Chipotle

Store 46-5007
104 S Samish Way, Bellingham, WA 98225

Submission of

Certified Test, Adjust and Balance Report

June 17, 2024

Owner:	Chipotle Mexican Grill, Inc. PO Box 182566, Columbus, OH, 43218
Architect:	Not Provided
Engineer:	Bowman 323 3rd Ave, #100, Longmont, CO 80501
General Contractor:	Not Provided
Mechanical Contractor:	Not Provided
TAB Management:	National TAB 9471 Sutton Place, Hamilton, OH 45011
NEBB Certified TAB Firm:	United Test & Balance, Inc. 7013 Flagler Rd, Nordland, WA 98358
NEBB Certification Number:	3753

Air Balance Summary

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: Air Balance Summary

Tested By: Guy Nunez
Date: 6/17/2024

Unit Design Data	
Design O/A + MUA CFM	2100
Design Exhaust CFM	2050
Design CFM Difference	50
Designed Pos or Neg	Positive

Test Data	
Actual O/A + MUA CFM	2140
Actual Exhaust CFM	2063
Actual CFM Difference	77
Building Set	Positive

Building	
Front Door DP (in wg)	0.0040
Back Door DP (in wg)	0.0020
Side Door 1 DP (in wg)	0.0030
Side Door 2 DP (in wg)	NA
Wind Conditions	Mild Winds

Air Balance Summary Equipment Summary

System/Unit	SA Des (CFM)	RA Des (CFM)	OA Des (CFM)	EA Des (CFM)	SA Act (CFM)	RA Act (CFM)	OA Act (CFM)	EA Act (CFM)
EF-01	0	0	0	1900	0	0	0	1905
EF-02	0	0	0	150	0	0	0	158
RTU-01	2400	1350	1050	0	2441	1364	1077	0
RTU-02	2000	950	1050	0	2040	977	1063	0
Totals:	**-**	**-**	**2100**	**2050**	**-**	**-**	**2140**	**2063**

Report Certification

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

Certification

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 Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

Submitted & Certified By

Firm Name

United Test & Balance, Inc.

NEBB Certification Number

3753

Expiration Date

12/31/2024

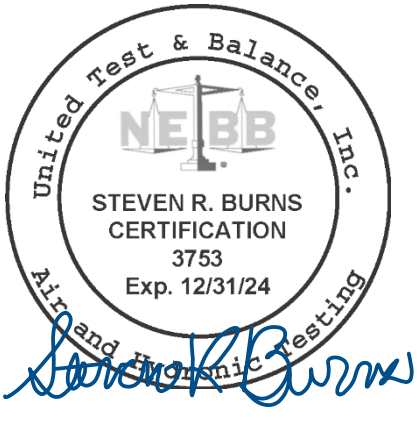
Certification Date

June 17, 2024

Signed & Sealed By

Certifying NEBB Certified TAB Professional

Steven Burns



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Report Summary/Remarks

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: Report Summary and Remarks

Scope of Work

Preface

The summary below provides a quick understanding of how well your HVAC systems balanced in respect to the design criteria. The summary concludes with a quick understanding of your building environment and possible suggestions for each of your systems after testing has been performed. 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. Our focus is 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. Also, enclosed are pictures of building assets and items listed below that will provide your team with more insight.

Facility Identification and TAB Requirements

The mechanical equipment to be tested, adjusted, and balanced includes: All Rooftop Units (RTUs), All Exhaust Fans (EF), All Make Up Air Units (MUA), All Kitchen Hoods, and all associated air devices.

System Posturing & Remarks

Air Apparatuses

Each of the RTUs were measured at their terminal devices utilizing a flow hood. The sum of these readings is equal to the total flow for that particular unit. The total flow of each HP was then adjusted to +/-10% of the specified design. Each terminal diffuser was balanced to within +/-10% of the engineer□s design volume utilizing the provided hand damper located at the takeoff of the main & branch trunk line(s). Any equipment that fell outside of this 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 +/-10% of the engineers design flow. Total flow for the MAU (Make-up Air Unit) unit was measured by readings taken at the discharge of the hood's perforated supply plenum. Readings taken with a velocity matrix were averaged and multiplied by a manufacturer's corrected area. Adjustments to the fan speed were made in order to bring the unit to within +/-10% of design criteria. Any EF's or MUA's that fell outside of this tolerance is noted throughout the report.

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 +/-10% of design. Each terminal device was balanced to within +/-10% of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

Final Building Test

After completing the test and balance, the final building pressure was recorded on the Building Summary form. 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.

Project Checklist

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: Project Checklist

Tested By: Guy Nunez
Date: 6/17/2024

Inspection Data - Project Checklist

	Verification	Response	Notes	By	Date/Time
1	All diffusers and grilles are installed and match design?	Yes		GN	6/17/24 9:56
2	Deflector plates are removed from 1x1 diffusers on the serve line (double check that this is specified on the diffuser schedule first)	Yes		GN	6/17/24 9:56
3	All hood filters installed and accounted for?	Yes		GN	6/17/24 9:56
4	Hoods are wired and have power?	Yes		GN	6/17/24 9:56
5	Hood is free of alarms?	Yes		GN	6/17/24 9:56
6	Thermostats have power?	Yes		GN	6/17/24 9:56
7	Have trades/general contractor been notified about any issues and are they created on FaciliBuild?	NA		GN	6/17/24 9:56

General - Project Checklist

	Verification	Response	Notes	By	Date/Time
1	Is space free of drafting?	Yes		GN	6/17/24 9:56
2	Is space comfortable in all areas?	Yes		GN	6/17/24 9:56
3	Is the space free of ventilation noise?	Yes		GN	6/17/24 9:56
4	If deviations from design were necessary to resolve above issues, what were they? Otherwise put "NA"	NA		GN	6/17/24 9:56

Air Apparatus

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-01

Tested By: Guy Nunez
Date: 6/17/2024

Design Airflow (CFM)	
Design Total	2400
Design Grille Total	2400
Design Return	1350
Design Min O/A	1050

Unit Design Data	
Submittal Make	York
Submittal Model #	XYEA7A2C3AA2C224A2
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	Not Listed
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	Not Listed

Design Static Pressures (in wg)	
Design Ext SP	.80
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Clean
Filter Type	Media
MERV Rating	Not Listed
Filter Size Set 1 (in)	16x20x2
# Filters Set 1	4
Filter Size Set 2 (in)	-
# Filters Set 2	-

Motor Nameplate Data	
Motor Make	Baldor
Motor Frame	182TZ
Motor HP	3.70
Motor RPM	1750
Motor Volts	208-230
Motor Phase	3

Final Airflow (CFM)	
Actual Total CFM	2441
Actual Grille Total CFM	2441
Actual Return Air CFM	1364
Actual Min O/A CFM	1077
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	1.220
OA Damper % (High Spd)	32%
OA Damper % (Low Spd)	51%
RA Damper % (High Spd)	Not Applicable

Unit Data	
Make (tag)	York
Model # (tag)	XYEA7A2C3
Serial # (tag)	N2A4078948
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	Not Accessible
Clg Coil Vel (FPM)	
Fan Service	Supply
Fan Type	Centrifugal (BI)
Fan Discharge	Horizontal
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	1086
Actual Motor RPM	1750

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	210

Air Apparatus

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-01

Tested By: Guy Nunez
Date: 6/17/2024

Motor Nameplate Data	
Motor Amps	9.88
Motor S.F.	1.15
Motor % PF	81
Motor % Eff.	89.5
Other Motor Data	-

Drive Data	
Drive Type	Belt Drive
Sheave Type	Variable
Fan Sheave Make	Browning
Fan Shv Mod# or Size (in)	7.25
Fan Sheave Bore (in)	1
Motor Sheave Make	Browning
Mtr Shv Mod# or Size (in)	1VM50
Motor Sheave Bore (in)	7/8
VP Range	Mid Range
Center Distance (in)	16.5
No of Belts	1
Belt Make	Browning
Belt Size	A48
Other Data	-

Electrical Data	
Motor Volts 2	211
Motor Volts 3	210
Motor Amps 1	5.8
Motor Amps 2	5.8
Motor Amps 3	5.7
Operating HZ	Internal to ECM
Approx. BHP	-2.2
Corr. Nameplate Amps	197.2
Starter Data	Internal to VFD
VFD Reference	Not Applicable

Inspection Data - RTU-01

	Verification	Response	Notes	By	Date/Time
1	IS ECONOMIZER BLANK PLATE INSTALLED BELOW THE OUTDOOR AIR FILTERS? (IF NO, REMOVE THE PIECE FROM UNDERNEATH THE COIL FILTER BANK AND INSTALL) Trane only (N/A = not applicable)	Yes		GN	6/13/24 18:10
2	Economizers are assembled and functional?	Yes		GN	6/13/24 18:10
3	DCV Max damper opening position is set to minimum?	NA		GN	6/13/24 18:10
4	Free cooling enthalpy set point set for lowest setting (Typically "D")	NA		GN	6/13/24 18:10
5	Is the motor operating below the motor FLA rating?	Yes		GN	6/13/24 18:10
6	Belts are Tight?	Yes		GN	6/13/24 18:10
7	If direct drive unit is the speed controller working.	NA		GN	6/13/24 18:10
8	Gas piping is installed and valves are in on position?	Yes		GN	6/13/24 18:10
9	Unit free of noticeable noise and vibration?	Yes		GN	6/13/24 18:10

Air Apparatus

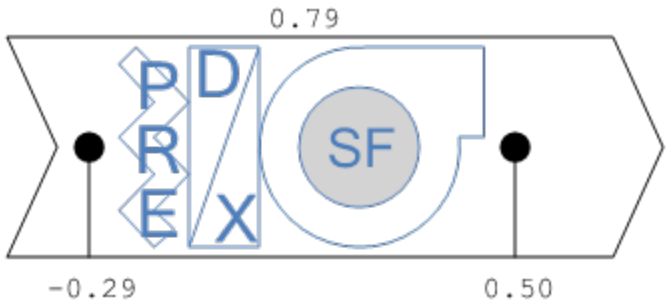
PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-01/Static Profile

Tested By: Guy Nunez
Date: 6/17/2024

Static Pressure Profile



RTU-01 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Office	CD	8	70	206	75	107	Capture Hood	1.000	1.000	75
S-02	Kitchen	CD	8	150	241	157	105	Capture Hood	1.000	1.000	157
S-03	Kitchen	CD	8	150	281	161	107	Capture Hood	1.000	1.000	161
S-04	Kitchen	CD	8	150	215	153	102	Capture Hood	1.000	1.000	153
S-05	POS	CD	10	370	512	391	106	Capture Hood	1.000	1.000	391
S-06	POS	CD	10	370	491	374	101	Capture Hood	1.000	1.000	374
S-07	Service Line	CD	8	285	145	264	93	Capture Hood	1.000	1.000	264
S-08	Service Line	CD	8	285	195	278	98	Capture Hood	1.000	1.000	278
S-09	Service Line	CD	8	285	243	297	104	Capture Hood	1.000	1.000	297
S-10	Service Line	CD	8	285	271	291	102	Velgrid	5.547	7.375	52
	Totals:	-	-	**2400**	**2800**	**2441**	**102**	-	-	-	-

Air Apparatus

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-02

Tested By: Guy Nunez
Date: 6/17/2024

Design Airflow (CFM)	
Design Total	2000
Design Grille Total	2000
Design Return	950
Design Min O/A	1050

Unit Design Data	
Submittal Make	York
Submittal Model #	XYE06A2C1AA2C224A3
Submittal Airflow	Not Provided
Sched./Sub. Volts	208
Sched./Sub. Phase	3
Sched./Sub. HP	Not Listed
Submittal BHP	Not Provided
Filter MERV Rating (Sched/Sub)	Not Listed

Design Static Pressures (in wg)	
Design Ext SP	.80
Submittal Total SP	Not Provided
Submittal Clg Coil Δ SP	-

Filter Data	
Condition	Clean
Filter Type	Media
MERV Rating	Not Listed
Filter Size Set 1 (in)	18x18x2
# Filters Set 1	2
Filter Size Set 2 (in)	-
# Filters Set 2	-

Motor Nameplate Data	
Motor Make	Baldor
Motor Frame	56HZ
Motor HP	2.90
Motor RPM	1745
Motor Volts	208-230
Motor Phase	3

Final Airflow (CFM)	
Actual Total CFM	2040
Actual Grille Total CFM	2040
Actual Return Air CFM	977
Actual Min O/A CFM	1063
Fan CFM Test Method	Supply Outlet Total
OA Method/Instrument	Face Velocity/RVA
OA Ak (sq ft)	1.220
OA Damper % (High Spd)	43%
OA Damper % (Low Spd)	58%
RA Damper % (High Spd)	Not Applicable

Unit Data	
Make (tag)	York
Model # (tag)	XYE06A2C1AA
Serial # (tag)	N2N3051292
Location	Roof
Unit Discharge	Downblast
Cooling Coil Location	Unit / Drawthru
Coil Area (sq ft)	Not Accessible
Clg Coil Vel (FPM)	
Fan Service	Supply
Fan Type	Centrifugal (BI)
Fan Discharge	Horizontal
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	-
Actual Motor RPM	-

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	210

Air Apparatus

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-02

Tested By: Guy Nunez
Date: 6/17/2024

Motor Nameplate Data	
Motor Amps	8.9
Motor S.F.	1.15
Motor % PF	82
Motor % Eff.	86.9
Other Motor Data	-

Drive Data	
Drive Type	Belt Drive
Sheave Type	Variable
Fan Sheave Make	Browning
Fan Shv Mod# or Size (in)	4.25
Fan Sheave Bore (in)	3/4
Motor Sheave Make	Browning
Mtr Shv Mod# or Size (in)	1VL44
Motor Sheave Bore (in)	7/8
VP Range	Mid Range
Center Distance (in)	14.5
No of Belts	1
Belt Make	Browning
Belt Size	A39
Other Data	-

Electrical Data	
Motor Volts 2	210
Motor Volts 3	211
Motor Amps 1	4.1
Motor Amps 2	4.2
Motor Amps 3	4.1
Operating HZ	Internal to ECM
Approx. BHP	-1.4
Corr. Nameplate Amps	198.3
Starter Data	Internal to ECM
VFD Reference	Not Applicable

