

**Report By:**

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



**Report: FINAL TAB REPORT**  
**Function: Test, Adjust, & Balance**  
**Date: 7/12/2022**

**PROJECT**  
**06-20 CULVERS - HARTFORD, WI**

1285 E SUMNER ST

HARTFORD, WI 53027

**Client**

Captive-Aire Region #60

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI

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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 recorded at +0.011" W.C. average. This pressure falls within the recommended tolerances by the International Mechanical Code of +0.02" W.C. to -0.02" W.C. The building is designed for a net positive pressure and this measurement coincides with that requirement.

The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat "off" and 100% capture was observed. Cooking equipment was not able to be turned on while the technician was on site.

### 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	6750	6614	4795	4531	1955	2083	29.0%	31.5%						
RTU-2	Kitchen	6150	5896	4655	4334	1495	1562	24.3%	26.5%						
PRV-1	Restrooms													375	388
PRV-2	HD1											1500	1523		
PRV-3	HD2											1500	1587		
EF-1A	Mop Room													75	80
<b>TOTALS</b>		12900	12510	9450	8865	3450	3645			0	0	3000	3110	450	468

#### NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	3450	3645
TOTAL EXHAUST	3450	3578
<b>NET AIRFLOW</b>	<b>0</b>	<b>67</b>

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	0.006
SIDE	0.003
REAR	0.003
<b>AVERAGE</b>	<b>0.004</b>

#### FINAL CHECKS

- ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ✔

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- MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✔

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

NOTES:



Culvers  
Hartford, WI



Thermostats



RTU-1







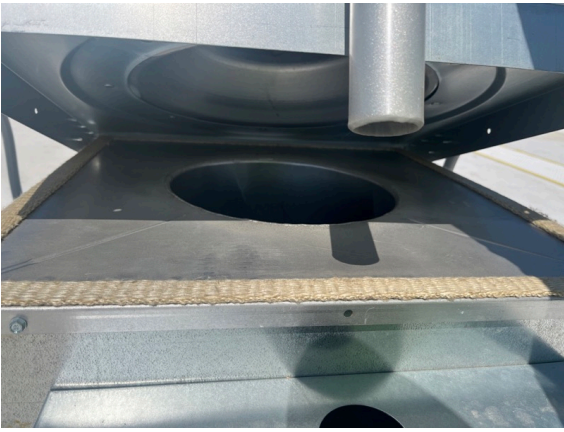
RTU-2  
Cool line diffuser installation correct



PRV-2  
HD-2 griddle



PRV-2



PRV-2  
Grease duct



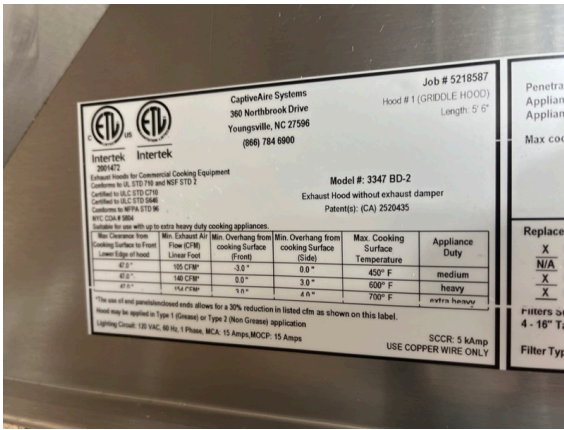
PRV-2



Captive Aire Hood HMI



HD-1  
Griddle



HD-1  
Unit label



PRV-3  
Fryer



PRV-3



PRV-3



PRV-3



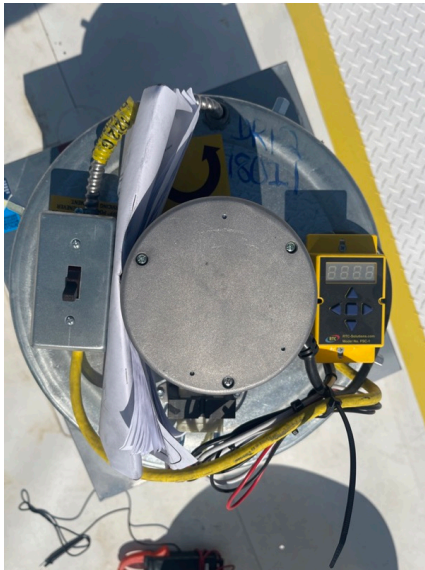
HD-2



HD-2  
Unit label



PRV-1  
Restrooms



PRV-1



PRV-1  
Backdraft damper installed and able  
To move freely.



