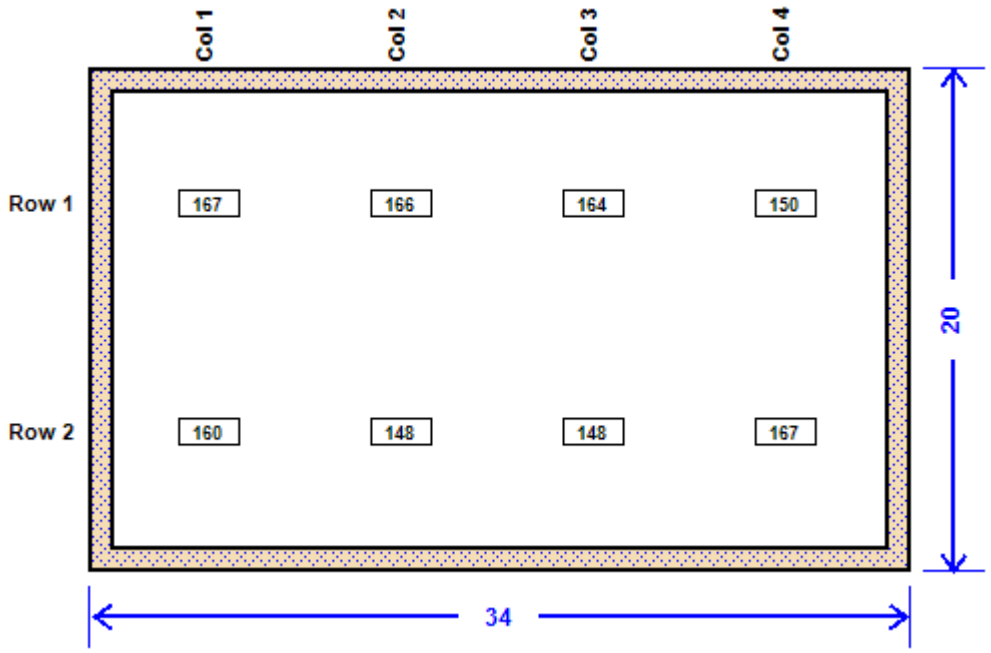
Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	20 in.
Outer Width	34 in.
Insulation Width	1 in.
Air Flow Area	4.00 sq. ft.
Number Of Rows	2
Readings Per Row	4
Total Readings	8

Final Data	
Sum of Readings	1270
Average Reading	159 FPM
Actual Total Flow	636 CFM

Log:				
RTU-15 (M2)/RA 3rd Floor (2)	9/13/2017	Philip Kuning	Airflow measurements were taken with velgrid.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

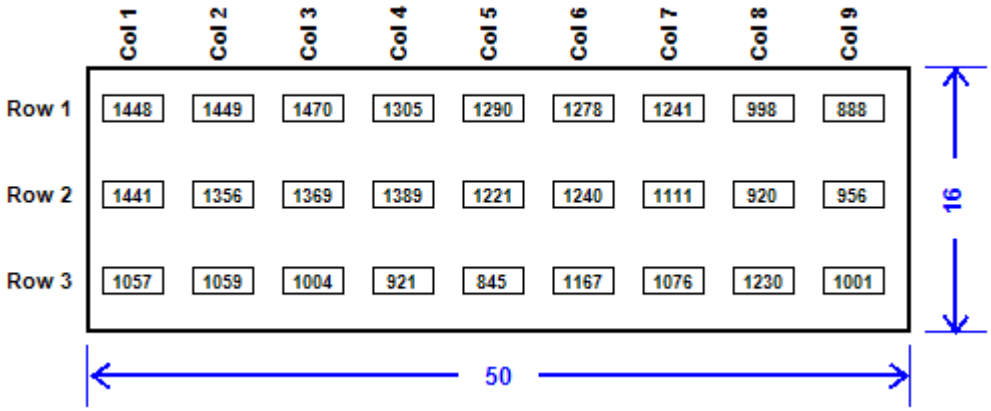
SYSTEM/UNIT: RTU-15 (M2)/SA 1st Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	16 in.
Outer Width	50 in.
Insulation Width	0 in.
Air Flow Area	5.56 sq. ft.
Number Of Rows	3
Readings Per Row	9
Total Readings	27

Final Data	
Sum of Readings	31730
Average Reading	1175 FPM
Actual Total Flow	6533 CFM
Static Pressure	1.80 in.

Traverse Data Points



Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

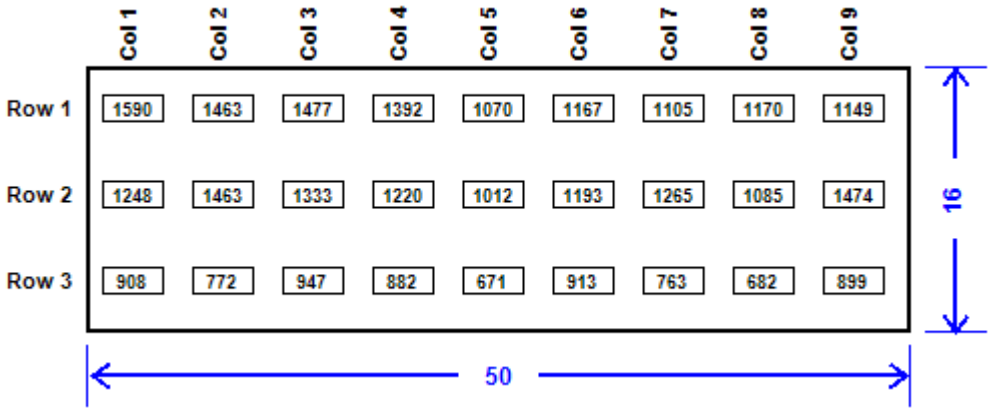
SYSTEM/UNIT: RTU-15 (M2)/SA 2nd Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	16 in.
Outer Width	50 in.
Insulation Width	0 in.
Air Flow Area	5.56 sq. ft.
Number Of Rows	3
Readings Per Row	9
Total Readings	27

Final Data	
Sum of Readings	30313
Average Reading	1123 FPM
Actual Total Flow	6244 CFM
Static Pressure	1.70 in.

Traverse Data Points



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Roof Top Unit

PROJECT: Legacy Meridian Park MOB1
LOCATION: Tualatin, OR,
PROJECT #: 2017-952

DATE: 9/14/2017
CONTACT: Philip Kuning
AUTHOR: Philip Kuning

SYSTEM/UNIT: RTU-15 (M2)/SA 3rd Floor

Tested By: Philip Kuning
Date: 9/13/2017

Unit Data	
Type of Traverse	Rectangular
Outer Height	16 in.
Outer Width	50 in.
Insulation Width	0 in.
Air Flow Area	5.56 sq. ft.
Number Of Rows	3
Readings Per Row	9
Total Readings	27

Final Data	
Sum of Readings	33852
Average Reading	1254 FPM
Actual Total Flow	6972 CFM
Static Pressure	1.60 in.

Log:

RTU-15 (M2)/SA 3rd Floor	9/12/2017	Philip Kuning	Air temperature: 61 degrees Fahrenheit.

Traverse Data Points