

Report By:

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

NATIONAL

TAB

Comfort. Under control.

Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 7/6/2022

PROJECT

06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

9601 SOUTH SANTA MONICA BLVD

BEVERLY HILLS, CA 90210

Client

KDC Construction
1442 E. Lincoln Ave

Orange, CA 92865

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

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AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HVAC SUPPLY		HVAC RETURN		HVAC OUTDOOR		OA %		HOOD MAKE-UP		HOOD EXHAUST		GENERAL EXH.	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU-1	DINING	2100	2168	1500	1829	600	339	28.6%	15.6%						
RTU-2	BOH	2100	2334	1820	2046	280	288	13.3%	12.3%						
RTU-3	KITCHEN	2500	2419	2050	1940	450	479	18.0%	19.8%						
MUA-1	COOKLINE									2764	2882				
KEF-1	HD1											1633	1712		
KEF-2	HD2											1617	1685		
EF-1	RESTROOMS													270	187
TOTALS		6700	6921	5370	5815	1330	1106			2764	2882	3250	3397	270	140

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	4094	3988
TOTAL EXHAUST	3520	3537
NET AIRFLOW	574	451

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	-0.0034
SIDE	
REAR	-0.0044
AVERAGE	-0.0039

FINAL CHECKS

- ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✔

- MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✘

- PRESSURE FALLS WITHIN IMC TOLERANCE OF +/-0.02" W.C. ✔

KITCHEN PRESSURIZATION (MUST BE NEGATIVE)

TOTALS	DESIGN	ACTUAL
TOTAL KITCHEN OA	3214	3361
TOTAL KITCHEN EXHAUST	3250	3397
NET AIRFLOW	-36	-36

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: AHU/RTU



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Asset: RTU1

AREA:DINING

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	0422C09357
Model Num	48GCLM06A2A3-0A0A0	48GCLM06A2A3-0A0A0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	27x12.5
Num Final Filter 1	-	4
Final Filter Size 1	-	16X16X2
Num Final Filter 2	-	
Final Filter Size 2	-	

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	2500
Phase	1	1
Rated Voltage	230	208/230
Rated Amperage	-	8.6

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	2100	2168
SF RPM	2310	2320
RA CFM	1500	1829
OA CFM	600	339
RL Voltage	-	244
RL Amperage	-	7.9
SF Rotation	-	CW
RA Damper Position	-	100%
Min OA Damper Position	-	100%
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	
Brake Horse Power	-	

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.16"
Fan Suction SP	-	-0.29"
Fan Discharge SP	-	0.08"
Total ESP	1.0"	0.24"
Fan Total SP	-	0.37"

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

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Notes:DIFFUSER DESIGN TOTAL = 2080CFM. UNIT SCHEDULED AT 2100CFM.

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Project:06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

AHU/RTU



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Diffuser Supply (GRD)

RTU1/DINING

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	DINING	SG2	17X7.5	260	0.885	522	264
	FINAL CFM	% to design					
	264	101.5					
SGRD2	DINING	SG1	17X7.5	260	0.885	402	272
	FINAL CFM	% to design					
	272	104.6					
SGRD3	DINING	SG2	17X7.5	260	0.885	301	252
	FINAL CFM	% to design					
	252	96.9					
SGRD4	DINING	SG1	17X7.5	260	0.885	273	267
	FINAL CFM	% to design					
	267	102.7					
SGRD5	DINING	SG2	17X7.5	260	0.885	183	258
	FINAL CFM	% to design					
	258	99.2					
SGRD6	DINING	SG1	17X7.5	260	0.885	175	269
	FINAL CFM	% to design					
	269	103.5					
SGRD7	QUEUE	SG1	17X7.5	260	0.885	143	252
	FINAL CFM	% to design					
	252	96.9					
SGRD8	QUEUE	SG1	17X7.5	260	0.885	132	270
	FINAL CFM	% to design					
	270	103.8					

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Asset	Notes
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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU2