EF-1



EF-1



Comfort. Under control.

## 06-20 CULVERS - HARTFORD, WI

### CheckList Information

**Name :** TECH - SITE PICTURES **Status :** NotSubmitted

**Assigned Organization :** National TAB **Asset :**

**Requesting Organization :** National TAB

### CheckList Item Details

STORE FRONT



FuseIT228916cb75c346fe90fb  
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RTU-1



**FuseITcebce6df5c8f44e4af2  
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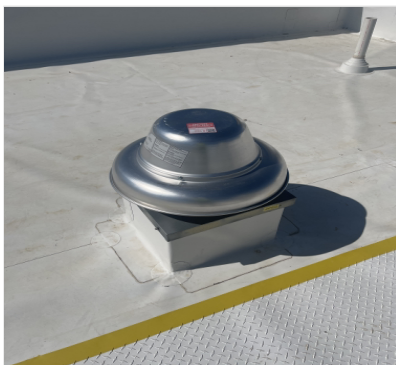
RTU-2



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PRV-1



**FuseIT990f0164ebe24bdc9ff8  
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PRV-2



**FuseIT25dfbe2feb7a40c294ec  
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PRV-3



**FuseIT35fdeb9297c84cb7ab4  
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EF-1A



**FuseITc50675087eee4fb6b86  
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HOOD 1



**FuseITe4eeae2b61c745a4975  
cbb670545a77d.jpeg**

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HOOD 2



**FuseIT413d9f1e778545dc85f  
3f8535732b15b.jpeg**

**Notes/Comments :**



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### 06-20 CULVERS - HARTFORD, WI

#### CheckList Information

**Name :** TECH - STEP 1: INITIAL WALKTHROUGH **Status :** NotSubmitted  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB

#### CheckList Item Details

##### INITIAL SITE WALKTHROUGH

All diffusers and grilles are installed and match design?	Yes
Perforated diffusers are installed on the cook line? (4-ways will disrupt hood capture)	Yes
All hood filters installed and accounted for?	Yes
Hoods are wired and have power?	Yes
Thermostats have power?	Yes
Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes
On the cookline diffusers neck is there 18" (12" minimum) straight rigid duct run attached?	Yes

##### Notes/Comments :

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### 06-20 CULVERS - HARTFORD, WI

#### CheckList Information

**Name :** TECH - STEP 2: UNIT DATA AND EVAL **Status :** NotSubmitted  
**Assigned Organization :** National TAB **Asset :**  
**Requesting Organization :** National TAB

#### CheckList Item Details

##### UNIT DATA AND EVALUATION WHILE GATHERING UNIT DATA CHECK THE FOLLOWING:

##### RTU's/AHU's

Economizers are assembled and functional?	Yes
Thermostat wire run from OCP on the RTU to the Ec terminal at the thermostat? If no, jumper can be installed from R to OCP temporarily. (The economizers will not open without OCP being energized.)	Yes
Motors are all operating below the FLA rating?	Yes
Are belts tight?	NA, direct drive units.
If direct drive unit is the speed controller working.	Yes
Is gas piping installed and valves turned on?	Yes
Unit free of noticeable noise and vibration	Yes

##### EF's

Rotation is correct?	Yes
Belts are tight?	NA, direct drive.
Grease cup installed on hood fan?	Yes
Hinge kit installed installed on hood fan?	Yes
Lean grease rated fans back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes

Flex conduit is long enough so that fan can be completely tilted back?	Yes
There is no major leakage around base of fan?	Yes
Is the motor operating below the motor FLA rating?	Yes
For restroom fan(s) is the back draft damper installed and can it fully open?	Yes
Unit free of noticeable noise and vibration?	Yes
The hood exhaust fans are installed in correct positions and are not switched?	Yes

**HOODS**

Kitchen equipment installed in proper places?	Yes
Can kitchen equipment be turned on for final smoke test?	Yes
Second stage Grease Grabber filters are installed on the griddle hood?	No

**DOCUMENTATION**

Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	Yes
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**Notes/Comments :**

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### 06-20 CULVERS - HARTFORD, WI