Inspection Data - RTU-02

	Verification	Response	Notes	By	Date/Time
1	IS ECONOMIZER BLANK PLATE INSTALLED BELOW THE OUTDOOR AIR FILTERS? (IF NO, REMOVE THE PIECE FROM UNDERNEATH THE COIL FILTER BANK AND INSTALL) Trane only (N/A = not applicable)	Yes		GN	6/13/24 18:10
2	Economizers are assembled and functional?	Yes		GN	6/13/24 18:10
3	DCV Max damper opening position is set to minimum?	NA		GN	6/13/24 18:10
4	Free cooling enthalpy set point set for lowest setting (Typically "D")	NA		GN	6/13/24 18:10
5	Is the motor operating below the motor FLA rating?	Yes		GN	6/13/24 18:10
6	Belts are Tight?	Yes		GN	6/13/24 18:10
7	If direct drive unit is the speed controller working.	NA		GN	6/13/24 18:10
8	Gas piping is installed and valves are in on position?	Yes		GN	6/13/24 18:10
9	Unit free of noticeable noise and vibration?	Yes		GN	6/13/24 18:10

Air Apparatus

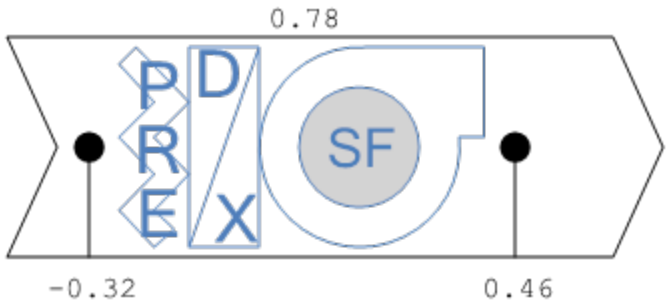
PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: RTU-02/Static Profile

Tested By: Guy Nunez
Date: 6/17/2024

Static Pressure Profile



RTU-02 Supply Outlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
S-01	Utensil	SW	12/6	285	321	289	101	Capture Hood	1.000	1.000	289
S-02	Utensil	SW	12/6	285	334	297	104	Capture Hood	1.000	1.000	297
S-03	Ordering	SW	10	285	126	279	98	Capture Hood	1.000	1.000	279
S-04	Ordering	SW	10	285	161	282	99	Capture Hood	1.000	1.000	282
S-05	Ordering	SW	10	285	662	294	103	Capture Hood	1.000	1.000	294
S-06	Ordering	SW	10	285	636	303	106	Capture Hood	1.000	1.000	303
S-07	Ordering	SW	10	290	181	296	102	Capture Hood	1.000	1.000	296
	Totals:	-	-	**2000**	**2421**	**2040**	**102**	-	-	-	-

Fan

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: EF-01

Tested By: Guy Nunez
Date: 6/17/2024

Design Airflow (CFM)	
Design Airflow	1900
Design Grille Airflow	Not Applicable

Unit Design Data	
Submittal Make	Captiveaire
Submittal Model #	DU85HFA
Submittal Airflow	Not Provided
Sched./Sub. Volts	115
Sched./Sub. Phase	1
Sched./Sub. HP	1.0
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	1.2
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Telco
Motor Frame (tag)	Not Listed
Motor HP (tag)	1
Motor RPM (tag)	1800
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	11.6
Motor S.F. (tag)	Not Listed
Mtr % PF (tag)	Not Listed
Mtr % Eff. (tag)	Not Listed
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-

Final Airflow (CFM)	
Actual Airflow	1905
Actual Grille Airflow	See Kitchen Hood Sheet
Fan CFM Test Method	See Kitchen Hood Sheet
Test Method Ak (sq ft)	See Kitchen Hood Sheet

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	DR12HFA
Serial # (tag)	6184111
Unit Location	Roof
Unit Discharge	Downblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	-

Fan Data	
Actual Fan RPM/Speed	Not Accessible
Actual Motor RPM	Not Accessible
Speed Cont. Position	64%

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	118
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	7.0
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	Internal to ECM
Starter Data	Internal to ECM
Approx. BHP	0.62

Fan

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: EF-01

Tested By: Guy Nunez
Date: 6/17/2024

Drive Data	
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Electrical Data	
Corr. Nameplate Amps	11.3

Inspection Data - EF-01

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		GN	6/13/24 8:50
2	Belts are Tight?	NA		GN	6/13/24 8:50
3	Internal motorized damper is fully opening?	NA		GN	6/13/24 18:09
4	Motor is operating below the FLA rating?	Yes		GN	6/13/24 18:09
5	Unit free of noticeable noise and vibration?	Yes		GN	6/13/24 18:09
6	There is no major leakage around base of fan?	Yes		GN	6/13/24 18:09

HVAC Units / Fans - EF-01

	Verification	Response	Notes	By	Date/Time
1	Grease cup is installed on hood fan?	Yes		GN	6/13/24 18:09
2	Hinge kit installed on hood fan.	Yes		GN	6/13/24 18:09
3	Lean fan back. Is grease duct installation adequate and is duct ran all the way to the base of the fan?	Yes		GN	6/13/24 18:09
4	Flex conduit is long enough so that fan can be completely tilted back?	Yes		GN	6/13/24 18:09

Fan

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: EF-01/HD-01

Tested By: Guy Nunez
Date: 6/13/2024

Design Airflow (CFM)	
Design Exhaust CFM	1900

Final Airflow (CFM)	
Actual Exhaust CFM	1905

Test Section	
Smoke Generation Type	60 sec smoke emitter
Cooking Equip Heat On	No
Hood Capture %	Yes
End Panels Installed (Y/N)	Y

Supplemental Data	
Space Offset Temp Riser 1	15
Space Offset Temp Riser 2	15
Riser Temp F (idle) Riser 1	74
Riser Temp F (idle) Riser 2	
Ambient Room Temp	63
100% override functional	Y

Kitchen Hood Information	
Service	Cooking Surface
Manufacturer	Captive-Aire
Model Number	5424 ND-2
Serial Number	6184111
Test Method	Filters

Verification - EF-01/HD-01

	Verification	Response	Notes	By	Date/Time
1	Third Party Company	Team Construction		GN	6/13/24 8:21
2	Tech Company	UTAB		GN	6/13/24 8:21

Prefunctional - EF-01/HD-01

	Verification	Response	Notes	By	Date/Time
1	Kitchen equipment installed in proper places?	Yes		GN	6/13/24 8:21
2	Can kitchen equipment be turned on for final smoke test?	No		GN	6/13/24 8:21

EF-01/HD-01 Exhaust Filter Summary

System/Unit	Size	Type	Ak	Reading 2	Reading 1	FPM	Instrument	CFM
Filter-01	16x16	Baffle	1.62		176	176	Velgrid	285
Filter-02	16x16	Baffle	1.62		166	166	Velgrid	269
Filter-03	16x16	Baffle	1.62		172	172	Velgrid	279
Filter-04	16x16	Baffle	1.62		180	180	Velgrid	292
Filter-05	16x16	Baffle	1.62		177	177	Velgrid	287
Filter-06	16x16	Baffle	1.62		157	157	Velgrid	254
Filter-07	16x16	Baffle	1.62		153	153	Velgrid	248
Totals:	-	-	-	-	-	-	-	**1914**

Fan

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: EF-02

Tested By: Guy Nunez
Date: 6/17/2024

Design Airflow (CFM)	
Design Airflow	150
Design Grille Airflow	150

Unit Design Data	
Submittal Make	Captiveaire
Submittal Model #	DR12HFA
Submittal Airflow	Not Provided
Sched./Sub. Volts	115
Sched./Sub. Phase	1
Sched./Sub. HP	.25
Submittal BHP	Not Provided

Design Static Pressures (in wg)	
Design External SP	0.6
Submittal Total SP	Not Provided

Motor Nameplate Data	
Motor Make (tag)	Telco
Motor Frame (tag)	Not Listed
Motor HP (tag)	1/4
Motor RPM (tag)	1800
Motor Volts (tag)	115
Motor Phase (tag)	1
Motor Amps (tag)	2.9
Motor S.F. (tag)	Not Listed
Mtr % PF (tag)	Not Listed
Mtr % Eff. (tag)	Not Listed
Other Motor Data	-

Drive Data	
Drive Type	Direct Drive
Sheave Type	-
Fan Sheave Make	-
Fan Shv Mod# or Size (in)	-
Fan Sheave Bore (in.)	-
Motor Sheave Make	-

Final Airflow (CFM)	
Actual Airflow	158
Actual Grille Airflow	158
Fan CFM Test Method	Inlet Total
Test Method Ak (sq ft)	Not Applicable

Unit Data	
Make (tag)	Captive Aire
Model # (tag)	DR12HFA
Serial # (tag)	6184111
Unit Location	Roof
Unit Discharge	Downblast
Fan Service	Exhaust
Fan Type	Centrifugal (BI)
Fan Discharge	Upblast
Fan Arrangement	SWSI

Fan Design Data	
Submittal Motor RPM	Not Provided
Submittal Fan RPM	Not Provided

Fan Data	
Actual Fan RPM/Speed	945
Actual Motor RPM	945
Speed Cont. Position	52%

Electrical Data	
Measurement Method	V/A Meter
Motor Volts 1	117
Motor Volts 2	-
Motor Volts 3	-
Motor Amps 1	0.9
Motor Amps 2	-
Motor Amps 3	-
Operating HZ	Internal to ECM
Starter Data	Internal to ECM
Approx. BHP	0.08

Fan

PROJECT: Chipotle #46-5007
LOCATION: Bellingham, WA
PROJECT #: 24282

DATE: 6/17/2024
CONTACT: Steve Burns

SYSTEM/UNIT: EF-02

Tested By: Guy Nunez
Date: 6/17/2024

Drive Data	
Mtr Shv Mod# or Size (in)	-
Motor Sheave Bore (in.)	-
VP Range	-
Center Distance (in.)	-
No of Belts	-
Belt Make	-
Belt Size	-
Other Data	-

Electrical Data	
Corr. Nameplate Amps	2.9

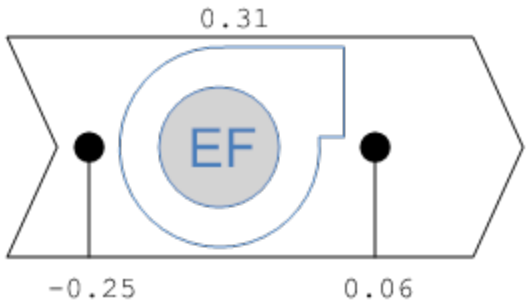
Inspection Data - EF-02

	Verification	Response	Notes	By	Date/Time
1	Fan Rotation is Correct?	Yes		GN	6/13/24 18:05
2	Belts are Tight?	NA		GN	6/13/24 18:05
3	Internal motorized damper is fully opening?	NA		GN	6/13/24 18:05
4	Motor is operating below the FLA rating?	Yes		GN	6/13/24 18:05
5	Unit free of noticeable noise and vibration?	Yes		GN	6/13/24 18:05
6	There is no major leakage around base of fan?	Yes		GN	6/13/24 18:05
7	Back draft damper installed and can it fully open?	Yes		GN	6/13/24 18:05

SYSTEM/UNIT: EF-02/Static Profile

Tested By: Guy Nunez
Date: 6/17/2024

Static Pressure Profile



EF-02 Exhaust Inlet Summary

System/Unit	Area Served	Type	Size / Area (in)	Design CFM	Prelim CFM	Final CFM	% Final	Instrument	Ak	Open (sq ft)	Final FPM
E-01	Restroom	CD	6/6	75	98	78	104	Capture Hood	1.000	1.000	78
E-02	Restroom	CD	6/6	75	122	80	107	Capture Hood	1.000	1.000	80
	Totals:	-	-	-	**220**	**158**	**105**	-	-	-	-

Instrument Calibration

Air Pressure Measurement					
Instrument Type:	ADM	**Date of Calibration:**	3/25/2024	**Measured Units**	in wg
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	3/25/2025	**Accuracy**	+/- 2%
Model:	S-PVF-1	**Range:**	+/- 60 in wg	**Resolution**	0.0001 in wg
Serial:	24D-00345			*Corrects local bar. press. to standard cond.	

Air Volume Measurement / Balometer					
Instrument Type:	Balometer	**Date of Calibration:**	1/3/2024	**Measured Units**	CFM
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	1/3/2025	**Accuracy**	+/- 2%
Model:	CH-15D / S-PVF-1	**Range:**	25-1500 CFM (Exhaust) 24-2500 CFM (Supply)	**Resolution**	1 CFM
Serial:	2300159				

Direct Air Velocity Measurement					
Instrument Type:	RVA	**Date of Calibration:**	4/22/2024	**Measured Units**	FPM
Manufacturer:	Extech	**Due for Calibration:**	4/22/2025	**Accuracy**	+/- 3%
Model:	AN300	**Range:**	80 - 5,900 FPM	**Resolution**	1 FPM
Serial:	2218690				

Electrical Measurement					
Instrument Type:	V/A Meter	**Date of Calibration:**	4/22/2024	**Measured Units**	Volts / Amperes
Manufacturer:	Fluke	**Due for Calibration:**	4/22/2025	**Accuracy**	1% / 2%
Model:	374 FC	**Range:**	0 - 600.0V / 0 - 600.0A	**Resolution**	0.1 V / 0.1 A
Serial:	63600074MV				

Hydronic Pressure Measurement					
Instrument Type:	HDM	**Date of Calibration:**	4/15/2024	**Measured Units**	psi, Ft, inches
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	4/15/2025	**Accuracy**	+/- 2%
Model:	S-DP-250	**Range:**	0.01 - 250 psi	**Resolution**	0.01 psi
Serial:	2000157B			*For use w/ADM	

Rotation Measurement					
Instrument Type:	Tachometer	**Date of Calibration:**	4/22/2024	**Measured Units**	RPM
Manufacturer:	Shimpo	**Due for Calibration:**	4/22/2025	**Accuracy**	+/- 1 RPM
Model:	DT-205LR	**Range:**	0.01 - 250 psi	**Resolution**	1 RPM
Serial:	C23A0012R				

Rotation Measurement					
Instrument Type:	Stroboscope	**Date of Calibration:**	4/22/2024	**Measured Units**	RPM
Manufacturer:	Monarch	**Due for Calibration:**	4/22/2025	**Accuracy**	+/- 0.005%
Model:	PLS Pocket	**Range:**	30-300,000 RPM	**Resolution**	0.1 RPM
Serial:	2755508				

Instrument Calibration

Humidity WB/DB Measurement					
Instrument Type:	RH Meter	**Date of Calibration:**	4/1/2024	**Measured Units**	WB / %RH
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	4/1/2025	**Accuracy**	+/- 1°F / 2.5%RH
Model:	PR-TH-1	**Range:**	-4 to 140°F 0% - 100%RH	**Resolution**	0.1°F / .1 %RH
Serial:	240013				

