

Report By:

**National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246**

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Comfort. Under control.

**Report: TEST AND BALANCE
Function: Test, Adjust, & Balance
Date: 12/07/2022**

PROJECT

11-28 CULVERS - GRAND JUNCTION, CO

582 24 1/2 ROAD

GRAND JUNCTION, CO 81505

Client

Accurex

PO Box 410

Schofield, WI 54476

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

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Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

RTU's (Roof Top Units)

Each of the RTU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each RTU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

Kitchen Exhaust Hood & Associated Fans

Each kitchen exhaust fan was measured at the hood filter bay utilizing a velocity matrix and a manufacturer's correction factor. Each filter velocity is multiplied by the manufacturer's corrected area. The sum of these readings equals the total flow of the exhaust fans. The total flow of the exhaust was then adjusted to within tolerance of the design flow.

General Exhaust Fans

The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

Final Building Tests

After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of $-0.02''$ wc to $+0.02''$ wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: AHU/RTU



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Asset: RTU1

AREA:DINNING ROOM

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622D05972
Model Num	LGH156H4B	LGH156H4B
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23X14
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208/230	200/230
Rated Amperage	-	8.0/7.8

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	4 TURNS OPEN
Fan Sheave Size	-	7"
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	20.5"
Num of Belts	-	1
Belt Size	-	BX55
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	6150	6382
SF RPM	-	784
RA CFM	4000	4440
OA CFM	1750	1942
RL Voltage	-	210/211/211
RL Amperage	-	7.9/7.9/7.8
SF Rotation	-	CCW
RA Damper Position	-	60%
Min OA Damper Position	-	40%
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	MINIMUM

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.36"
Fan Suction SP	-	-0.59"
Fan Discharge SP	-	0.36"
Total ESP	-	0.72"
Fan Total SP	-	0.95"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

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Project:11-28 CULVERS - GRAND JUNCTION, CO

AHU/RTU



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Diffuser Supply (GRD)

RTU1/DINNING ROOM

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	ENTRY	SD3	8"	150	1	189	167	155	103.3
SGRD2	DINING	SD1	12"	450	1	546	517	491	109.1
SGRD3	DINING	SD1	8"	150	1	205	190	159	106.0
SGRD4	DINING	SD1	8"	150	1	175	158	158	105.3
SGRD5	DINING	SD1	8"	150	1	221	205	153	102.0
SGRD6	DINING	SD1	8"	150	1	245	166	163	108.7
SGRD7	DINING	SD1	8"	150	1	205	200	161	107.3
SGRD8	DINING	SD1	8"	150	1	182	112	159	106.0
SGRD9	DINING	SD1	8"	150	1	204	201	160	106.7
SGRD10	DINING	SD1	8"	150	1	196	206	150	100.0
SGRD11	DINING	SD1	8"	150	1	191	175	164	109.3
SGRD12	DINING	SD1	8"	150	1	287	264	156	104.0
SGRD13	DINING	SD1	8"	150	1	263	210	162	108.0
SGRD14	DINING	SD1	8"	150	1	236	182	158	105.3
SGRD15	DINING	SD1	8"	150	1	243	126	165	110.0
SGRD16	DINING	SD1	8"	150	1	166	157	154	102.7
SGRD17	DINING	SD1	10"	300	1	444	372	327	109.0
SGRD18	DINING	SD1	8"8"	150	1	297	185	156	104.0
SGRD19	DRIVE THRU	SD1	12"	500	1	333	289	457	91.4
SGRD20	OFFICE	SD1	10"	200	1	238	317	186	93.0
SGRD21	CUSTOMER SER.	SD1	8"	150	1	289	240	160	106.7
SGRD22	CUSTOMER SER.	SD1	12"	450	1	540	414	491	109.1
SGRD23	CUSTOMER SER.CUSTOMER SER.	SD1	10"	350	1	257	276	347	99.1
SGRD24	CUSTOMER SER.	SD1	10"	350	1	334	303	357	102.0
SGRD25	CUSTOMER SER.	SD1	10"	350	1	341	335	362	103.4
SGRD26	CUSTOMER SER.	SD1	10"	350	1	378	344	357	102.0
SGRD27	RESTROOM	SD4	8"	150	1	297	171	161	107.3
SGRD28	RESTROOM	SD4	8"	150	1	281	176	153	102.0