#### CheckList Information

**Name :** TECH - STEP 3: TEST, ADJUST AND BALANCE **Status :** NotSubmitted

**Assigned Organization :** National TAB **Asset :**

**Requesting Organization :** National TAB

#### CheckList Item Details

##### TEST, ADJUST, AND BALANCE ALL EQUIPMENT:

##### DURING TESTING MAKE NOTE OF THE FOLLOWING:

Is space free of drafting?	Yes
Is space comfortable in all areas?	Yes
Is the space free of ventilation noise?	No
If deviations from design were necessary to resolve 1-3 what were they? Otherwise put "NA".	NA

##### Notes/Comments :

[1] Diffusers>Returns close to the DOAS drops have ventilation noise. Direct drive fans.



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### 06-20 CULVERS - HARTFORD, WI

#### CheckList Information

<b>Name :</b>	TECH - STEP 4: FINAL TESTS	<b>Status :</b>	NotSubmitted
<b>Assigned Organization :</b>	National TAB	<b>Asset :</b>	
<b>Requesting Organization :</b>	National TAB		

#### CheckList Item Details

##### FINAL TESTS

##### HOOD CAPTURE TEST

List equipment turned on for testing	Fryer, Griddle
List smoke candle type used	45 second smoke emitter
Smoke test capture - Perimeter of hood	100%
Smoke test capture - Top of cooking surface	100%

##### WITNESS

Date test was completed	06/21/2022
TAB tech name / Firm	Michael McDonnell / National Tab
Site super name / Firm	Video Taped
Owner representative name / Firm (if Applicable)	NA
Building pressure at front & back doors (All Systems On)	0.004"

##### ADDITIONAL

Do actual net building airflow, design net building airflow, and pressure coincide? If not why? (All three should either be positive or negative)	yES
Thermostats are programmed?	Yes

##### PRODIGY SETTINGS FOR RTU'S

Parameter 65 set to 0	
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Parameter 78 set to 0

Parameter 105 set to 6

Parameter 156 set to 70 (Dining unit only)

Parameter 156 set to 65 (Kitchen Unit Only)

Parameter 170 set to 75 (Dining Unit Only)

Parameter 170 set to 70 (Kitchen Unit Only)

Parameter 131 set to the same % as OA minimum position?

Parameter 117 set to the same % as OA minimum position?

**Notes/Comments :**

Captive Aire DOAS units used, not Lennox. Parameters do not apply.

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI

System/Unit: AHU/RTU



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Asset: RTU1

AREA:DINING

Unit Data		
	Design	Actual
MFG	LENNOX	CAPTIVE AIRE
Serial Num	-	5218587
Model Num	LGH240-H4B	CASRTU3-1.400-24-20T-DOAS
Type	-	DOAS
Configuration	-	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data		
	Design	Actual
Motor MFG	-	WESTINGHOUSE
Frame	-	215T
Horsepower	-	10
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208/230	230
Rated Amperage	-	24.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	58.0 HZ
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	6750	6614
SF RPM	-	1697
RA CFM	4795	4531
OA CFM	1955	2083
RL Voltage	-	209 [1]
RL Amperage	-	23.9 [1]
SF Rotation	-	CCW
Min OA Damper Position	-	4.7V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	NA
Brake Horse Power	-	9.83

Performance Data		
	Design	Actual
MA Plenum SP	-	-1.02"
Fan Suction SP	-	-2.74"
Fan Discharge SP	-	0.39"
Total ESP	-	1.41" [2]
Fan Total SP	-	3.13" [2]

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

Completed By: Michael McDonnell

Notes:[1] TAKEN FROM VFD [2] HIGH STATIC PRESSURE. VERIFIED DUCTWORK CONFORMS TO PLANS AND ALL RETURN DAMPERS ARE OPEN. [3] RECOMMEND LARGER P-TRAP ON CONDENSATE DRAIN DUE TO HIGH STATIC PRESSURE.