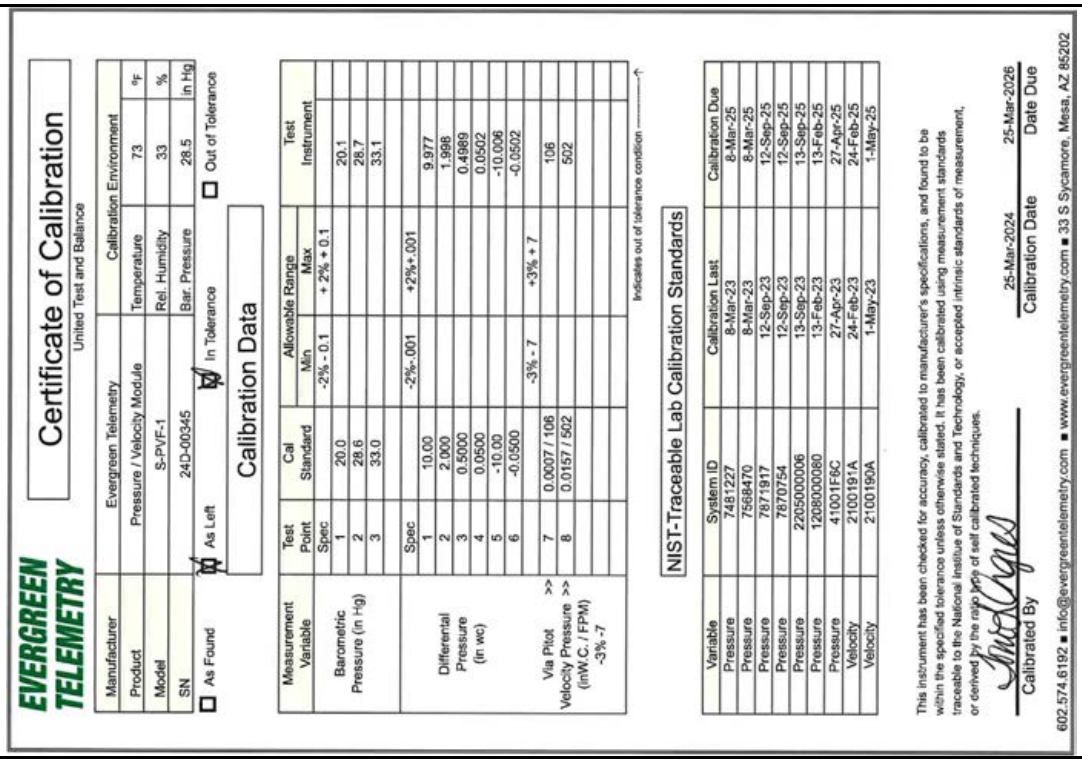
Temperature Measurement (Immersion)					
Instrument Type:	Temperature	**Date of Calibration:**	4/8/2024	**Measured Units**	°F
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	4/8/2025	**Accuracy**	+/- .05%
Model:	PR-T-4-6	**Range:**	−40°F to 500°F	**Resolution**	0.1°F
Serial:	2400138				

Temperature Measurement (Surface)					
Instrument Type:	Temperature	**Date of Calibration:**	4/8/2024	**Measured Units**	°F
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	4/8/2025	**Accuracy**	+/- .05%
Model:	PR-T-2	**Range:**	−40°F to 500°F	**Resolution**	0.1°F
Serial:	2400126				

Temperature Measurement Meter					
Instrument Type:	Temp Module	**Date of Calibration:**	4/1/2024	**Measured Units**	°F
Manufacturer:	Evergreen Telemetry	**Due for Calibration:**	4/1/2025	**Accuracy**	+/- .05%
Model:	MS - TH-1	**Range:**	−40°F to 500°F	**Resolution**	0.1°F
Serial:	24J-00146			*For use w/Imm./Sur.	

Ultrasonic Flow Meter					
Instrument Type:	Ultrasonic Flow Meter	**Date of Calibration:**	3/4/2024	**Measured Units**	ft/min conv. to GPM
Manufacturer:	Fuji Electric Systems Co	**Due for Calibration:**	3/4/2025	**Accuracy**	+/- 1%
Model:	FSCS	**Range:**	0-6300 fpm 0-79,000 GPM	**Resolution**	0.1
Serial:	S2400290			Calibrated with FSSC and FSSD Probe	

Proof of Calibration



EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

Manufacturer	Evergreen Telemetry	Calibration Environment		
Product	Pressure / Velocity Module	Temperature	73	°F
Model	S-PVF-1	Rel. Humidity	33	%
SN	24D-00345	Bar. Pressure	28.5	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument
	Spec		-2% - 0.1	+ 2% + 0.1	
Barometric Pressure (in Hg)	1	20.0			20.1
	2	28.6			28.7
	3	33.0			33.1
	Spec		-2%-.001	+2%+.001	
Differential Pressure (in wc)	1	10.00			9.977
	2	2.000			1.998
	3	0.5000			0.4989
	4	0.0500			0.0502
	5	-10.00			-10.006
	6	-0.0500			-0.0502
Via Pitot >>	7	0.0007 / 106	-3% - 7	+3% + 7	106
Velocity Pressure >> (inW.C. / FPM) -3% -7	8	0.0157 / 502			502

Indicates out of tolerance condition ←

NIST-Traceable Lab Calibration Standards

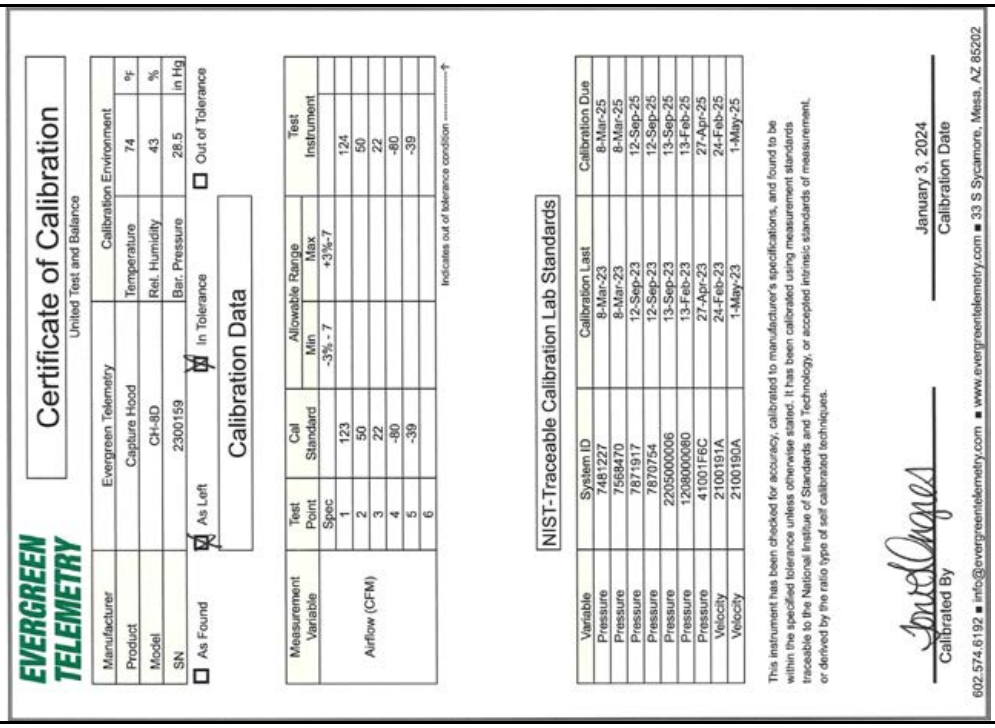
Variable	System ID	Calibration Last	Calibration Due
Pressure	7481227	8-Mar-23	8-Mar-25
Pressure	7568470	8-Mar-23	8-Mar-25
Pressure	7871917	12-Sep-23	12-Sep-25
Pressure	7870754	12-Sep-23	12-Sep-25
Pressure	2205000006	13-Sep-23	13-Sep-25
Pressure	1208000080	13-Feb-23	13-Feb-25
Pressure	410011F6C	27-Apr-23	27-Apr-25
Velocity	2100191A	24-Feb-23	24-Feb-25
Velocity	2100190A	1-May-23	1-May-25

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institute of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By — Calibration Date: 25-Mar-2024 — Date Due: 25-Mar-2026

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Air Pressure Measurement



EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

Manufacturer	Evergreen Telemetry	Calibration Environment		
Product	Capture Hood	Temperature	74	°F
Model	CH-8D	Rel. Humidity	43	%
SN	2300159	Bar. Pressure	28.5	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument
	Spec		-3% - 7	+3%+7	
Airflow (CFM)	1	123			124
	2	50			50
	3	22			22
	4	-80			-80
	5	-39			-39
	6				

Indicates out of tolerance condition ←

NIST-Traceable Calibration Lab Standards

Variable	System ID	Calibration Last	Calibration Due
Pressure	7481227	8-Mar-23	8-Mar-25
Pressure	7568470	8-Mar-23	8-Mar-25
Pressure	7871917	12-Sep-23	12-Sep-25
Pressure	7870754	12-Sep-23	12-Sep-25
Pressure	2205000006	13-Sep-23	13-Sep-25
Pressure	1208000080	13-Feb-23	13-Feb-25
Pressure	410011F6C	27-Apr-23	27-Apr-25
Velocity	2100191A	24-Feb-23	24-Feb-25
Velocity	2100190A	1-May-23	1-May-25

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institute of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By — Calibration Date: January 3, 2024

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Air Volume Measurement / Balometer

Proof of Calibration

MICRO PRECISION

MPC CALIBRATION INC
670 INTERNATIONAL PKWY DR, STE 100
RICHARDSON TX 75081
972-437-6700

Certificate of Calibration

Date: Apr 22, 2024 **Cert No. 5523631030868571**

Customer:
UNITED TEST AND BALANCE INC
1170 BARBERRY DR
BURLESON TX 76028

Work Order #: TX-8030080

MPC Control #:	ER2432	Serial Number:	2218690
Asset ID:	N/A	Department:	N/A
Gage Type:	THERMO ANEMOMETER	Performed By:	DARIUS BOLDUC
Manufacturer:	EXTECH	Received Condition:	IN TOLERANCE
Model Number:	AN300	Returned Condition:	IN TOLERANCE
Size:	N/A	Cal. Date:	April 22, 2024
Temp/RH:	70.0°F / 40.0%	Cal. Interval:	12 MONTHS
Location:	Calibration performed at MPC facility	Cal. Due Date:	April 22, 2025

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
EQ1839	HOT WIRE THERMO-ANEMOMETER	471B-1	06595Y	DWYER	Apr 30, 2025	5523631030834476
CP4899	PLATINUM RESISTANCE THERMOMETER	5614	720749	HART SCIENTIFIC	Jul 31, 2025	5523631030222177

Procedures Used in this Event

Procedure Name	Description
MPC-AIR-001 Rev. 03	Air Velocity, Temperature and Flow Meters, General, Rev.03, Jan-08-2024

Calibrating Technician: DARIUS BOLDUC QC Approval: MICHAEL RODRIGUEZ

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Direct Air Velocity Measurement

MICRO PRECISION

MPC CALIBRATION INC
670 INTERNATIONAL PKWY DR, STE 100
RICHARDSON TX 75081
972-437-6700

Certificate of Calibration

Date: Apr 22, 2024 **Cert No. 5523631030868305**

Customer:
UNITED TEST AND BALANCE INC
1170 BARBERRY DR
BURLESON TX 76028

Work Order #: TX-8030080

MPC Control #:	ER2425	Serial Number:	63600074MV
Asset ID:	N/A	Department:	N/A
Gage Type:	TRMS CLAMP METER	Performed By:	DARIUS BOLDUC
Manufacturer:	FLUKE	Received Condition:	IN TOLERANCE
Model Number:	374 FC	Returned Condition:	IN TOLERANCE
Size:	N/A	Cal. Date:	April 22, 2024
Temp/RH:	70.0°F / 40.0%	Cal. Interval:	12 MONTHS
Location:	Calibration performed at MPC facility	Cal. Due Date:	April 22, 2025

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CC8175	CALIBRATOR	5500A	6670009	FLUKE	Jul 31, 2024	5523631030191710
CC8495	50-TURN CURRENT COIL	5500A	20080712	FLUKE	Sep 30, 2024	220081202253274

Procedures Used in this Event

Procedure Name	Description
MPC-00248 Rev. 02	Clamp Meter, Fluke 374/375/376, June-13-2016 rev02

Calibrating Technician: DARIUS BOLDUC QC Approval: MICHAEL RODRIGUEZ

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Electrical Measurement

Proof of Calibration

EVERGREEN TELEMETRY

Certificate of Calibration

United Test & Balance

Manufacturer	Evergreen Telemetry	Calibration Environment		
Product	Water Pressure Sensing Module	Temperature	74	°F
Model	S-DP-250	Rel. Humidity	25	%
SN	2000157B	Bar. Pressure	28.7	in Hg

☒ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Specification +/- 2% +/- last digit	Cal Std	Sensor 1 Diff Pres	Difference	Cal Std	Sensor 2 Gage Lo	Diff
Approx Set Point			(%)			%
PSI	(fwc)	(fwc)		(fwc)	(fwc)	
0.13	0.3	0.3	0	0.3	0.3	0
0.434	1.0	1.0	0	1.0	1.0	0
0.867	2.0	2.0	0	2.0	2.0	0
2.168	5.0	5.0	0	5.0	5.0	0
	PSI	PSI		PSI	PSI	
10	10.0	10.1	1.0	10.0	10.1	1.0
40	40.0	40.1	0.3	40.0	40.1	0.3
80	80.0	80.7	0.9	80.0	80.6	0.7
120	120.0	120.4	0.3	120.0	120.2	0.2
240	240.0	241.0	0.4	240.0	240.6	0.2

Conversion

PSI	ftwc	inwc
1.00	2.307	27.68
0.434	1.00	12.00

Indicates out of tolerance condition ←

NIST-Traceable Calibration Lab Standards

Variable	System ID	Calibration Last	Calibration Due
Pressure	5564304	7-Feb-24	7-Feb-26
Pressure	6311233	10-Oct-23	10-Oct-25
Temperature	16320239	12-Sep-23	12-Sep-25
Temperature	21396189	5-Feb-24	5-Feb-26

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institute of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By — Calibration Date: 15-Apr-2024 — Date Due: 15-Apr-2025

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Hydronic Pressure Measurement

MICRO PRECISION

MPC CALIBRATION INC
8740 INTERNATIONAL DR, STE 100
ROSEMONT, IL 60018
972.437.6700

Certificate of Calibration

Date: Apr 22, 2024 **Cert No.** 5523631030868887

Customer:
UNITED TEST AND BALANCE INC
1170 BARBERRY DR
BURLESON TX 76028

Work Order #: TX-6030080

MPC Control #:	ER2418	Serial Number:	C23A0012R
Asset ID:	N/A	Department:	N/A
Gage Type:	TACHOMETER	Performed By:	DARIUS BOLDUC
Manufacturer:	NIDEC	Received Condition:	IN TOLERANCE
Model Number:	DT-205LR	Returned Condition:	IN TOLERANCE
Size:	6IN WHEEL	Cal. Date:	April 22, 2024
Temp/RH:	70.0°F / 40.0%	Cal. Interval:	12 MONTHS
Location:	Calibration performed at MPC facility	Cal. Due Date:	April 22, 2025

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CE9038	TACHOMETER	HH113	1823351	OMEGA	Jun 31, 2025	5523631030900669
FA2135	STROBOSLAVE	1539-A	FA2135	GENERAL RADIO	Jun 30, 2024	5523631030108549

Procedures Used in this Event

Procedure Name	Description
MPC-TAC-001 Rev. 02	Tachometers, General. Rev 02, Jul-12-2021

Calibrating Technician: DARIUS BOLDUC — QC Approval: MICHAEL RODRIGUEZ

Page 1 of 1 (CERT, Rev 9)

Rotation Measurement

UNITED TEST & BALANCE, INC.