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU2

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622D06006
Model Num	LGH156H4B	LGH156H4B
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23X14
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	208/230	208/230
Rated Amperage	-	8.0/7.8

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	4 TURNS OPEN
Fan Sheave Size	-	BX-72
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	20.5"
Num of Belts	-	1
Belt Size	-	BX55
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	6150	6299
SF RPM	-	789
RA CFM	4450	4450
OA CFM	1700	1857
RL Voltage	-	210/211/211
RL Amperage	-	7.4/7.29/7.19
SF Rotation	-	CCW
RA Damper Position	-	60%
Min OA Damper Position	-	40% OPEN
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	MINIMUM

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.33"
Fan Suction SP	-	-0.48"
Fan Discharge SP	-	0.43"
Total ESP	-	0.76"
Fan Total SP	-	0.91"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

AHU/RTU



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Diffuser Supply (GRD)

RTU2/KITCHEN

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
SGRD1	KITCHEN	SD1	12"	600	1	230	295	561	93.5
SGRD2	KITCHEN	SD1	12"	600	1	670	583	582	97.0
SGRD3	KITCHEN	SD1	12"	600	1	668	634	624	104.0
SGRD4	DRY GOODS	SD1	12"	600	1	178	168	656	109.3
SGRD5	DRY GOODS	SD1	12"	600	1	686	628	640	106.7
SGRD6	KITCHEN	SD5	10"	200	1	550	467	217	108.5
SGRD7	KITCHEN	SD5	12"	350	1	651	616	357	102.0
SGRD8	KITCHEN	SD5	12"	375	1	72	62	341	90.9
SGRD9	KITCHEN	SD5	12"	400	1	387	565	360	90.0
SGRD10	KITCHEN	SD5	12"	350	1	623	664	382	109.1
SGRD11	KITCHEN	SD5	12"	400	1	722	282	432	108.0
SGRD12	KITCHEN	SD5	12"	350	1	429	405	383	109.4
SGRD13	KITCHEN	SD5	10"	250	1	491	471	273	109.2
SGRD14	KITCHEN	SD5	10"	275	1	548	535	302	109.8
SGRD15	KITCHEN	SD5	8"	125	1	162	156	121	96.8
SGRD16	RESTROOM	SD1	6"	75	1	183	189	68	90.7

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: FAN - Exhaust



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Asset: EFA1

AREA:MOP ROOM

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XCRB80	XCRB80
Serial Num	-	NL
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	GREENHECK
Frame	-	NL
Horsepower	0.01	NL
Motor Rpm	900	900
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	0.16
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	75	68
Fan RPM	885	900
Fan Rotation	-	CCW
Motor RPM	-	900
System SetPt	-	100%
RL Voltage	-	114
RL Amperage	-	0.13
Total ESP	0.125"	NA
Fan Inlet SP	-	NA
Fan Discharge SP	-	ATM

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV1

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XRED-095-D	XRED-095-D
Serial Num	-	20594322
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	0.0667	1/8
Motor Rpm	1550	1550
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	2.6
Service Factor	-	1.15

Test Data		
	Design	Actual
CFM	375	481
Fan RPM	1479	1550
Fan Rotation	-	CCW
Motor RPM	-	1550
System SetPt	-	100%
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.5"	0.53"
Fan Inlet SP	-	-0.53"

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

FAN - Exhaust



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Diffuser Ret/Exh (GRD)

PRV1/RESTROOMS

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
EGRD1	NA	NA	NA	150	1	97	154	154	102.7
EGRD2	NA	NA	NA	150	1	235	163	163	108.7
EGRD3	NA	NA	NA	150	1	305	164	164	109.3