# National TAB

Project:06-20 CULVERS - HARTFORD, WI

## AHU/RTU



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### Diffuser Supply (GRD)

#### RTU1/DINING

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	DINING	SD1	8"	150	1.0	183	173
	<b>FINAL CFM</b>	<b>% to design</b>					
	139	92.7					
SGRD2	DINING	SD1	8"	150	1.0	220	175
	<b>FINAL CFM</b>	<b>% to design</b>					
	149	99.3					
SGRD3	DINING	SD1	8"	150	1.0	236	170
	<b>FINAL CFM</b>	<b>% to design</b>					
	153	102.0					
SGRD4	DINING	SD1	8"	150	1.0	302	183
	<b>FINAL CFM</b>	<b>% to design</b>					
	154	102.7					
SGRD5	DINING	SD1	8"	150	1.0	249	168
	<b>FINAL CFM</b>	<b>% to design</b>					
	143	95.3					
SGRD6	DINING	SD1	8"	150	1.0	277	174
	<b>FINAL CFM</b>	<b>% to design</b>					
	144	96.0					
SGRD7	DINING	SD1	8"	150	1.0	209	188
	<b>FINAL CFM</b>	<b>% to design</b>					
	149	99.3					
SGRD8	DINING	SD1	8"	150	1.0	231	169
	<b>FINAL CFM</b>	<b>% to design</b>					
	154	102.7					
SGRD9	DINING	SD1	8"	150	1.0	315	184
	<b>FINAL CFM</b>	<b>% to design</b>					
	153	102.0					
SGRD10	DINING	SD1	8"	150	1.0	239	172
	<b>FINAL CFM</b>	<b>% to design</b>					
	161	107.3					
SGRD11	DINING	SD1	8"	150	1.0	269	154
	<b>FINAL CFM</b>	<b>% to design</b>					

	156	104.0					
SGRD12	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	211	194
	<b>FINAL CFM</b>	<b>% to design</b>					
	143	95.3					
SGRD13	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	325	215
	<b>FINAL CFM</b>	<b>% to design</b>					
	158	105.3					
SGRD14	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	272	178
	<b>FINAL CFM</b>	<b>% to design</b>					
	164	109.3					
SGRD15	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	201	145
	<b>FINAL CFM</b>	<b>% to design</b>					
	139	92.7					
SGRD16	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	224	169
	<b>FINAL CFM</b>	<b>% to design</b>					
	145	96.7					
SGRD17	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	277	156
	<b>FINAL CFM</b>	<b>% to design</b>					
	159	106.0					
SGRD18	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DINING	SD1	8"	150	1.0	310	198
	<b>FINAL CFM</b>	<b>% to design</b>					
	164	109.3					
SGRD19	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	HALL	SD1	12"	450	1.0	535	464
	<b>FINAL CFM</b>	<b>% to design</b>					
	418	92.9					
SGRD20	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	MAIN ENTRY	SD3	8"	150	1.0	18	173
	<b>FINAL CFM</b>	<b>% to design</b>					
	144	96.0					
SGRD21	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	MEN RR	SD4	8"	150	1.0	199	150
	<b>FINAL CFM</b>	<b>% to design</b>					
	136	90.7					
SGRD22	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	WOMEN RR	SD4	8"	150	1.0	180	168
	<b>FINAL CFM</b>	<b>% to design</b>					
	153	102.0					
SGRD23	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	CUSTOMER SERVICE	SD1	10"	350	1.0	418	329
	<b>FINAL CFM</b>	<b>% to design</b>					
	329	94.0					
SGRD24	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	CUSTOMER SERVICE	SD1	10"	350	1.0	417	304
	<b>FINAL CFM</b>	<b>% to design</b>					
	328	93.7					
SGRD25	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>

	CUSTOMER SERVICE	SD1	10"	350	1.0	441	419
	<b>FINAL CFM</b>	<b>% to design</b>					
	321	91.7					
SGRD26	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	CUSTOMER SERVICE	SD1	10"	350	1.0	362	300
	<b>FINAL CFM</b>	<b>% to design</b>					
	339	96.9					
SGRD27	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	CUSTOMER ORDER AREA	SD1	12"	450	1.0	413	266
	<b>FINAL CFM</b>	<b>% to design</b>					
	436	96.9					
SGRD28	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DRINKS & CONDIMENTS	SD1	10"	300	1.0	407	367
	<b>FINAL CFM</b>	<b>% to design</b>					
	308	102.7					
SGRD29	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	SIDE ENTRY	SD1	10"	300	1.0	445	365
	<b>FINAL CFM</b>	<b>% to design</b>					
	302	100.7					
SGRD30	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DRIVE THRU	SD1	12"	500	1.0	367	340
	<b>FINAL CFM</b>	<b>% to design</b>					
	461	92.2					
SGRD31	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	OFFICE	SD1	10"	200	1.0	250	238
	<b>FINAL CFM</b>	<b>% to design</b>					
	212	106.0					

Completed By: Brian Turnbough on

Asset	Notes
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# National TAB

Project: 06-20 CULVERS - HARTFORD, WI

System/Unit: AHU/RTU



Comfort. Under control.