MICRO PRECISION

MPC CALIBRATION INC
670 INTERNATIONAL PKWY DR, STE 100
RICHARDSON TX 75081
972-437-8700

Certificate of Calibration

Date: Apr 22, 2024 **Cert No.** 5523631030868701

Customer:
UNITED TEST AND BALANCE INC
1170 BARBERRY DR
BURLESON TX 76028

Work Order #: TX-8030080

MPC Control #:	DZ0470	Serial Number:	2755508
Asset ID:	N/A	Department:	N/A
Gage Type:	LED STROBE	Performed By:	DARIUS BOLDUC
Manufacturer:	MONARCH	Received Condition:	IN TOLERANCE
Model Number:	6235-010	Returned Condition:	IN TOLERANCE
Size:	N/A	Cal. Date:	April 22, 2024
Temp/RH:	70.0°F / 40.0%	Cal. Interval:	12 MONTHS
Location:	Calibration performed at MPC facility	Cal. Due Date:	April 22, 2025

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CE9038	TACHOMETER	HHT13	1823361	OMEGA	Jan 31, 2025	5523631030650659

Procedures Used in this Event

Procedure Name	Description
MONARCH PALM STROBE X	Portable Stroboscope, Monarch Instrument Palm Strobe x, Jan-01-2010

Calibrating Technician: DARIUS BOLDUC QC Approval: MICHAEL RODRIGUEZ

Page 1 of 1 (CERT, Rev 9)

Rotation Measurement

EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

		Calibration Environment		
Manufacturer	Evergreen Telemetry			
Product	Humidity Sensor	Temperature	73	°F
Model	PR-TH-1-2	Rel. Humidity	32	%
SN	2400113	Bar. Pressure	28.6	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument	
Temperature (°F)	Spec					
	1	41.2	-1.0	1.0	41.6	
	2	75.1	-1.0	1.0	75.3	
	3	85.6	-1.0	1.0	85.9	
	4	127.9	-2.0	2.0	128.6	
Barometric Pressure (in Hg)	Spec		-2% - 0.1	+ 2% + 0.1		
	1	20.0			20.1	
	2	28.6			28.6	
	3	33.0			33.0	
Humidity %RH 10 to 90%	Spec		-3	3		
	1	10.4			10.5	
	2	24.2			25.9	
	3	60.6			62.2	
	4	87.0			87.4	

Indicates out of tolerance condition ------↑

Calibration Standard

Variable	System ID	Calibration Last	Calibration Due
Temperature	16320239	12-Sep-23	12-Sep-25
Temperature	21396189	5-Feb-24	5-Feb-26
Pressure	2205000006	13-Sep-23	13-Sep-25
Pressure	1208000080	13-Feb-23	13-Feb-25
Humidity	20558772	12-Sep-23	12-Sep-24
Humidity	20052171	5-Feb-24	5-Feb-25

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institue of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

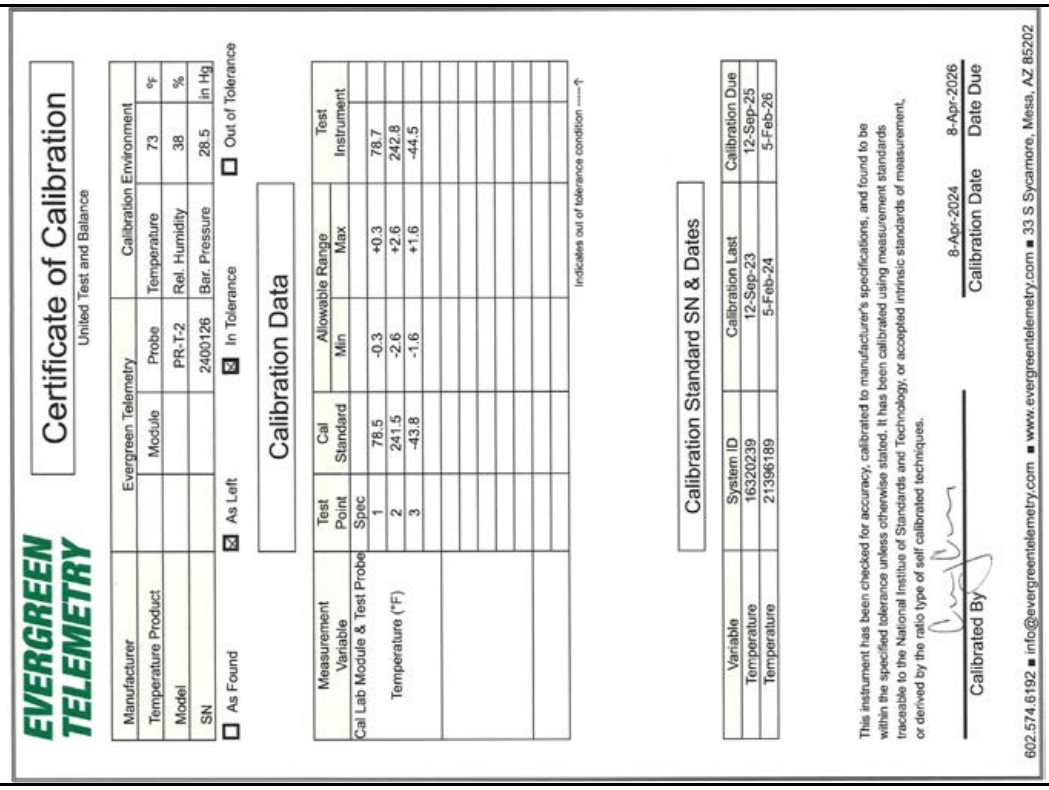
Temperature accuracy (dry bulb) varies across the operating range:
Temperature over 32-100F +/- 1.0 F
Temperature over 100-158F +/- 2.0 F

Calibrated By | 1-Apr-2024 Calibration Date | 1-Apr-2025 Date Due

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Humidity WB/DB Measurement

Proof of Calibration



EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

Manufacturer	Evergreen Telemetry		Calibration Environment		
Temperature Product	Module	Probe	Temperature	73	°F
Model		PR-T-2	Rel. Humidity	38	%
SN		2400126	Bar. Pressure	28.5	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument
Cal Lab Module & Test Probe	Spec				
Temperature (°F)	1	78.5	-0.3	+0.3	78.7
	2	241.5	-2.6	+2.6	242.8
	3	-43.8	-1.6	+1.6	-44.5

Indicates out of tolerance condition ----↑

Calibration Standard SN & Dates

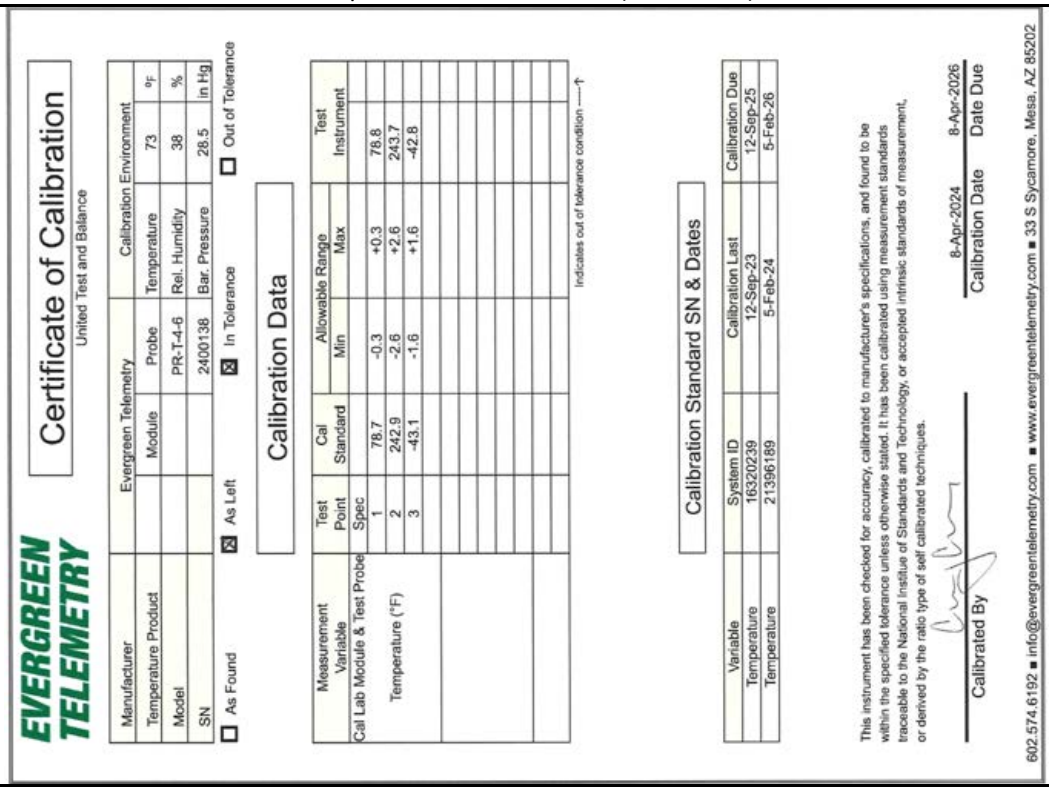
Variable	System ID	Calibration Last	Calibration Due
Temperature	16320239	12-Sep-23	12-Sep-25
Temperature	21396189	5-Feb-24	5-Feb-26

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institue of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By — 8-Apr-2024 Calibration Date — 8-Apr-2026 Date Due

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Temperature Measurement (Immersion)



EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

Manufacturer	Evergreen Telemetry		Calibration Environment		
Temperature Product	Module	Probe	Temperature	73	°F
Model		PR-T-4-6	Rel. Humidity	38	%
SN		2400138	Bar. Pressure	28.5	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument
Cal Lab Module & Test Probe	Spec				
Temperature (°F)	1	78.7	-0.3	+0.3	78.8
	2	242.9	-2.6	+2.6	243.7
	3	-43.1	-1.6	+1.6	-42.8

Indicates out of tolerance condition ----↑

Calibration Standard SN & Dates

Variable	System ID	Calibration Last	Calibration Due
Temperature	16320239	12-Sep-23	12-Sep-25
Temperature	21396189	5-Feb-24	5-Feb-26

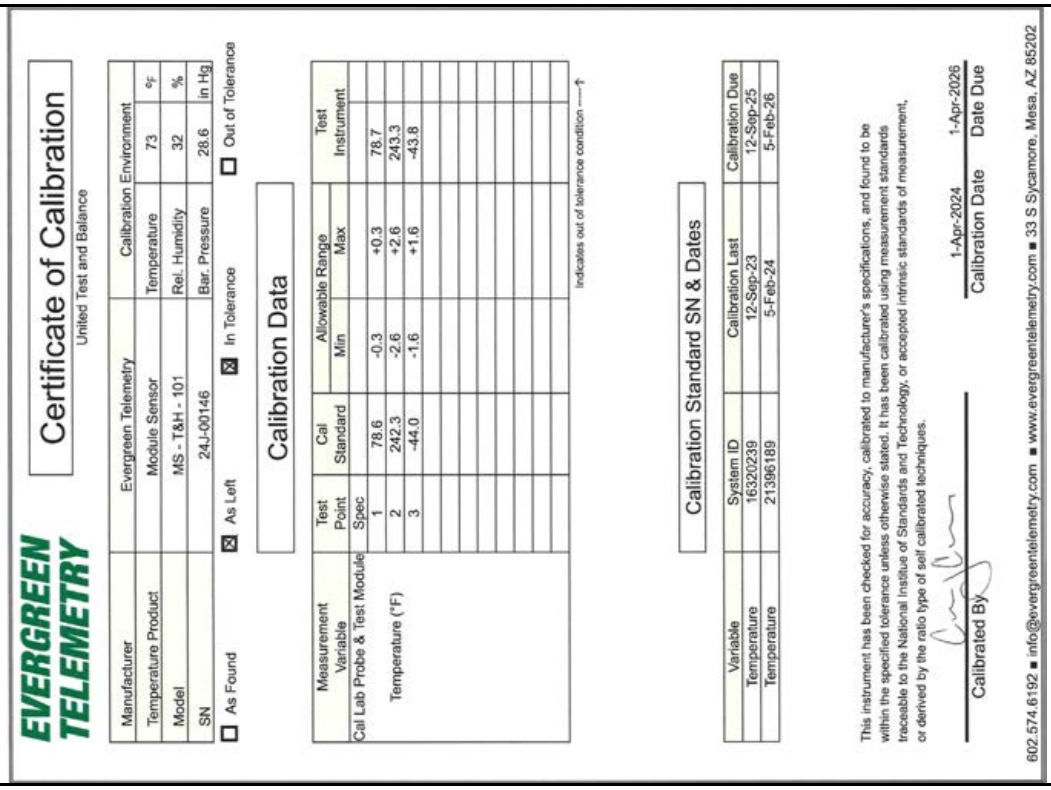
This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institue of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By — 8-Apr-2024 Calibration Date — 8-Apr-2026 Date Due

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Temperature Measurement (Surface)

Proof of Calibration



EVERGREEN TELEMETRY

Certificate of Calibration

United Test and Balance

Manufacturer	Evergreen Telemetry	Calibration Environment		
Temperature Product	Module Sensor	Temperature	73	°F
Model	MS - T&H - 101	Rel. Humidity	32	%
SN	24J-00146	Bar. Pressure	28.6	in Hg

