Report By:

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

Report: INSPECTION REPORT

Function: Test, Adjust, & Balance

Date: 09/11/2023

PROJECT

09-11-2023 WENDY'S - PLOVER, WI

Commons Circle

Plover, WI 54467

Client

Diversified Heating and Air

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Project: 09-11-2023 WENDY'S - PLOVER, WI

Table Of Contents

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.

DOAS w/ Diffusers

Each of the DOAS were measured at their terminal devices or via traverse to establish a total flow for that unit. Each DOAS 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. . Any EF's that fell outside of this tolerance is noted throughout the report.

General Exhaust Fans w/ Grilles

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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System/Unit: AHU/RTU

Asset: OAU1 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	5800852
Model Num	CASRTU2-I.300-15-10T	CASRTU2-I.300-15-10T
Type	RTU	DOAS
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	145T
Horsepower	2.00	2.0
Motor Rpm	-	1740
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	5.48

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	59.0 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	2200	2182
SF RPM	-	1711
RA CFM	0	0
OA CFM	2200	2182
RL Voltage	-	207 [1]
RL Amperage	-	4.9 [1]
SF Rotation	-	CORRECT
RA Damper Position	-	0%
Min OA Damper Position	-	100% (10.0 V)
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	**Actual**
Fan Discharge SP	-	0.418"

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

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Notes:
[1] READING TAKEN FROM VFD
[2] UNIT OCCUPANCY INTERLOCKED WITH HOOD OPERATION.

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Project:09-11-2023 WENDY'S - PLOVER, WI

AHU/RTU

Diffuser Supply (GRD)

OAU1/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
DAU1-SGRD1	KITCHEN	SD3	10"	250	1.0	230	220	245	98.0
DAU1-SGRD2	KITCHEN	SD2	10"	245	1.0	257	248	224	91.4
DAU1-SGRD3	KITCHEN	SD2	10"	245	1.0	287	284	253	103.3
DAU1-SGRD4	KITCHEN	SD2	10"	245	1.0	244	286	234	95.5
DAU1-SGRD5	KITCHEN	SD2	10"	245	1.0	187	201	228	93.1
DAU1-SGRD6	KITCHEN	SD2	10"	245	1.0	231	241	264	107.8
DAU1-SGRD7	KITCHEN	SD3	10"	245	1.0	263	245	253	103.3
DAU1-SGRD8	KITCHEN	SD3	10"	245	1.0	200	212	236	96.3
DAU1-SGRD9	KITCHEN	SD3	10"	245	1.0	244	294	245	100.0
Total				2210		2143	2231	2182	98.73%

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Project: 09-11-2023 WENDY'S - PLOVER, WI

System/Unit: AHU/RTU

Asset: RTU1 AREA:KITCHEN

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Serial Num	-	5800852
Model Num	CASRTU2-I.150-18-10T	CASRTU2-I.150-18-10T
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	2
OA Filter Size 1	-	20X25X2
Num Final Filter 1	-	8
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO WESTINGHOUSE
Frame	-	182T
Horsepower	3.00	3.0
Motor Rpm	-	1755
Phase	3	3
Rated Voltage	208	230
Rated Amperage	-	8.6

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	62.0 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	3000	3037
SF RPM	-	1814
RA CFM	2100	2087
OA CFM	900	950
RL Voltage	-	180 [1]
RL Amperage	-	7.7 [1]
SF Rotation	-	CORRECT
Min OA Damper Position	-	5.0V
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	**Actual**
Fan Discharge SP	-	0.649"

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

Completed By: Michael McDonnell on 09/11/2023

Notes:
[1] READING TAKEN FROM VFD
[2] OCCUPANCY OPERATING OFF OF SCHEDULE. NOT INTERLOCKED WITH HOOD OPERATION.