Asset: RTU2

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	LENNOX	CAPTIVE AIRE
Serial Num	-	5218587
Model Num	LGH210H4B	CASRTU3-1.400-24-20T-DOAS
Type	-	DOAS
Configuration	-	VERTICAL
Num OA Filters 1	-	4
OA Filter Size 1	-	16X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	20X25X2
Num Final Filter 2	-	NA
Final Filter Size 2	-	NA

Motor Data		
	Design	Actual
Motor MFG	-	WESTINGHOUSE
Frame	-	215T
Horsepower	-	10.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208/230	230
Rated Amperage	-	24.3

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	57.0 HZ
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	6150	5896
SF RPM	-	1667
RA CFM	4655	4334
OA CFM	1495	1562
RL Voltage	-	210 [1]
RL Amperage	-	22.1 [1]
SF Rotation	-	CCW
Min OA Damper Position	-	4.3V
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	NA
Brake Horse Power	-	9.09

Performance Data		
	Design	Actual
MA Plenum SP	-	-1.21"
Fan Suction SP	-	-2.84"
Fan Discharge SP	-	0.37"
Total ESP	-	1.58" [2]
Fan Total SP	-	3.21" [2]

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

Completed By: Michael McDonnell

Notes:[1] TAKEN FROM VFD [2] HIGH STATIC PRESSURE. VERIFIED DUCTWORK CONFORMS TO PLANS AND ALL RETURN DAMPERS NOT CLOSED. [3] RECOMMEND LARGER P-TRAP ON CONDENSATE DRAIN DUE TO HIGH STATIC PRESSURE.

# National TAB

Project:06-20 CULVERS - HARTFORD, WI

## AHU/RTU



Comfort. Under control.

### Diffuser Supply (GRD)

#### RTU2/KITCHEN

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
SGRD1	SUNDAE SERVICE	SD1	12"	600	1	244	358
	<b>FINAL CFM</b>	<b>% to design</b>					
	568	94.7					
SGRD2	SUNDAE SERVICE	SD1	12"	600	1	258	324
	<b>FINAL CFM</b>	<b>% to design</b>					
	556	92.7					
SGRD3	COOK LINE	SD5	10"	200	1	266	278
	<b>FINAL CFM</b>	<b>% to design</b>					
	194	97.0					
SGRD4	COOK LINE	SD5	12"	375	1	279	279
	<b>FINAL CFM</b>	<b>% to design</b>					
	372	99.2					
SGRD5	FOOD PREP	SD5	12"	400	1	490	504
	<b>FINAL CFM</b>	<b>% to design</b>					
	398	99.5					
SGRD6	FOOD PREP	SD5	12"	400	1	371	372
	<b>FINAL CFM</b>	<b>% to design</b>					
	390	97.5					
SGRD7	COOK LINE	SD5	10"	250	1	320	318
	<b>FINAL CFM</b>	<b>% to design</b>					
	252	100.8					
SGRD8	COOK LINE	SD5	10"	275	1	276	329
	<b>FINAL CFM</b>	<b>% to design</b>					
	271	98.5					
SGRD9	DISHWASHING	SD5	12"	350	1	702	690
	<b>FINAL CFM</b>	<b>% to design</b>					
	348	99.4					
SGRD10	DISHWASHING	SD5	12"	350	1	472	456
	<b>FINAL CFM</b>	<b>% to design</b>					
	340	97.1					
SGRD11	DISHWASHING	SD5	12"	350	1	566	592
	<b>FINAL CFM</b>	<b>% to design</b>					