AREA:BOH

Unit Data		
	Design	Actual
MFG	CARRIER	CARRIER
Serial Num	-	0422C09356
Model Num	48GCLM06A2A3-0A0A0	48GCLM06A2A3-0A0A0
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	27X12.5
Num Final Filter 1	-	4
Final Filter Size 1	-	16X16X2
Num Final Filter 2	-	
Final Filter Size 2	-	

Test Data		
	Design	Actual
SF CFM	2100	2334
SF RPM	2310	2004
RA CFM	1820	2046
OA CFM	280	288
RL Voltage	-	243
RL Amperage	-	7.6
SF Rotation	-	CW
RA Damper Position	-	100% open
Min OA Damper Position	-	60% open
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	
Brake Horse Power	-	

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	2500
Phase	1	1
Rated Voltage	230	208/230
Rated Amperage	-	8.6

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.11"
Fan Suction SP	-	-0.36"
Fan Discharge SP	-	0.1"
Total ESP	1.0"	0.21"
Fan Total SP	-	0.46"

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

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

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Notes:DIFFUSER DESIGN TOTALS =2250CFM. UNIT SCHEDULED AT 2100CFM. Diffuser 7 cannot be dampered down any further

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Project:06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

AHU/RTU



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Diffuser Supply (GRD)

RTU2/BOH

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	BOH	CD1	12"	400			
	FINAL CFM	% to design					
	419	104.8					
SGRD2	BOH	CD1	12"	400			
	FINAL CFM	% to design					
	382	95.5					
SGRD3	MANAGERS OFFICE	CD1	12"	450			
	FINAL CFM	% to design					
	452	100.4					
SGRD4	CUSTARD ROOM	CD1	12"	350			
	FINAL CFM	% to design					
	363	103.7					
SGRD5	DISHWASH AREA	CD1	12"	400			
	FINAL CFM	% to design					
	417	104.3					
SGRD6	RESTROOM	CD2	8"	125			
	FINAL CFM	% to design					
	124	99.2					
SGRD7	RESTROOM	CD2	8"	125			
	FINAL CFM	% to design					
	177	141.6					

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: AHU/RTU



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Asset: RTU3

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	5087678
Model Num	CASRTU1-E.151-16-7.5T1	CASRTU1-E.151-16-7.5T1
Type	-	RTU
Configuration	-	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	16X20X2
Num Final Filter 1	-	8
Final Filter Size 1	-	16X16X2
Num Final Filter 2	-	
Final Filter Size 2	-	

Test Data		
	Design	Actual
SF CFM	2500	2419
SF RPM	2304	2304
RA CFM	2050	1940
OA CFM	450	479
RL Voltage	-	243
RL Amperage	-	5.54
SF Rotation	-	CCW
RA Damper Position	-	4.4
Min OA Damper Position	-	6.6
Min OA Damper Type	-	MOTORIZED
OA Enthalpy Setpt	-	
Brake Horse Power	-	

Motor Data		
	Design	Actual
Motor MFG	-	ZIEHL-ABEGG
Frame	-	NL
Horsepower	-	1.675
Motor Rpm	-	2700
Phase	1	1
Rated Voltage	240	240
Rated Amperage	-	8.3

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.43"
Fan Suction SP	-	-1.27"
Fan Discharge SP	-	0.28"
Total ESP	1.7"	0.71"
Fan Total SP	-	1.65"

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

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

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Notes:OA SETPOINT 4.5 CURRENTLY 6.6

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Project:06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

AHU/RTU



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Diffuser Supply (GRD)

RTU3/KITCHEN

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	COOKLINE	CD1	10"	300	1	0	126
	FINAL CFM	% to design					
	126	42.0					
SGRD2	OPEN KITCHEN	CD1	12"	350	1	366	338
	FINAL CFM	% to design					
	338	96.6					
SGRD3	OPEN KITCHEN	CD1	12"	350	1	512	420
	FINAL CFM	% to design					
	420	120.0					
SGRD4	FOOD PREP	CD1	12"	350	1	236	200
	FINAL CFM	% to design					
	200	57.1					
SGRD5	COOKLINE	CD1	12"	350	1	441	345
	FINAL CFM	% to design					
	345	98.6					
SGRD6	HOOD 1	ACPSP	8"	400	3.9	509	489
	FINAL CFM	% to design					
	489	122.3					
SGRD7	HOOD 2	ACPSP	8"	400	4.75	522	501
	FINAL CFM	% to design					
	501	125.3					