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Project:09-11-2023 WENDY'S - PLOVER, WI

AHU/RTU

Diffuser Supply (GRD)

RTU1/KITCHEN

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	DINING	SD1	10"	385	1.0	309	382	384	99.7
SGRD2	DINING	SD1	10"	385	1.0	341	386	394	102.3
SGRD3	DINING	SD1	10"	385	1.0	339	378	388	100.8
SGRD4	DINING	SD1	10"	385	1.0	353	390	394	102.3
SGRD5	DINING	SD1	10"	385	1.0	365	396	400	103.9
SGRD6	DINING	SD1	10"	385	1.0	365	424	384	99.7
SGRD7	DINING	SD1	10"	385	1.0	340	367	385	100.0
SGRD8	DINING	SD3	6"	100	1.0	106	122	107	107.0
SGRD9	RESTROOM	SDD4	6"	100	1.0	67	94	95	95.0
SGRD10	RESTROOM	SD4	6"	100	1.0	199	212	106	106.0
Total				2995		2784	3151	3037	101.4%

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System/Unit: FAN - Exhaust

Asset: EF1 AREA:HD1 GRILL

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	5800852
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.750	0.75
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	208	208
Amperage (rated)	-	5.2
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	1200	1200
Fan RPM	-	1116
Fan Rotation	-	CORRECT
Motor RPM	-	1116
System SetPt	-	62%
RL Voltage	-	212
RL Amperage	-	1.6
Total ESP	1.250"	0.89"
Fan Inlet SP	-	-0.89"
Fan Discharge SP	-	ATM

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Project: 09-11-2023 WENDY'S - PLOVER, WI

System/Unit: FAN - Exhaust

Asset: EF2 AREA:HD2 FRYERS

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DU85HFA	DU85HFA
Serial Num	-	5800852
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.750	0.75
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	208	208
Amperage (rated)	-	5.2
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	1500	1549
Fan RPM	1332	1350
Fan Rotation	-	CORRECT
Motor RPM	-	1350
System SetPt	-	75%
RL Voltage	-	211
RL Amperage	-	2.9
Total ESP	1.250"	1.38"
Fan Inlet SP	-	-1.38"
Fan Discharge SP	-	ATM

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System/Unit: FAN - Exhaust

Asset: EF3 AREA:

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	DR10HFA	DR10HFA
Serial Num	-	5800852
Type	DOWNBLAST	DOWNBLAST
Configuration	VERTICAL	VERTICAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	0.166	0.166
Motor Rpm	-	1800
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.9
Service Factor	-	NL

Test Data		
	Design	**Actual**
CFM	300	297
Fan RPM	-	1338
Fan Rotation	-	CORRECT
Motor RPM	-	1338
System SetPt	-	68%
RL Voltage	-	118
RL Amperage	-	1.1
Total ESP	0.340"	0.14"
Fan Inlet SP	-	-0.14"
Fan Discharge SP	-	ATM

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FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF3/

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EF3-EGRD1		RG-2	8"	150	1.0	186	164	160	106.7
EF3-EGRD2		RG-2	8"	150	1.0	146	138	137	91.3
Total				300		332	302	297	99%

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Project: 09-11-2023 WENDY'S - PLOVER, WI

System/Unit: Kitchen Hood Type I

Asset: HD1 AREA:GRILL

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2	5424 ND-2
Job / Serial Num	-	5800852
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	93"	93"
Hood Width	54"	54"

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	5	5
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	8.1	8.1
Filter1 FPM	-	144
Filter2 FPM	-	156
Filter3 FPM	-	156
Filter4 FPM	-	141
Filter5 FPM	-	144
Filter Ave FPM(corr)	-	148.2
CFM	1200	1200

Cooking Equipment		
	Design	**Actual**
Item 1	-	GRIDDLE
Item 2	-	GRILL PRESS

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Project: 09-11-2023 WENDY'S - PLOVER, WI

System/Unit: Kitchen Hood Type I

Asset: HD2 AREA:FRYER

Unit Data		
	Design	**Actual**
MFG	CAPTIVEAIRE	CAPTIVEAIRE
Model Num	5424 ND-2	5424 ND-2
Job / Serial Num	-	5800852
Type	TYPE I LOW PROXIMITY	TYPE I CANOPY
Hood length	108"	108"
Hood Width	54"	54"

Test Data Exhaust		
	Design	**Actual**
Filter Type	CAPTRATE SOLO	CAPTRATE SOLO
Filter Size 1	16X16	16X16
Filter Qty 1	6	6
Filter AK factor size 1	1.62	1.62
Filter Total AK Area	9.72	9.72
Filter1 FPM	-	166
Filter2 FPM	-	163
Filter3 FPM	-	164
Filter4 FPM	-	169
Filter5 FPM	-	140
Filter6 FPM	-	154
Filter Ave FPM(corr)	-	159.33
CFM	1500	1549