	346	98.9					
SGRD12	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	ALCOVE	SD5	8"	125	1	101	224
	<b>FINAL CFM</b>	<b>% to design</b>					
	119	95.2					
SGRD13	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	EMPLOYEE RESTROOM	SD1	6"	75	1	451	128
	<b>FINAL CFM</b>	<b>% to design</b>					
	72	96.0					
SGRD14	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DRY GOODS	SD1	12"	600	1	390	406
	<b>FINAL CFM</b>	<b>% to design</b>					
	568	94.7					
SGRD15	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	DRY GOODS	SD1	12"	600	1	333	423
	<b>FINAL CFM</b>	<b>% to design</b>					
	553	92.2					
SGRD16	<b>Location</b>	<b>Type</b>	<b>Size</b>	<b>DESIGN CFM</b>	<b>AK</b>	<b>CFM(1)</b>	<b>CFM(2)</b>
	UTILITY ROOM	SD1	12"	600	1	353	465
	<b>FINAL CFM</b>	<b>% to design</b>					
	549	91.5					

Completed By: Brian Turnbough on

Asset	Notes
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# National TAB

Project: 06-20 CULVERS - HARTFORD, WI  
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF-A1

AREA:MOP ROOM

Unit Data		
	Design	Actual
MFG	ACCUREX	NL
Model Num	XCR-B80	L16
Serial Num	-	990714828A
Type	CEILING	CEILING
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	75	80
Fan RPM	885	DD
Fan Rotation	-	CCW
Motor RPM	-	DD
System SetPt	-	WIRED LOW SPEED
RL Voltage	-	121
RL Amperage	-	0.71
Total ESP	0.125	0.093"
Fan Inlet SP	-	ATM
Fan Discharge SP	-	0.093"

Motor Data		
	Design	Actual
Motor MFG	-	NL
Frame	-	NL
Horsepower	0.0	NL
Motor Rpm	900	NL
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.1
Service Factor	-	NL

Completed By: Michael McDonnell

Notes:

Asset	Notes

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI  
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV1

AREA:RESTROOM

Unit Data		
	Design	Actual
<b>MFG</b>	ACCUREX	CAPTIVE AIRE
<b>Model Num</b>	XRED-095-D	DR12HFA
<b>Serial Num</b>	-	5218587
<b>Type</b>	DOWNBLAST	DOWNBLAST
<b>Configuration</b>	HORIZONTAL	VERTICAL

Test Data		
	Design	Actual
<b>CFM</b>	375	388
<b>Fan RPM</b>	1479	1233
<b>Fan Rotation</b>	-	CCW
<b>Motor RPM</b>	-	1233
<b>System SetPt</b>	-	65%
<b>RL Voltage</b>	-	120
<b>RL Amperage</b>	-	1.68
<b>Total ESP</b>	0.5"	0.18"
<b>Fan Inlet SP</b>	-	-0.18"
<b>Fan Discharge SP</b>	-	ATM

Motor Data		
	Design	Actual
<b>Motor MFG</b>	-	TELCO GREEN
<b>Frame</b>	-	NL
<b>Horsepower</b>	0.0667	0.25
<b>Motor Rpm</b>	1550	1800
<b>Phase</b>	1	1
<b>Voltage (rated)</b>	115	115
<b>Amperage (rated)</b>	-	2.9
<b>Service Factor</b>	-	NL

Completed By: Michael McDonnell

Notes:

# National TAB

Project:06-20 CULVERS - HARTFORD, WI

## FAN - Exhaust



Comfort. Under control.

### Diffuser Ret/Exh (GRD)

#### PRV1/RESTROOM

Asset	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)
EGRD1	MEN'S RESTROOM	EG-1	8X8	150	178	147	147
	<b>FINAL CFM</b>	<b>% to design</b>					
	147	98.0					
EGRD2	WOMEN'S RESTROOM	EG-1	8X8	150	190	162	162
	<b>FINAL CFM</b>	<b>% to design</b>					
	162	108.0					
EGRD3	EMPLOYEE RESTROOM	EG-1	8X8	75	124	79	79
	<b>FINAL CFM</b>	<b>% to design</b>					
	79	105.3					

Completed By: Brian Turnbough on

Asset	Notes
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# National TAB

Project: 06-20 CULVERS - HARTFORD, WI  
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV2

AREA:HD1 GRIDDLE

Unit Data		
	Design	Actual
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRUB-160XP-15	DU85HFA
Serial Num	-	5218587
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1500	1523
Fan RPM	2411	1236
Fan Rotation	-	CCW
Motor RPM	-	1236
RL Voltage	-	210/209/209
RL Amperage	-	2.0/2.0/2.0
Suction ESP	-	-0.83"
Discharge ESP	-	ATM
Total ESP	2.337"	0.83"