☐ As Found ☒ As Left ☒ In Tolerance ☐ Out of Tolerance

Calibration Data

Measurement Variable	Test Point	Cal Standard	Allowable Range Min	Allowable Range Max	Test Instrument
Cal Lab Probe & Test Module	Spec				
Temperature (°F)	1	78.6	-0.3	+0.3	78.7
	2	242.3	-2.6	+2.6	243.3
	3	-44.0	-1.6	+1.6	-43.8

Indicates out of tolerance condition ——↑

Calibration Standard SN & Dates

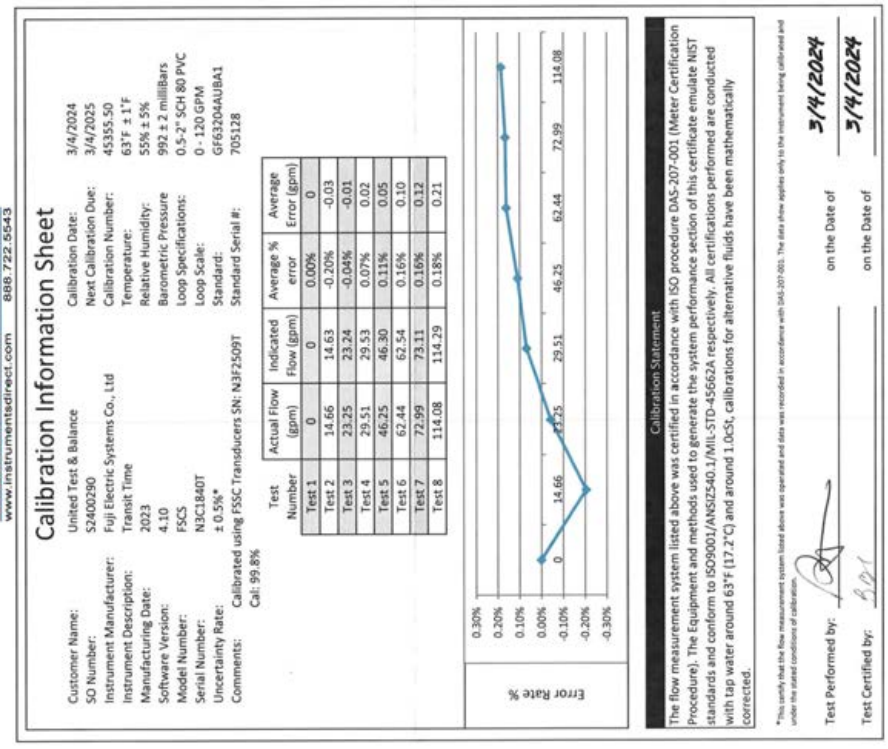
Variable	System ID	Calibration Last	Calibration Due
Temperature	16320239	12-Sep-23	12-Sep-25
Temperature	21396189	5-Feb-24	5-Feb-26

This instrument has been checked for accuracy, calibrated to manufacturer's specifications, and found to be within the specified tolerance unless otherwise stated. It has been calibrated using measurement standards traceable to the National Institue of Standards and Technology, or accepted intrinsic standards of measurement, or derived by the ratio type of self calibrated techniques.

Calibrated By _____ 1-Apr-2024 Calibration Date 1-Apr-2026 Date Due

602.574.6192 ■ info@evergreentelemetry.com ■ www.evergreentelemetry.com ■ 33 S Sycamore, Mesa, AZ 85202

Temperature Measurement Meter



Instruments Direct — Ultrasonic Flow Meter Rental & Sales — www.instrumentsdirect.com 888.722.5543

Calibration Information Sheet

Customer Name:	United Test & Balance	Calibration Date:	3/4/2024
SO Number:	S2400290	Next Calibration Due:	3/4/2025
Instrument Manufacturer:	Fuji Electric Systems Co., Ltd	Calibration Number:	45355.50
Instrument Description:	Transit Time	Temperature:	63°F ±1°F
Manufacturing Date:	2023	Relative Humidity:	55% ± 5%
Software Version:	4.10	Barometric Pressure	992 ± 2 millibars
Model Number:	FSCS	Loop Specifications:	0.5-2" SCH 80 PVC
Serial Number:	N3C1840T	Loop Scale:	0 - 120 GPM
Uncertainty Rate:	± 0.5%*	Standard:	GF63204AUBA1
Comments:	Calibrated using FSSC Transducers SN: N3F2509T Cal: 99.8%	Standard Serial #:	705128

Test Number	Actual Flow (gpm)	Indicated Flow (gpm)	Average % error	Average Error (gpm)
Test 1	0	0	0.00%	0
Test 2	14.66	14.63	-0.20%	-0.03
Test 3	23.25	23.24	-0.04%	-0.01
Test 4	29.51	29.53	0.07%	0.02
Test 5	46.25	46.30	0.11%	0.05
Test 6	62.44	62.54	0.16%	0.10
Test 7	72.99	73.11	0.16%	0.12
Test 8	114.08	114.29	0.18%	0.21

Calibration Statement

The flow measurement system listed above was certified in accordance with ISO procedure DAS-207-001 (Meter Certification Procedure). The Equipment and methods used to generate the system performance section of this certificate emulate NIST standards and conform to ISO9001/ANSIZ540.1/MIL-STD-45662A respectively. All certifications performed are conducted with tap water around 63°F (17.2°C) and around 1.0cSt, calibrations for alternative fluids have been mathematically corrected.

*This certify that the flow measurement system listed above was operated and data was recorded in accordance with DAS-207-001. The data show applies only to the instrument being calibrated and under the stated conditions of calibration.

Test Performed by: _____ on the Date of 3/4/2024

Test Certified by: _____ on the Date of 3/4/2024

Ultrasonic Flow Meter

Terms & Abbreviations

AHU	AIR HANDLING UNIT
AC OR ACU	AIR CONDITIONER UNIT
ACCU	AIR COOLED CONDENSING UNIT
ADJ P.D.	ADJUSTED PITCH DIAMETER
AMP	AMPERE
AVG	AVERAGE
B.H.P.	BRAKE HORSEPOWER
C.D.	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
C.E.	CEILING EXHAUST
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHW OR CHWS	CHILLED WATER SUPPLY
C.R.	CEILING RETURN
CT	COOLING TOWER
CWR	CONDENSER WATER RETURN
CW OR CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
D.D.	DIRECT DRIVE
D.P.	DIFFERENCE, NET DECREASE OR INCREASE
DIA	DIAMETER
D.N.A.	DATA NOT AVAILABLE
D.N.L	DATA NOT LISTED
EAT	ENTERING AIR TEMPERATURE
EDC	ELECTRIC DUCT COIL
EDH	ELECTRIC DUCT HEALER
EF	EXHAUST FAN
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EWT	ENTERING WATER TEMPERATURE
FCU	FAN COIL UNIT
FH	FUME HOOD
FG	FLOOR GRILLE
F.E.	FLOOR EXHAUST OR RETURN
F.L.A	FULL LOAD AMPERAGE
FPB	FAN POWERED BOX
FPM	FEET PER MINUTE
F.S.	FLOOR SUPPLY
F.S.R	FLOOR SUPPLY REGISTER
FT. HD	FEET OF HEAD
GPM	GALLONS PER MINUTE
GFH	GAS FIRED HEATER
HC	HEATING COIL
HEATER O.L.	THERMAL OVERLOAD PROTECTION FOR MOTORS LOCATED AT THE MOTOR STARTER
HEPA	HIGH EFFICIENCY PARTICULATE AIR
H.F.	HEPA FILTER
HOA	HAND/OFF/AUTO SWITCH
H.P.	HORSEPOWER
HPS	HIGH PRESSURE STEAM
HRC	HEAT RECOVERY COIL OR HEAT RECLAIM COIL
HVAC	HEATING , VENTILATION AND AIR CONDITIONING
HWR	HOT WATER RETURN OR HEATING WATER RETURN
HWS	HOT WATER SUPPLY OR HEATING WATER SUPPLY
HX	HEAT EXCHANGER
I.D.	INSIDE DIAMETER
LAT	LEAVING AIR TEMPERATURE
L.D.	LINEAR SUPPLY DIFFUSER
LPS	LOW PRESSURE STEAM
L.T.	LIGHT TROFFER
LWG	LOW WALL GRILLE
LWR	LOW WALL RETURN
LWT	LEAVING WATER TEMPERATURE
MAU/MUA	MAKE UP AIR UNIT
MBH	1,000 BTU'S PER HOUR
N.A.	NOT ACCESSIBLE or NOT APPLICABLE
N.I.	NOT INSTALLED
N.P.	NOT PROVIDED (Submittal was not provided)
N.L.	NOT LISTED (Data was not on submittal or schedule)
N.T.	NOT TAKEN
N.V.L	NO VALID LOCATION
N.Z.	NOZZLE
O.D.	OUTSIDE DIAMETER
OPEN	NO TERMINAL DEVICE INSTALLED
O.S.A. MIN	OUTSIDE AIR MINIMUM
OAT	OUTSIDE AIR TEMPERATURE
PF	POWER FACTOR
PMP	CIRCULATING PUMP
PSI	POUNDS PER SQUARE INCH
P.T.	PITOT TRAVERSE
RA	RETURN AIR
RF	RETURN AIR FAN
R.G.	RETURN GRILLE
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
PHC	PREHEAT COIL
PH	PHASE(S)
S.D.	SUPPLY DIFFUSER
SEF	SMOKE EXHAUST FAN
SF (AIR)	SUPPLY FAN
S.F. (ELECT)	SERVICE FACTORS
SHC	STEAM HEATING COIL
S.P. "W.C."	STATIC PRESSURE RESISTANCE, MEASURED IN INCHES OF WATER COLUMN
S.W.E.	SIDEWALL EXHAUST
S.W.R.	SIDEWALL RETURN
S.W.S.	SIDEWALL SUPPLY
TAB	TESTING, ADJUSTING, AND BALANCING
TSP	TOTAL STATIC PRESSURE
UH	UNIT HEATER
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VP	VELOCITY PRESSURE
W	WATTS
WB	WET BULB
W.G.	WATER GAUGE
°F	DEGREES FAHRENHEIT
ΔP	DIFFERENTIAL (DELTA) PRESSURE OR PRESSURE DROP
ΔT	DIFFERENTIAL (DELTA) TEMPERATURE, NET TEMPERATURE DECREASE OR INCREASE

Warranty Page

United Test & Balance, Inc. (United) provides a one-year warranty for the Test and Balance or Commissioning work performed by them or their subcontractors on this project. The warranty period is one year from the date of this report and/or warranty page. Within the warranty period if the systems tested and reported show evidence of major performance deterioration, or is significantly out of tolerance, resulting from defective test and balance workmanship; United will repair and/or replace defective work or materials if responsibility is solely identified as related to the TAB work. Any evidence of the following will be deemed as not a material work defect caused by tested and balance 1) evidence of improper materials, improper installation or failed control operations 2) evidence of controls, mechanical or commissioning contractor's failure to perform specified project requirements 3) evidence of the owner or occupant's failure to maintain mechanical systems.

If the warranty issue is found to be attributed to mechanical equipment, control or maintenance related failure, or any other cause not related to the TAB work, the return trip may be subject to a service charge. Important: United TAB reserves the right to resolve TAB issues and correct any errors or omissions in test data. If any third-party or competing agency (TAB or Commissioning) tests or adjust any equipment or fluid flows, ALL PROJECT WARRANTY IS VOIDED.

United needs written notice for any TAB warranty item. Notice should be specific, itemized, and include any issues or concerns, including the specific location or system. After receiving written notice, United TAB will Assign a Project Manager to address the warrant issue. United TAB recommends an owner representative is on-site for the warrant visit.

For any balancing issues or concerns that arise, United TAB will return to the project site to address the issue or concern. United TAB will check and corroborate that the tested systems adhere with the reported data. This work will be performed at no charge.

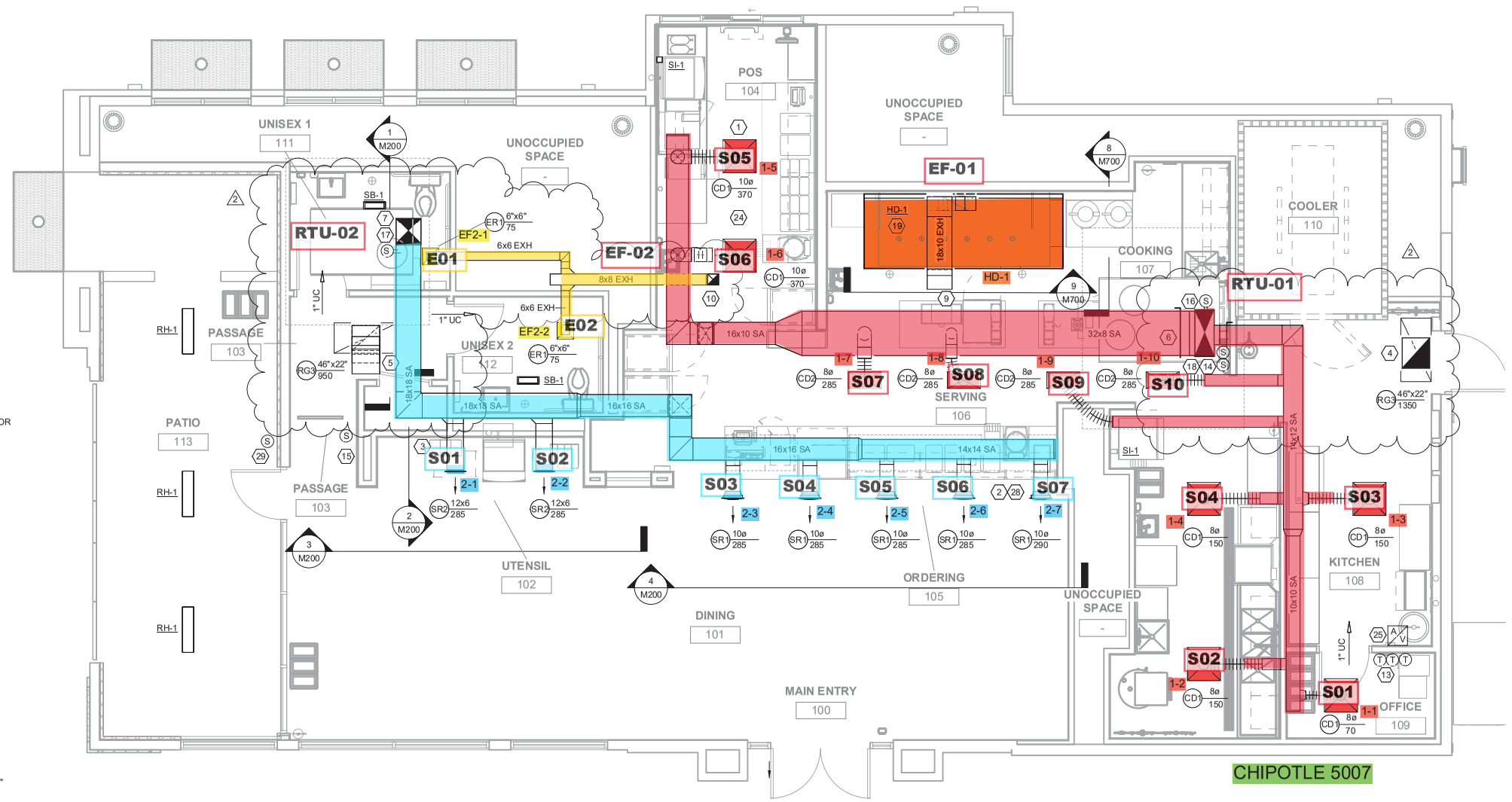
United's warranty covers comfort balancing for occupants at a maximum of one year or two warranty comfort balance visits.