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: FAN - Exhaust



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Asset: EF1

AREA:RESTROOM

Unit Data		
	Design	Actual
MFG	GREENHECK	GREENHECK
Model Num	G-070-VG	G-070-VG
Serial Num	-	19004422
Type	DOWNBLAST	DOWNBLAST
Configuration	HORIZONTAL	VERTICAL

Test Data		
	Design	Actual
CFM	270	330
Fan RPM	1542	1542
Fan Rotation	-	CW
Motor RPM	-	1542
System SetPt	-	100%
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25"	0.1"
Fan Inlet SP	-	-0.1"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	VARI-GREEN
Frame	-	NL
Horsepower	0.06	1/15
Motor Rpm	-	1750
Phase	1	1
Voltage (rated)	230	115/230
Amperage (rated)	-	1.3/0.65
Service Factor	-	1.15

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Project:06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

FAN - Exhaust



Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF1/RESTROOM

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
EGRD1	RESTROOM	EG1	8"	135	1	227	227
	FINAL CFM	% to design					
	187	138.5					
EGRD2	RESTROOM	EG1	8"	135	1	105	105
	FINAL CFM	% to design					
	140	103.7					

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: KEF1

AREA:HOOD 1

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	5087678
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1633	1712
Fan RPM	1323	1347
Fan Rotation	-	CW
Motor RPM	-	1347
System SetPt	-	63%
RL Voltage	-	243
RL Amperage	-	3.3
Total ESP	1.0"	0.7"
Fan Inlet SP	-	-0.7"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	-	1900
Phase	1	1
Voltage (rated)	230	230
Amperage (rated)	-	5.0
Service Factor	-	1.15

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Asset	Notes

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: KEF2

AREA:HOOD 2

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	5087678
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1617	1685
Fan RPM	1318	1302
Fan Rotation	-	CW
Motor RPM	-	1302
System SetPt	-	62%
RL Voltage	-	243
RL Amperage	-	3.2
Total ESP	1.0"	0.51"
Fan Inlet SP	-	-0.51"
Fan Discharge SP	-	ATM

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	-	1900
Phase	1	1
Voltage (rated)	230	230
Amperage (rated)	-	5.0
Service Factor	-	1.15

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Notes:

Asset	Notes

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: FAN - Supply



Comfort. Under control.

Asset: MAU1

AREA:COOKLINE

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	A2-D.250-20D	A2-D.250-20D
Serial Num	-	5087678
Type	MAU	MAU
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TECO
Frame	-	184T
Horsepower	2	2
Motor Rpm	-	1165
Phase	3	3
Voltage (rated)	208	230/460
Amperage (rated)	-	7.51/3.76
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment Verified	-	DD

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	NO
Flame Status (pass/fail)	-	NO
Inlet Air Temp SetPt	-	55
Discharge Air Temp SetPt	-	65
Air Flow Switch SP Actual	-	0.21"

Test Data		
	Design	Actual
CFM	2764	2882
SF RPM	1335	713
Motor RPM	-	713
RL Voltage	-	244
RL Amperage	-	4.6
Total ESP	-	NA
Fan Discharge SP	-	NA

General		
	Design	Actual
Fan Rotation Correct	-	YES

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Asset	Notes

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: Kitchen Hood Type I



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Asset: HD1

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5430 ND-2-ACPSP-F	5430 ND-2-ACPSP-F
Job / Serial Num	-	5087678
Type	TYPE I	TYPE I
Hood length	98"	98"
Hood Width	54"	54"
Supply Plenum Type	-	PERFORATED
Supply Plenum Width	24"	24"
Supply Plenum Length	118"	118"

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE	CAPTRATE
Filter Size 1	16X20	16X20
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	126
Filter2 FPM	-	149
Filter3 FPM	-	136
Filter4 FPM	-	148
Filter5 FPM	-	134
Filter6 FPM	-	134
Filter Ave FPM(corr)	-	137
CFM	1633	1712