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: FAN - Exhaust



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Asset: PRV2

AREA:HOOD 1

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XRUB-160XP-15	XCUBE-240XP-15-1-34-6
Serial Num	-	20584232
Type	UPBLAST	UPBLAST L
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	WEG
Frame	-	56HZ
Horsepower	1.29	1.5
Motor Rpm	1725	1760
Phase	3	3
Voltage (rated)	208	230/460
Amperage (rated)	-	4.83/2.42
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	VP40
Motor Bore Size	-	5/8
Motor Sheave SetPt	-	5 TURNS OPEN
Fan Sheave Size	-	4"
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	7"
Num of Belts	-	1
Belt Size	-	AX28

Test Data		
	Design	Actual
CFM	1500	1642
Fan RPM	2411	1360
Fan Rotation	-	CCW
Motor RPM	-	1760
RL Voltage	-	210/210/209
RL Amperage	-	3.1/3.1/3.14
Suction ESP	-	-1.163"
Discharge ESP	-	ATM
Total ESP	2.337"	1.163

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV3

AREA:HOOD 2

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XRUB-140-7	XRUB-140-7
Serial Num	-	20594275
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	WEG
Frame	-	56HZ
Horsepower	0.5	0.75
Motor Rpm	1725	1760
Phase	3	3
Voltage (rated)	208	230/460
Amperage (rated)	-	2.3/1.15
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	VP34S
Motor Bore Size	-	5/8"
Motor Sheave SetPt	-	5 TURNS OPEN
Fan Sheave Size	-	AK39
Fan Sheave Bore	-	3/4
Belt CL Distance	-	5"
Num of Belts	-	1
Belt Size	-	A24

Test Data		
	Design	Actual
CFM	1500	1631
Fan RPM	1377	1102
Fan Rotation	-	CCW
Motor RPM	-	1760
RL Voltage	-	209/209/210
RL Amperage	-	1.7/1.7/1.65
Suction ESP	-	-0.47"
Discharge ESP	-	ATM
Total ESP	1"	0.47"

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV4

AREA:

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	NA	XRED-095-D-8-1-17-X
Serial Num	-	20584084
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	MCMILLAN
Frame	-	NL
Horsepower	-	1/8
Motor Rpm	-	1550
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.6
Service Factor	-	NL

Test Data		
	Design	Actual
CFM	-	801
Fan RPM	-	1550
Fan Rotation	-	CCW
Motor RPM	-	1550
System SetPt	-	100%
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.51
Fan Inlet SP	-	-0.51"
Fan Discharge SP	-	ATM

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: Kitchen Hood Type I



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Asset: HD1

AREA:

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XGEP-64-S	XGEP-64-S
Job / Serial Num	-	20533285
Type	TYPE I LOW PROXIMITY	TYPE I LOW PROXIMITY
Hood length	64	64"
Hood Width	23	23"

Test Data Exhaust		
	Design	Actual
Filter Type	GREASE GRABBER	GREASEGRABBER
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.53	1.53
Filter Total AK Area	6.12	6.12
Filter1 FPM	-	318
Filter2 FPM	-	243
Filter3 FPM	-	218
Filter4 FPM	-	298
Filter Ave FPM(corr)	-	269
CFM	1500	1646

Cooking Equipment		
	Design	Actual
Item 1	-	FLAT TOP GRILL

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: Kitchen Hood Type I



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Asset: HD2

AREA:

Unit Data

	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	XXEP-83-S	XXEP-83-S
Job / Serial Num	-	20533281
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	83	83"
Hood Width	23	23"

Test Data Exhaust

	Design	Actual
Filter Type	XTRACTOR	XTRACTOR
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.53	1.53
Filter Total AK Area	7.65	7.65
Filter1 FPM	-	214
Filter2 FPM	-	186
Filter3 FPM	-	182
Filter4 FPM	-	202
Filter5 FPM	-	201
Filter Ave FPM(corr)	-	197
CFM	1500	1507

Cooking Equipment

	Design	Actual
Item 1	-	FRYER

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Project: 11-28 CULVERS - GRAND JUNCTION, CO

System/Unit: Kitchen Hood Type II



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Asset: HD3

AREA:

Unit Data		
	Design	Actual
MFG	ACCUREX	ACCUREX
Model Num	NA	XD3-42.00-S
Serial Num	-	20533289
Type	-	TYPE II
Hood length	-	42"
Hood Width	-	42"

Test Data		
	Design	Actual
Exhaust CFM	-	832

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