As a default, TAB work is performed with systems configured for total design flow condition for both cooling and heating modes regardless of OA ambient temperature. Therefore, unless otherwise noted, this TAB report fulfills any Opposite Season requirements.

United keeps an electronic file of all test documents through the end of the warranty period. During that time electronic copies of the report are provided at no charge. Extra paper copies may be subject to a fee. Building owners should keep all documentation for future reference. All documentation about this project will be destroyed in accordance with our record retention schedule.

HVAC PLAN NOTES:

1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING MOUNTED EQUIPMENT LOCATION. TYPICAL.
2. PAINT DUCTWORK VISIBLE THROUGH DINING ROOM SUPPLY REGISTERS BLACK. TYPICAL.
3. PENETRATIONS THROUGH SHEAR WALL SHALL BE LIMITED TO 10" DIAMETER (OR A GROUP OF PENETRATIONS ALL CONTAINED WITHIN 10" DIAMETER). IF LARGER PENETRATIONS OR GROUPS OF PENETRATIONS ARE REQUIRED COORDINATE WITH STRUCTURAL ENGINEER FOR APPROPRIATE BRACING. SEE STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATION.
4. 20"x22" DUCT THRU TO ROOF. RTU-1 SHALL HAVE AN INTEGRAL SMOKE DETECTOR MOUNTED IN THE RETURN AIR STREAM. INTERLOCK SMOKE DETECTOR TO RTU-1 OPERATION.
5. 18"x20" DUCT UP THRU ROOF. RTU-2 SHALL HAVE AN INTEGRAL SMOKE DETECTOR MOUNTED IN THE RETURN AIR STREAM. INTERLOCK SMOKE DETECTOR TO RTU-2 OPERATION.
6. 34"x14" DUCT UP FROM BUILDING SUPPLY THROUGH ROOF. TRANSITION TO RTU-1 SUPPLY CONNECTION IN ROOF CURB.
7. 18"x48" DUCT UP FROM BUILDING SUPPLY TO RTU-2 SUPPLY CONNECTION. TRANSITION IN ROOF CURB.
8. NOT USED.
9. 18"x10" DUCT UP FROM HOOD THROUGH ROOF TO EF-1 COMPLIANT WITH NFPA 96. PROVIDE RADIUSED ELBOWS WITH AN INSIDE RADIUS OF 0.5W AT ELBOWS IN GREASE DUCT.
10. 8"x6" DUCT UP THROUGH ROOF TO EF-2.
11. NOT USED.
12. NOT USED.
13. INSTALL GRIDPOINT THERMOSTATS FURNISHED BY TEMS FOR RTU-1, RTU-2, AND RADIANT HEATERS AT THIS LOCATION AT 48" AFF. COORDINATE WITH ELECTRICAL SWITCHING IN THIS AREA. ROVIDE WIRING AS SHOWN IN DETAIL 8/E710.
14. INSTALL GRIDPOINT ZONE SENSOR MODULE FURNISHED BY TEMS FOR RTU-1 AT THIS LOCATION 60" AFF DIRECTLY TO WALL (NO JUNCTION BOX). COORDINATE LOCATION WITH EQUIPMENT. PROVIDE WIRING AS SHOWN IN DETAIL 7/E710.
15. INSTALL GRIDPOINT ZONE SENSOR MODULE FURNISHED BY TEMS FOR RTU-2 AT THIS LOCATION 66" AFF DIRECTLY TO WALL (NO JUNCTION BOX). COORDINATE LOCATION WITH EQUIPMENT. PROVIDE WIRING AS SHOWN IN DETAIL 7/E710.
16. INSTALL GRIDPOINT SUPPLY PROBE FURNISHED BY TEMS FOR RTU-1 IN THE SUPPLY DUCTWORK UPSTREAM FROM THE FIRST BRANCH CONNECTION. PROVIDE WIRING AS SHOWN IN DETAIL 7/E710.
17. INSTALL GRIDPOINT SUPPLY PROBE FURNISHED BY TEMS FOR RTU-2 IN THE SUPPLY DUCTWORK UPSTREAM FROM THE FIRST BRANCH CONNECTION. PROVIDE WIRING AS SHOWN IN DETAIL 7/E710.
18. INSTALL REMOTE TEMPERATURE SENSOR FOR HOOD HD-1 AT THIS LOCATION 66" AFF. COORDINATE LOCATION WITH EQUIPMENT. PROVIDE (2) #18 G. THERMISTOR CABLE FROM TEMPERATURE SENSOR TO HOOD CONTROL PANEL.
19. INSTALL KITCHEN HOOD, HD-1. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL HOOD ACCORDING TO THE REQUIREMENTS OF ITS LISTING, IN COMPLIANCE WITH NFPA 96, THE BUILDING CODE, AND AUTHORITIES HAVING JURISDICTION. HOOD SHALL HAVE AN INTEGRAL DUCT COLLAR TEMPERATURE SENSORS TO AUTOMATICALLY ENERGIZE THE EXHAUST AND MAKEUP AIR FANS IF COOKING TEMPERATURES ARE DETECTED. EXHAUST DUCT SYSTEM TO BE WELDED OR FACTORY-MANUFACTURED WATER AND AIR TIGHT. INSTALL CLEANOUTS PER CODE AND AS SHOWN. INSTALL HOOD PER DETAILS 2 AND 4/M700. CHIPOTLE WILL PROVIDE AN INDEPENDENT TESTING AGENCY FOR TESTING THE INTEGRITY OF THE GREASE DUCT SYSTEM.
20. INSTALL REMOTE CONDENSING UNIT FOR WALK-IN COOLER ON ROOF AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, LOW AMBIENT CONTROLS, AND WEATHERPROOF HOUSING. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. INSTALLATION SHALL COMPLY WITH ASHRAE/ANSI STANDARD 15. INSTALL THE REFRIGERANT LINE SET UNDER THE ROOF DECK TO WITHIN 3' OF THE CONDENSING UNIT. CUT 2-1/2" HOLE IN WALK-IN COOLER ROOF FOR REFRIGERANT LINE SET AND SEAL PER THE COOLER MANUFACTURER'S INSTALLATION INSTRUCTIONS AFTER LINE SET IS INSTALLED
21. INSTALL REMOTE CONDENSER FOR ICE MACHINE ON ROOF AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, LOW AMBIENT CONTROLS, AND WEATHERPROOF HOUSING. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. SEAL PIPING PENETRATIONS THROUGH ROOF. INSTALLATION SHALL COMPLY WITH ASHRAE/ANSI STANDARD 15. INSTALL THE REFRIGERANT LINE SET UNDER THE ROOF DECK TO WITHIN 3' OF THE REMOTE CONDENSER. IF REFRIGERANT PIPING TO ICE MAKER IS EXPOSED TO PUBLIC VIEW CONCEAL WITHIN A STAINLESS STEEL SHROUD AS SHOWN IN THE ARCHITECTURAL DRAWINGS.
22. INSTALL ROOFTOP EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
23. INSTALL EXHAUST FAN EF-1 PER DETAIL 5/M700 AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL GREASE VIROGUARD SYSTEM FURNISHED BY CHIPOTLE ON EXHAUST FAN, EF-1.
24. PROVIDE SUPPLY DIFFUSER CONNECTION TO SUPPLY SYSTEM PER DETAIL 1/M700. TYPICAL.
25. PROVIDE AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET. WIRE A UNIT BACK TO EACH SMOKE DETECTOR. MOUNT UNIT 60" AFF. TYPICAL.
26. INSTALL REME HALO AIR PURIFIER FURNISHED BY TUV IN RTU PER DETAIL 6/M700. SEE ELECTRICAL DRAWINGS FOR POWER CONNECTION INFORMATION. INSTALL UV WARNING STICKERS ON FACE OF ENCLOSURE PER DETAIL AND ON ANY RTU ACCESS DOOR(S) THROUGH WHICH THE REME HALO WOULD BE VISIBLE IF OPENED.
27. MAINTAIN 10' CLEARANCE BETWEEN WATER HEATER FLUE TERMINATION AND OUTSIDE AIR INTAKES. MAINTAIN 10' CLEARANCE BETWEEN WATER HEATER COMBUSTION AIR INTAKE AND EXHAUST FAN EF-1 DISCHARGE. SEE PLUMBING DRAWINGS FOR MORE INFORMATION ON WATER HEATER FLUE AND COMBUSTION AIR TERMINATIONS.
28. ADJUST SUPPLY REGISTERS SO THAT AIR HITS WALL ON OPPOSITE SIDE OF ROOM AT APPROXIMATELY 7'-0" AFF WITH NO DRAFTS FELT IN THE DINING ROOM.
29. INSTALL GRIDPOINT ZONE SENSOR MODULE FURNISHED BY TEMS FOR RH-1 AT THIS LOCATION 66" AFF DIRECTLY TO WALL (NO JUNCTION BOX). COORDINATE LOCATION WITH EQUIPMENT. PROVIDE WIRING AS SHOWN IN DETAIL 7/E710.



CHIPOTLE 5007

MECHANICAL FLOOR PLAN

1/4" = 1'-0"

4' 2' 0' 4' 8'

GRAPHIC SCALE: 1/4" = 1'-0"

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMANCOM

PETER D' ANTONIO
STATE OF WASHINGTON
22011739
REGISTERED PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007
BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

Issue Record:

08/28/2023	PERMIT SET
10/13/2023	BID SET
11/10/2023	PLAN CHECK RESPONSE
01/05/2024	IFC SET

Revisions:

2	02/09/2024	RFI 006 - RTU REVISIONS

Drawn:	PM:	CC:	Checked:
MM	BE	WS	PD

Project No.
230413

Contents:
MECHANICAL FLOOR PLANS

M100

AIR BALANCE SCHEDULE

TAG	SUPPLY AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	SUBTOTAL (CFM)
EF-1	0	0	1900	-1900
EF-2	0	0	150	-150
RTU-1	2400	1450	0	1050
RTU-2	2000	1050	0	1050
			NET PRESSURIZATION	50

VENTILATION CALCULATIONS

Ventilation Calculations Comply with: ASHRAE 62.1

Room Name	Room Area (Az)	Room Type	Zone Air Distribution Effectiveness (Ez)	Number of People (Pz)	CFM/Person (Rp)	CFM/sqft	Breathing Zone OA (Vbz)	Zone Outdoor Airflow (Voz)	System Ventilation Efficiency (Ev)	Required Outdoor Air Intake (Vot)	Outside Air Provided
RTU-1 - KITCHEN (MULTIPLE ZONE WITH SINGLE RECIRC)											
104 - POS	215	Cafeteria, fast food	0.8	2	7.5	0.18	54	67	0.94	**172**	**1050**
106 - SERVING	46	Cafeteria, fast food	0.8	2	7.5	0.18	23	29			
107 - COOKING	359	Kitchens (cooking)	0.7 CFM/SF EXHAUST								
108 - KITCHEN (FOOD PREP)	349	Cafeteria, fast food	0.8	2	7.5	0.18	78	97			
109 - OFFICE	49	Office spaces	0.8	1	5	0.06	8	10			
Total							**163**	**203**			
RTU-2 - DINING (SINGLE ZONE)											
105 - DINING/ORDERING	628	Dining rooms	0.8	50	7.5	0.18	502	627	N/A	**630**	**1050**
102 - UTENSIL	77	Dining rooms									
103 - PASSAGE	39	Corridors	0.8	0	0	0.06	2	3			
Total							**504**	**630**			

HVAC MATERIAL SCHEDULE

TYPE	APPLICATION	ALLOWABLE MATERIAL
DUCT	CONCEALED, GENERAL EXHAUST	RECTANGULAR OR ROUND AS SHOWN
DUCT	CONCEALED, RETURN	RECTANGULAR OR ROUND AS SHOWN, LINED OR INSULATED
DUCT	CONCEALED, SUPPLY	RECTANGULAR OR ROUND AS SHOWN, LINED OR INSULATED
DUCT	CONCEALED, TYPE I HOOD EXHAUST	RECTANGULAR 16 GA. BLACK IRON WITH WRAP OR UL 1978 FACTORY-MANUFACTURED DUCT WITH WRAP (SUBMIT SHOP DRAWINGS FOR FACTORY-MANUFACTURED DUCT PRIOR TO ORDERING FOR APPROVAL)
DUCT	EXPOSED GENERAL EXHAUST	RECTANGULAR, NO EXPOSED DUCT-SEALING MASTIC
DUCT	EXPOSED RETURN	RECTANGULAR, NO EXPOSED DUCT-SEALING MASTIC
DUCT	EXPOSED SUPPLY	RECTANGULAR LINED OR ROUND AS SHOWN, NO EXPOSED DUCT-SEALING MASTIC

AIR DEVICE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	MATERIAL	FINISH	MOUNTING	FACE SIZE	NECK SIZE	OPPOSED BLADE DAMPER	SERVICE	MAXIMUM NOISE CRITERIA (NC)	NOTES
CD-1	PERFORATED CEILING DIFFUSER	NAILOR	4320A TYPE L	ALUMINUM	WHITE	LAY-IN	24" X 24"	SEE PLANS	YES	SUPPLY	35	2, 3, 5
CD-2	PERFORATED CEILING DIFFUSER	NAILOR	4320A TYPE L	ALUMINUM	WHITE	SURFACE	24" X 12"	SEE PLANS	YES	SUPPLY	35	2, 3, 4, 5
ER-1	PERFORATED CEILING EXHAUST	NAILOR	4330R TYPE S	ALUMINUM	WHITE	SURFACE	12" X 12"	SEE PLANS	YES	EXHAUST	35	2, 3
RG-1	PERFORATED CEILING RETURN	NAILOR	4330R TYPE L	ALUMINUM	WHITE	LAY-IN	48" X 24"	SEE PLANS	NO	RETURN	35	2, 3
RG-3	PERFORATED CEILING RETURN	NAILOR	4330R TYPE S	ALUMINUM	WHITE	SURFACE	48" X 24"	SEE PLANS	NO	RETURN	35	2, 3
S/R-1	ADJUSTABLE TURBO NOZZLE	AIRCONCEPTS	ANR-14	ALUMINUM	WHITE	WALL	NECK + 1-2"	SEE PLANS	YES	SUPPLY	35	2, 3, 6
S/R-2	DOUBLE DEFLECTION SUPPLY REGISTER	NAILOR	51DH	ALUMINUM	WHITE	WALL	NECK + 2"	SEE PLANS	YES	SUPPLY	35	2, 3, 5

NOTES:
1. SEE ELECTRICAL PLAN FOR CONNECTION INFORMATION.
2. MAXIMUM STATIC PRESSURE DROP OF 0.15"WC UNLESS OTHERWISE NOTED.
3. SEE PLANS FOR SIZES AND QUANTITIES.
4. REMOVE 4-WAY DEFLECTORS.
5. PROVIDE WITH INTEGRAL OBD.
6. PROVIDE WITH CONCEALED MOUNTING AND FACE ACCESSIBLE OBD.