Cooking Equipment		
	Design	Actual
Item 1	-	FLAT TOP GRILL
Item 2	-	FRYER
Item 3	-	WARMER
Item 4	-	FRYER
Item 5	-	

Test Data Supply		
	Design	Actual
Total AK Area	19.7	19.7
Kv factor (Vel)	0.89	0.89
Num of Readings	-	8
Reading1 FPM	-	101
Reading2 FPM	-	94
Reading3 FPM	-	89
Reading4 FPM	-	95
Reading5 FPM	-	94
Reading6 FPM	-	81
Reading7 FPM	-	78
Reading8 FPM	-	78
Reading9 FPM	-	
Reading10 FPM	-	
Reading11 FPM	-	
Reading12 FPM	-	
Reading13 FPM	-	
Reading14 FPM	-	
Ave FPM(corr)	-	87
CFM	1470	1525

Performance Data		
	Design	Actual
Exh-Supply Net CFM	163	187
Smoke Generation Type	-	S102
Cooking Equip Heat On	-	NONE
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES
Space Offset Temp Riser 1	-	15
Space Offset Temp Riser 2	-	
Riser Temp F (idle) Riser 1	-	72
Riser Temp F (idle) Riser 2	-	71
Ambient Room Temp	-	70.2

General		
	Design	Actual
Third Party Witness	-	ERNESTO
Third Party Company	-	KDL
Tech Witness	-	ZACK

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Notes:

Asset	Notes

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Project: 06-27 SHAKE SHACK #1380 - BEVERLY HILLS, CA

System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: HD2

AREA:

Unit Data		
	Design	Actual
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5430 ND-2-ACPSP-F	5430 ND-2-ACPSP-F
Job / Serial Num	-	5087678
Type	TYPE I LOW PROXIMITY	TYPE I
Hood length	97"	97"
Hood Width	54"	54"
Supply Plenum Type	-	PERFORATED
Supply Plenum Width	24"	24"
Supply Plenum Length	98"	98"

Test Data Exhaust		
	Design	Actual
Filter Type	CAPTRATE	CAPTRATE
Filter Size 1	16X20	16X20
Filter Qty 1	6	6
Filter AK factor size 1	2.08	2.08
Filter Total AK Area	12.48	12.48
Filter1 FPM	-	139
Filter2 FPM	-	133
Filter3 FPM	-	144
Filter4 FPM	-	133
Filter5 FPM	-	132
Filter6 FPM	-	132
Filter Ave FPM(corr)	-	135
CFM	1617	1685

Cooking Equipment		
	Design	Actual
Item 1	-	FLAT TOP GRILL
Item 2	-	FRYER
Item 3	-	WARMER
Item 4	-	FRYER
Item 5	-	

Test Data Supply		
	Design	Actual
Total AK Area	16.4	16.4
Kv factor (Vel)	0.89	0.89
Num of Readings	-	8
Reading1 FPM	-	100
Reading2 FPM	-	87
Reading3 FPM	-	97
Reading4 FPM	-	100
Reading5 FPM	-	91
Reading6 FPM	-	85
Reading7 FPM	-	97
Reading8 FPM	-	94
Reading9 FPM	-	
Reading10 FPM	-	
Reading11 FPM	-	
Reading12 FPM	-	
Reading13 FPM	-	
Reading14 FPM	-	
Ave FPM(corr)	-	93
CFM	1294	1357

Performance Data		
	Design	Actual
Exh-Supply Net CFM	323	328
Smoke Generation Type	-	S102
Cooking Equip Heat On	-	NONE
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES
Space Offset Temp Riser 1	-	15
Space Offset Temp Riser 2	-	
Riser Temp F (idle) Riser 1	-	71
Riser Temp F (idle) Riser 2	-	72
Ambient Room Temp	-	70.2

General		
	Design	Actual
Third Party Witness	-	ERNESTO
Third Party Company	-	KDL
Tech Witness	-	ZACK

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Notes:

Asset	Notes