Motor Data		
	Design	Actual
Motor MFG	-	HSSA
Frame	-	NL
Horsepower	1.5	3/4
Motor Rpm	1725	1725
Phase	3	3
Voltage (rated)	208	208-230
Amperage (rated)	-	2.6-2.5
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	43.0 HZ
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Completed By: Michael McDonnell

Notes:

Asset	Notes

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI  
System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: PRV3

AREA:HD2 FRYER

Unit Data		
	Design	Actual
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XRUB-140-7	DU85HFA
Serial Num	-	5218587
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Test Data		
	Design	Actual
CFM	1500	1588
Fan RPM	1377	1348
Fan Rotation	-	CCW
Motor RPM	-	1348
RL Voltage	-	208/208/209
RL Amperage	-	2.2/2.2/2.2
Suction ESP	-	-0.92"
Discharge ESP	-	ATM
Total ESP	1.0"	0.92"

Motor Data		
	Design	Actual
Motor MFG	-	H
Frame	-	NL
Horsepower	0.75	0.75
Motor Rpm	1725	1725
Phase	3	3
Voltage (rated)	208	208-230
Amperage (rated)	-	2.6
Service Factor	-	1.15

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	46.9 HZ
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Completed By: Michael McDonnell

Notes:

Asset	Notes

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI

## System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: HD1

AREA:GRIDDLE

Unit Data		
	Design	Actual
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XGEP-64-S	3347 BD-2
Job / Serial Num	-	5218587
Type	TYPE I LOW PROXIMITY	TYPE I LOW
Hood length	64"	66"
Hood Width	23"	33"

Test Data Exhaust		
	Design	Actual
Filter Type	GREASE GRABBER	GREASE STOP SOLO FILTERS
Filter Size 1	16X16	16X16
Filter Qty 1	4	4
Filter AK factor size 1	1.53	1.62
Filter Total AK Area	6.12	6.48
Filter1 FPM	-	241
Filter2 FPM	-	232
Filter3 FPM	-	242
Filter4 FPM	-	223
Filter Ave FPM(corr)	-	235
CFM	-	1523

Cooking Equipment		
	Design	Actual
Item 1	-	GRIDDLE
Item 2	-	

Performance Data		
	Design	Actual
Smoke Generation Type	-	45 SEC SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	Actual
Third Party Witness	-	VIDEO TAPED
Third Party Company	-	VIDEO TAPED
Tech Witness	-	MICHAEL MCDONNELL

Completed By: Michael McDonnell

Notes:

Asset	Notes

# National TAB

Project: 06-20 CULVERS - HARTFORD, WI

## System/Unit: Kitchen Hood Type I



Comfort. Under control.

Asset: HD2

AREA:FRYERS

Unit Data		
	Design	Actual
MFG	ACCUREX	CAPTIVE AIRE
Model Num	XXEP-83-S	3347 BD-2
Job / Serial Num	-	5218587
Type	TYPE I LOW PROXIMITY	TYPE I LOW
Hood length	83"	84"
Hood Width	23"	33"

Performance Data		
	Design	Actual
Smoke Generation Type	-	45 SEC SMOKE EMITTER
Hood Capture %	-	100%
End Panels Installed (Y/N)	-	YES

General		
	Design	Actual
Third Party Witness	-	VIDEO TAPED
Third Party Company	-	VIDEO TAPED
Tech Witness	-	MICHAEL MCDONNELL

Test Data Exhaust		
	Design	Actual
Filter Type	X-TRACTOR STAINLESS STEEL	GREASE STOPER SOLO
Filter Size 1	16X16	16x16
Filter Qty 1	5	5
Filter AK factor size 1	1.53	1.62
Filter Total AK Area	7.65	8.1
Filter1 FPM	-	194
Filter2 FPM	-	200
Filter3 FPM	-	195
Filter4 FPM	-	193
Filter5 FPM	-	196
Filter Ave FPM(corr)	-	196
CFM	-	1588

Cooking Equipment		
	Design	Actual
Item 1	-	FRYER

Completed By: Michael McDonnell

Notes:

Asset	Notes

E5 H1

DRIVE THRU  
LEFT SIDE  
SEE SITE PLAN FOR  
NORTH ORIENTATION  
RIGHT SIDE