NOT ALL AIR DEVICES ARE USED ON PLANS.

CONDENSING UNIT SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	NUMBER OF		REFRIGERANT		WEIGHT	ELECTRICAL			NOTES
				COMPRESSORS	CIRCUITS	TYPE	CHARGE		MOCP	FLA	V/P/H	
CU-1	CONDENSING UNIT - WALK IN COOLER	HARFORD	KPCL99MZOP-3E	1	1	R-404A	10.4 LB	250 LBS	15 A	9 A	208/3/60	1, 2
CU-2	REMOTE CONDENSER - LOW CAPACITY ICE MAKER	HOSHIZAKI	URC-9F	0	1	R-404A	11.46 LB	100 LBS	15 A	9 A	120/1/60	1, 3
CU-3	REMOTE CONDENSER - SODA MACHINE ICE MAKER	HOSHIZAKI	URC-5F	0	1	R-404A	3.86 LB	100 LBS	15 A	9 A	120/1/60	1, 3

NOTES:
1. EQUIPMENT SPECIFIED BY OTHERS, SHOWN FOR REFERENCE ONLY.
2. FURNISHED WITH WALK-IN COOLER.
3. FURNISHED WITH ICE MAKER.

EXHAUST FAN SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	SERVICE	LOCATION	FAN DATA			ELECTRICAL DATA					WEIGHT	NOTES
						AIRFLOW	E.S.P.	MOUNT	DRIVE	MOTOR POWER	AMPS	VOLTAGE	PHASE		
EF-1	UPBLAST UL762 EXHAUST FAN	CAPTIVEAIRE	DU85HFA	KITCHEN HOOD	ROOF	1,900 CFM	1.2"WC	ROOF CURB	DIRECT	1.0 HP	11.6	115	1	93	1-4
EF-2	DOWNBLAST RESTROOM EXHAUST FAN	CAPTIVEAIRE	DR12HFA	RESTROOMS	ROOF	150	0.6"WC	ROOF CURB	DIRECT	0.25 HP	2.9	115	1	50	5-7

NOTES:
1. WEATHERPROOF DISCONNECT.
2. 20" HIGH VENTED ROOF CURB
3. GREASE DRAIN.
4. ENVIROMATIC VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM.
5. INTEGRAL DISCONNECT.
6. SPEED CONTROL.
7. 26" CURB WITH BACKDRAFT DAMPER.
8. E.S.P. INCLUDES E.S.P. OF EXHAUST PLENUM LISTED IN KITCHEN HOOD SCHEDULE.

KITCHEN HOOD SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	MAX COOKING TEMP	EXHAUST PLENUM						# OF LIGHT FIXTURES	WEIGHT	NOTES
					AIRFLOW	E.S.P.	WIDTH	LENGTH	DUCT COLLARS #	DUCT COLLARS WIDTH	DUCT COLLARS LENGTH			
HD-1	TYPE 1 CANOPY HOOD WITH PERFORATED MAU AND HVAC SUPPLY PLENUMS	CAPTIVEAIRE	5424 ND-2	600 DEG. F.	1,900 CFM	0.818" WC	4'-6"	10'-4"	1	10"	18"	6	1,070 LBS	1-11

NOTES:
1. 18 GAUGE TYPE 430 STAINLESS STEEL CONSTRUCTION.
2. FURNISHED WITH VAPORPROOF INCANDESCENT LIGHT FIXTURES.
3. 16" TALL HE.SS FILTERS.
4. INTEGRAL UTILITY CABINET.
5. ANSUL SYSTEM.
6. DUCT COLLAR TEMPERATURE SENSOR.
7. PREWIRE PACKAGE.
8. SPARE FIRE SYSTEM DRY CONTACT.
9. 4-POLE 20A CONTACTOR.
10. DVC-1 KITCHEN FAN CONTROL CENTER TO ENGAGE ASSOCAITED MAKE-UP AIR UNIT AND EXHAUST FAN AND CONTROL LIGHTS.
11. UL LISTED FIRE SUPPRESSION AND GREASE COLLECTION SYSTEM.

ROOFTOP UNIT SCHEDULE (HEAT PUMP WITH ELECTRIC RESISTANCE)

TAG	DESCRIPTION	MANUFACTURER	MODEL	NOMINAL CAPACITY	AIRFLOW			COOLING DATA				HEATING DATA - HEAT PUMP	HEATING DATA - BACKUP		ELECTRICAL DATA				OPERATING WEIGHT (LBS)	NOTES
					SUPPLY AIR	OUTSIDE AIR	E.S.P.	REFRIGERANT	TOTAL CAPACITY (NET)	SENSIBLE CAPACITY (NET)	EER	IEER	OUTPUT - 21 DEGREES	FUEL	INPUT	OUTPUT	MOCP	MCA	VOLTAGE	PHASE		
RTU-1	KITCHEN ROOFTOP UNIT	YORK	XYEA7A2C3AA2C224A2	6 TONS	2,400 CFM	1050 CFM	0.80"	R-410A	72.2 MBH	48.3 MBH	12.00	14.8	38.0 MBH	ELEC	16 kW	54.6 MBH	90	83.9	208-230	3	977	1-9
RTU-2	DINING ROOM ROOFTOP UNIT	YORK	XYE06A2C1AA2C224A3	5 TONS	2,000 CFM	1050 CFM	0.80"	R-410A	66.6 MBH	43.4 MBH	12.50	15.0	30.4 MBH	ELEC	16 kW	54.6 MBH	80	78.6	208-230	3	751	1-9

NOTES:
1. FURNISHED WITH ENTHALPY ECONOMIZER AND BAROMETRIC RELIEF.
2. SMOKE DETECTOR WITH REMOTE KEYED ANNUNCIATOR/RESET.
3. MOTORIZED OUTSIDE AIR DAMPER.
4. MERV-8 FILTERS.
5. ROOF CURB.
6. HAIL GUARD.
7. TOOL-LESS HINGED ACCESS PANELS.
8. UNIT DISCONNECT.
9. UNIT-MOUNTED CONVENIENCE RECEPTACLE.

VIROGUARD SCHEDULE

TAG	DESCRIPTION	DUCT CONNECTION SIZE	BASIS FOR DESIGN MANUFACTURER	FAN	SERVICE	FURNISHED BY	INSTALLED BY
VG-1	VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM	22" X 22"	ENVIROMATIC	CAPTIVE-AIRE DU85HFA	KITCHEN HOOD EXHAUST FAN	TDC	GC

RADIANT HEATER SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	LOCATION	ELECTRICAL DATA				NOTES
					WATTS	AMPS	VOLTAGE	PHASE	
RH-1	CEILING HUNG RADIANT HEATER	ELECTRICSCHWANK	ES-1033	113 - PATIO	1000	8.3	120	1	1, 2

NOTES:
1. PROVIDE WITH VARIABLE CONTROL THERMOSTAT AND WEATHERPROOF COVER.
2. INSTALL UNIT HUNG FROM PATIO CEILING.

SANITIZING EQUIPMENT SCHEDULE

TAG	COUNT	DESCRIPTION	MANUFACTURER	MODEL	FURNISHED BY	INSTALLED BY	REMARKS
SB-1	2	BATHROOM AIR PURIFICATION UNIT	RGF ENVIRONMENTAL GROUP	BRU ASSEMBLY	TUV	GC	SEE ELECTRICAL SHEETS FOR CONNECTION INFORMATION
SH-1	2	HVAC AIR PURIFICATION UNIT	RGF ENVIRONMENTAL GROUP	REME-HALO	TUV	GC	SEE DETAIL 6/M700 FOR INSTALLATION INFORMATION.
SI-1	3	ICE MACHINE TREATMENT SYSTEM	RGF ENVIRONMENTAL GROUP	IMS-B-GA	TUV	GC	SEE PLUMBING DRAWINGS FOR INSTALLATION INFORMATION.

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO — STATE OF WASHINGTON — 22011739 — REGISTERED PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007

BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

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Contents:

MECHANICAL SCHEDULES

M600

KEY NOTES: (#)

1 INSTALL REMOTE CONDENSING UNIT FOR WALK-IN COOLER ON ROOF AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, LOW AMBIENT CONTROLS, AND WEATHERPROOF HOUSING. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. INSTALLATION SHALL COMPLY WITH ASHRAE/ANSI STANDARD 15. INSTALL THE REFRIGERANT LINE SET UNDER THE ROOF DECK TO WITHIN 3' OF THE CONDENSING UNIT. CUT 2-1/2" HOLE IN W.I.K.-IN COOLER ROOF FOR REFRIGERANT LINE SET AND SEAL PER THE COOLER MANUFACTURER'S INSTALLATION INSTRUCTIONS AFTER LINE SET IS INSTALLED.

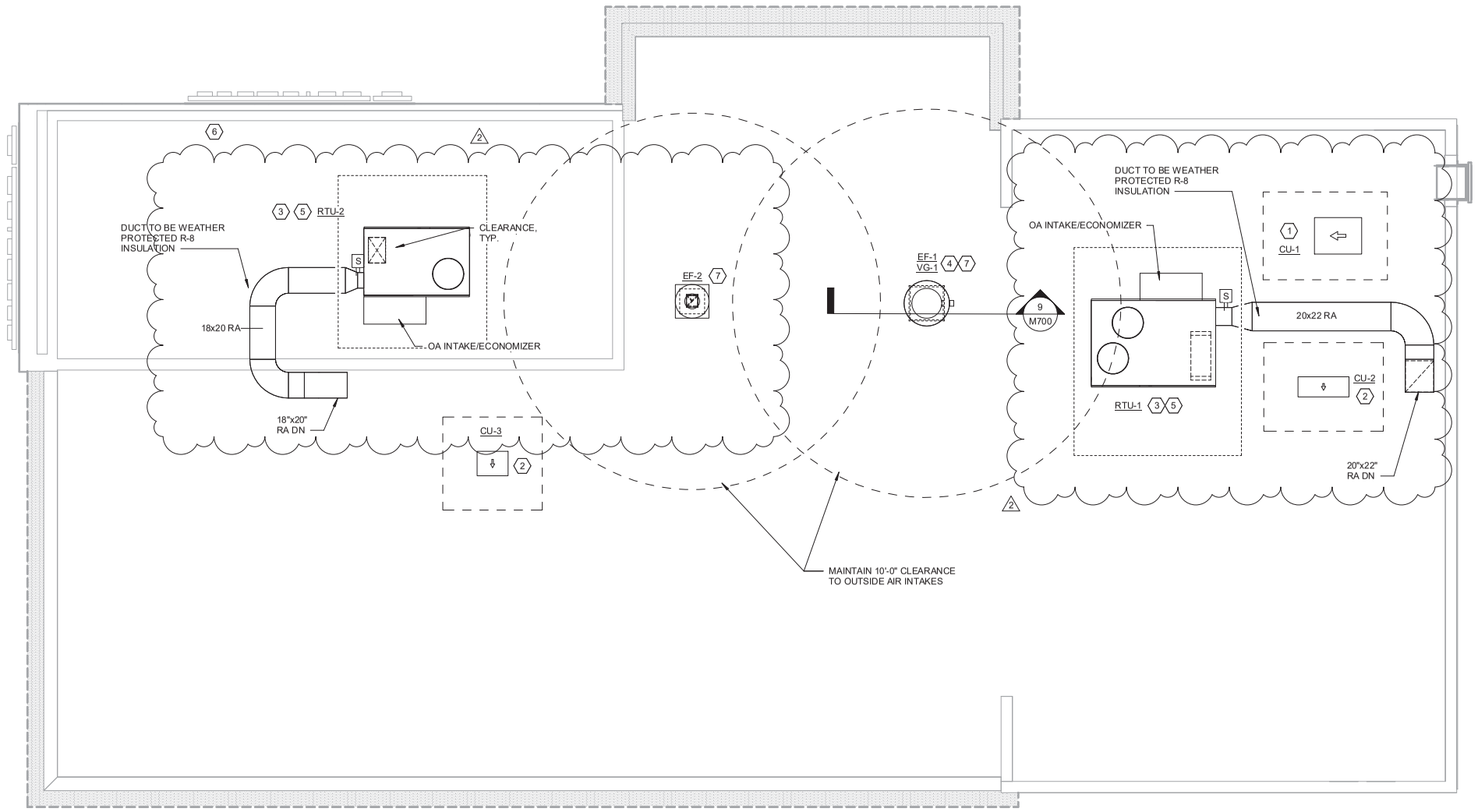
2 INSTALL REMOTE CONDENSER FOR ICE MACHINE ON ROOF AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, LOW AMBIENT CONTROLS, AND WEATHERPROOF HOUSING. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. SEAL PIPING PENETRATIONS THROUGH ROOF. INSTALLATION SHALL COMPLY WITH ASHRAE/ANSI STANDARD 15. INSTALL THE REFRIGERANT LINE SET UNDER THE ROOF DECK TO WITHIN 3' OF THE REMOTE CONDENSER. IF REFRIGERANT PIPING TO ICE MAKER IS EXPOSED TO PUBLIC VIEW CONCEAL WITHIN A STAINLESS STEEL SHROUD AS SHOWN IN THE ARCHITECTURAL DRAWINGS.