Cooking Equipment		
	Design	**Actual**
Item 1	-	FRYER
Item 2	-	FRYER

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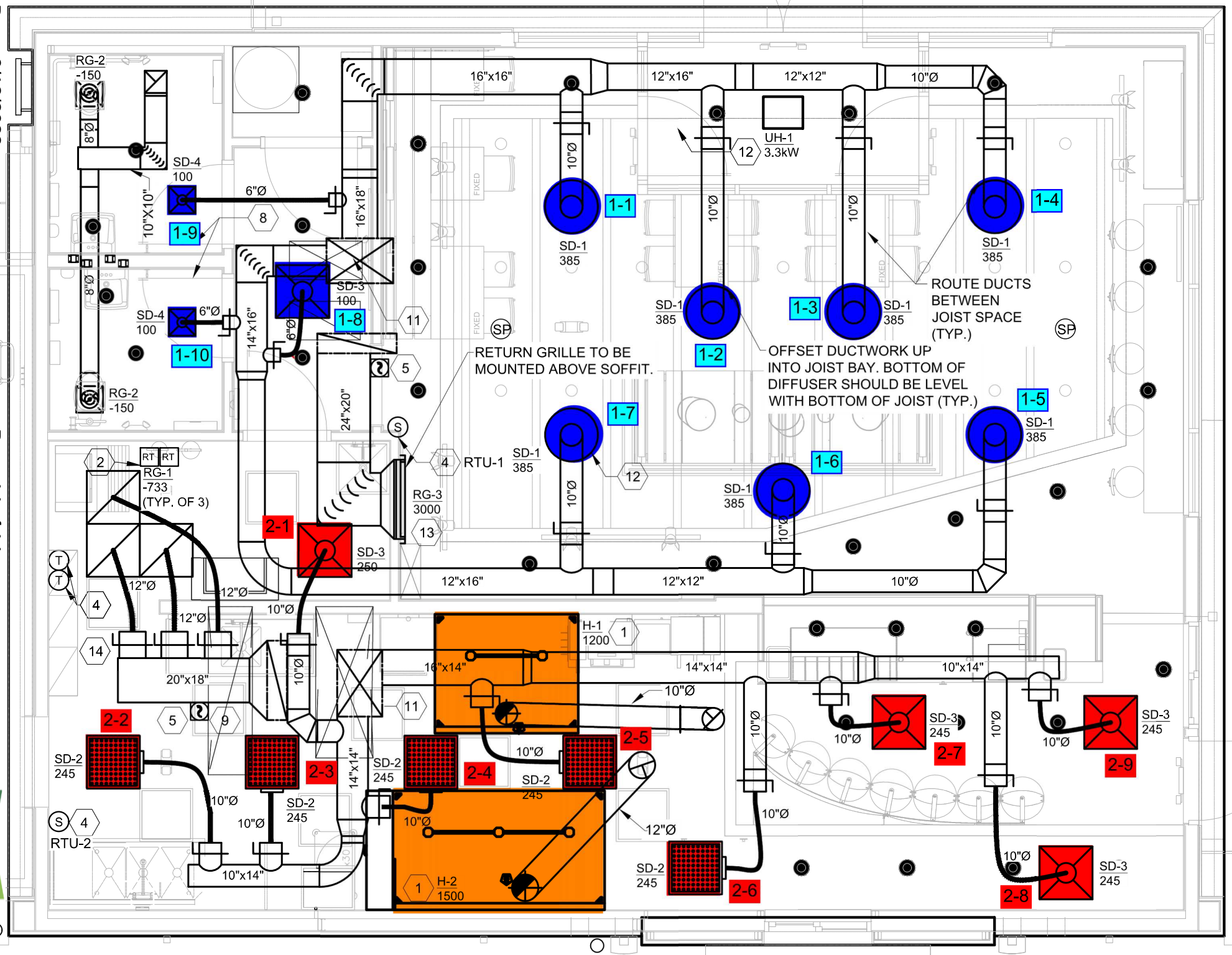
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SD-1
385
ROUTE DUCTS
BETWEEN
JOIST SPACE
(TYP.)
SP
SP
RETURN GRILLE TO BE
MOUNTED ABOVE SOFFIT.
OFFSET DUCTWORK UP
INTO JOIST BAY. BOTTOM OF
DIFFUSER SHOULD BE LEVEL
WITH BOTTOM OF JOIST (TYP.)
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