3 INSTALL ROOFTOP EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

4 INSTALL EXHAUST FAN EF-1 PER DETAIL 5/M700 AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL GREASE VAROGUARD SYSTEM FURNISHED BY CHIPOTLE ON EXHAUST FAN, EF-1.

5 INSTALL REME HALO AIR PURIFIER FURNISHED BY TUV IN RTU PER DETAIL 6/M700. SEE ELECTRICAL DRAWINGS FOR POWER CONNECTION INFORMATION. INSTALL UV WARNING STICKERS ON FACE OF ENCLOSURE PER DETAIL AND ON ANY RTU ACCESS DOOR(S) THROUGH WHICH THE REME HALO WOULD BE VISIBLE IF OPENED.

6 MINIMUM 52" PARAPET PROVIDED AT ROOF EDGE, FALL PROTECTION NOT REQUIRED FOR EQUIPMENT WITHIN 10' OF ROOF EDGE.



1 M110 **MECHANICAL ROOF PLAN**
1/4" = 1'-0"

4' 2' 0' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO — STATE OF WASHINGTON — 22011739 — REGISTERED PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007
BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

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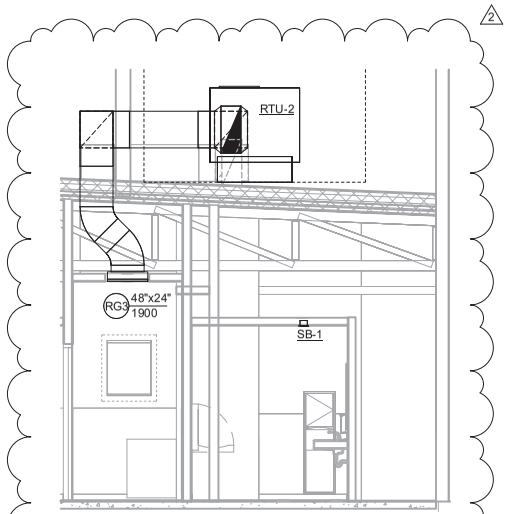
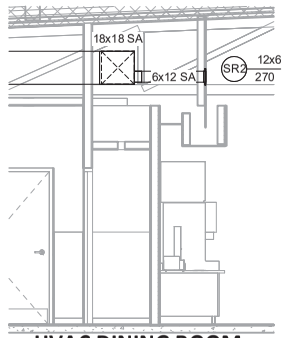
MECHANICAL ROOF PLAN

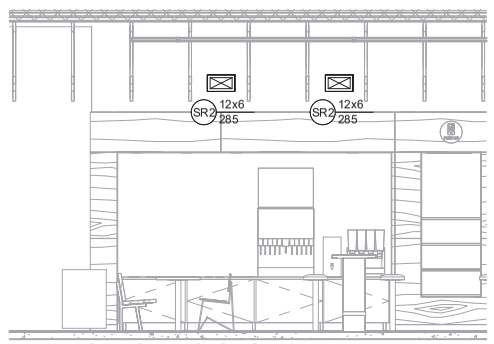
M110



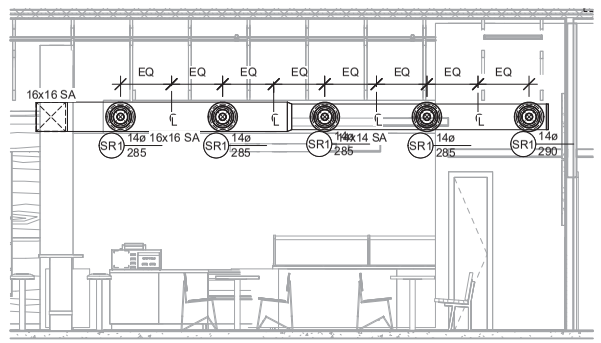
1 M200 **HVAC MAIN DINING RETURN**
1/4" = 1'-0"



2 M200 **HVAC DINING ROOM**
1/4" = 1'-0"



3 M200 **HVAC KITCHEN SECTION**
1/4" = 1'-0"



4 M200 **HVAC MAIN DINING ROOM**
1/4" = 1'-0"

2' 1' 0' 2' 4'
GRAPHIC SCALE: 1/2" = 1'-0"

Consultant:
Bowman
323 3RD AVENUE, #100
LONGMONT, CO 80501
TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO
STATE OF WASHINGTON
07/09/2026
22011739
REGISTERED
PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
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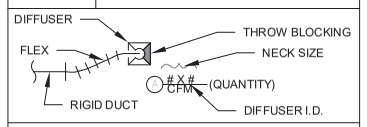
Contents:
MECHANICAL SECTIONS

M200

MECHANICAL LEGEND

ABBREVIATION	DESCRIPTION
(E)	EXISTING
(N)	NEW
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
EC	ELECTRICAL CONTRACTOR
EOR	ENGINEER OF RECORD
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
ABV	ABOVE
ADA	AMERICANS WITH DISABILITIES ACT
AHJ	AUTHORITY HAVING JURISDICTION
BOH	BACK OF HOUSE
CLG	CEILING
CTE	CONNECT TO EXISTING
DN	DOWN
FLR	FLOOR
FOH	FRONT OF HOUSE
GYP	GYPSUM BOARD
NTS	NOT TO SCALE
O/H	OVERHEAD
OBD	OPPOSED BLADE DAMPER
TYP	TYPICAL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
VSC	VARIABLE SPEED CONTROLLER
W/	WITH
WIC	WALK IN COOLER
GC	GENERAL CONTRACTOR

SYMBOL	DESCRIPTION
S	SMOKE DETECTOR
20x16	DUCT SIZE INDICATING SHEET METAL DIMENSIONS. FIRST NUMBER WIDTH AND SECOND IS DEPTH (INCHES).
	DUCT ELBOW WITH TURNING VANE
	DUCT TEE WITH TURNING VANES
	MANUAL DAMPER WITH LOCKING QUADRANT.
M	MOTORIZED DAMPER
	SPIN-IN FITTING WITH DAMPER
	45° DUCT TAKE-OFF
	RECTANGULAR SUPPLY AIR DUCT UP
	RECTANGULAR RETURN AIR DUCT UP
	RECTANGULAR EXHAUST AIR DUCT UP
	ROUND DUCT UP
U.C. SIZE	DOOR UNDERCUT
	SUPPLY DIFFUSER
	RETURN OR TRANSFER GRILLE
	EXHAUST GRILLE
CO	CARBON MONOXIDE SENSOR
TXXX	THERMOSTAT OR TEMPERATURE SENSOR FOR DEVICE "XXX"
HXXX	HUMIDISTAT OR HUMIDITY SENSOR FOR DEVICE "XXX"
	CONNECTION NEW TO EXISTING
S	GRIDPOINT SENSOR MODULE
S	GRIDPOINT SUPPLY PROBE
	WALL SUPPLY DIFFUSER
	WALL RETURN GRILLE
A/V	AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET



NOTE: NOT ALL SYMBOLS ON THIS LEGEND ARE NECESSARILY USED ON THIS PROJECT.

SPECIFICATION GENERAL NOTES

GENERAL NOTES:

A. REVIEW THE CONTRACT CONDITIONS AND GENERAL REQUIREMENTS FOR INFORMATION THAT APPLIES.
B. THE WORD "PROVIDE" IS USED TO MEAN "FURNISH AND INSTALL".
C. PROVIDE ALL ITEMS FOR A COMPLETE AND SUCCESSFUL OPERATION OF ALL SYSTEMS SHOWN ON THESE DRAWINGS.
D. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE WORK. LOCATIONS ARE APPROXIMATE UNLESS DIMENSIONED. MINOR MODIFICATIONS IN LOCATION TO MEET SITE REQUIREMENTS ARE ACCEPTABLE. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR EXACT WALL LOCATIONS AND DIMENSIONS.
E. THE ARCHITECTURAL AND ENGINEERING DRAWINGS ARE COMPLEMENTARY. GENERAL CONTRACTORS, SUBCONTRACTORS, AND VENDORS SHALL ACKNOWLEDGE ALL THE ARCHITECTURAL AS WELL AS ALL THE ENGINEERING DRAWINGS AND INCLUDE ALL WORK NECESSARY TO ACHIEVE A COMPLETE WORKING INSTALLATION FOR ALL DEVICES OR EQUIPMENT WHICH MAY BE SHOWN ON ONE DRAWING BUT NOT SHOWN ON ANOTHER. WHERE ELEMENTS ARE INDICATED OR DESCRIBED IN ANY DRAWING, IT IS THE INTENT THAT ALL RELATED CONSTRUCTION ASSOCIATED WITH SUCH ELEMENTS IS TO BE INCLUDED IN ORDER TO OBTAIN A COMPLETE INSTALLATION. FOR INSTANCE, IF A PIECE OF EQUIPMENT IS IDENTIFIED IN THE ARCHITECTURAL AND/OR MECHANICAL DRAWINGS, BUT THE ELECTRICAL CIRCUIT FOR SUCH EQUIPMENT IS NOT IDENTIFIED IN THE ELECTRICAL DRAWINGS, THE CONTRACTOR IS TO PROVIDE SUCH CIRCUIT IN ORDER TO HAVE FULLY OPERATIONAL EQUIPMENT. FOR ANOTHER EXAMPLE, IF A SINK IS INDICATED, IT IS THE INTENT THAT RELATED PLUMBING WORK INCLUDING DRAINS, VENT, PIPING, VALVES, ETC. ARE TO BE INCLUDED IN ORDER TO RESULT IN A FULLY OPERATIONAL SYSTEM. NO SUBCONTRACTOR SHALL BE ALLOWED TO EXCLUDE PORTIONS OF THE COMPLIMENTARY DRAWING SET.
F. LAY OUT ALL WORK IN ADVANCE. DO NOT DEFACE THE WORK OF OTHER TRADES OR THE EXISTING BUILDING.
G. LOCATION OF PIPES, DUCTS, SWITCHES, PANELS, EQUIPMENT, AND FIXTURES SHALL BE ADJUSTED TO ACCOMMODATE THE WORK OR INTERFERENCES ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH PIPE AND DUCT PRIOR TO FABRICATION.
G.A. RIGHT-OF-WAY: LINES WHICH PITCH SHALL HAVE THE RIGHT-OF-WAY OVER THOSE WHICH DO NOT PITCH. LINES WHOSE ELEVATIONS CANNOT BE CHANGED SHALL HAVE THE RIGHT-OF-WAY OVER LINES WHOSE ELEVATIONS CAN BE CHANGED.
G.B. OFFSETS, TRANSITIONS, AND CHANGES IN DIRECTION: OFFSETS, TRANSITIONS, AND CHANGES IN DIRECTION OF PIPES AND DUCTS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES WHETHER OR NOT INDICATED ON THE DRAWINGS.
G.C. FURNISH AND INSTALL ALL TRAPS, AIR VENTS, SANITARY VENTS, AND DEVICES AS REQUIRED TO EFFECT THESE OFFSETS, TRANSITIONS, AND CHANGES IN DIRECTION.
H. ALL PENETRATIONS OF FIRE RATED WALLS, FLOORS, AND CEILINGS SHALL HAVE THE SPACE AROUND PENETRATIONS SEALED WITH A FIRE BARRIER SEALANT MEETING THE REQUIREMENTS OF U.L. STANDARD 1479 AND ASTM-E 814. INSTALL SEALANT IN FULL COMPLIANCE WITH MANUFACTURER'S STANDARD INSTALLATION INSTRUCTIONS.
I. ALL MATERIALS LOCATED ABOVE CEILING SHALL BE SUITABLE FOR USE WITHIN A RETURN AIR PLENUM AS REQUIRED BY THE ADOPTED EDITION OF THE MECHANICAL CODE.
J. WHEN USING A TORCH OR OTHER FLAME-PRODUCING DEVICE ON THIS PROJECT, CONTRACTOR SHALL PROVIDE ONE APPROVED FIRE EXTINGUISHER OR WATER HOSE EQUIPPED WITH A SUITABLE NOZZLE, SUFFICIENT IN LENGTH TO REACH ALL PORTIONS OF THE BUILDING AND CONNECTED TO A WATER SUPPLY ON THE PREMISES WHERE SAID BURNING OPERATION IS PERFORMED. COMBUSTIBLE MATERIAL IN THE CLOSE PROXIMITY OF OPEN FLAME SHALL BE PROTECTED AGAINST IGNITION BY SHIELDING, WETTING, OR OTHER MEANS. IN ALL CASED, A FIRE WATCH SHALL BE MAINTAINED IN THE VICINITY OF THE OPERATION BY THE CONTRACTOR FOR ONE-HALF HOUR AFTER THE TORCH OR FLAME-PRODUCING DEVICE HAS BEEN USED.
K. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT AND TAKE INTO CONSIDERATION CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE APPROVED FOR FAILURE TO VISIT THE SITE PRIOR TO PRICING THE WORK.
L. MAINTAIN A CONTRACT SET OF THESE DRAWINGS AT THE SITE, WITH ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DRAWINGS NEATLY MARKED ON THEM IN RED COLOR. THIS SHALL BE A SEPARATE SET OF DRAWINGS NOT USED FOR CONSTRUCTION PURPOSES, WHICH SHALL BE KEPT UP TO DATE AS THE JOB PROGRESSES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE ENGINEER AT ALL TIMES. UPON COMPLETION OF THE CONTRACT, THIS SET OF "AS-BUILTS" SHALL BE DELIVERED TO THE OWNER WITHIN 15 DAYS OF COMPLETION OF THE PROJECT.
M. MATERIAL SHALL BE AS SPECIFIED. SUBSTITUTIONS WILL BE CONSIDERED IF SUBMITTED FOR PRIOR APPROVAL AT LEAST ONE (1) WEEK PRIOR TO THE CONTRACT BID DATE. SUBSTITUTIONS SHOULD BE SUBMITTED SEPARATELY FOR EACH PRODUCT WITH SUPPORTING DATA, DRAWINGS AND SAMPLES AS APPROPRIATE, INCLUDING: 1.) COMPARISON OF THE QUALITIES OF THE PROPOSED SUBSTITUTION WITH THAT SPECIFIED. 2.) CHANGES REQUIRED IN OTHER ELEMENTS OF THE WORK BECAUSE OF THE SUBSTITUTION. 3.) COST DATA COMPARING THE PROPOSED SUBSTITUTION WITH THE PRODUCT SPECIFIED. THE ENGINEER WILL DETERMINE THE ACCEPTABILITY OF THE PROPOSED SUBSTITUTION.
N. SUBMIT ELECTRONIC PDF OF MANUFACTURER'S SHOP DRAWINGS FOR EQUIPMENT AND DEVICES. PRIOR TO SUBMITTING THE SHOP DRAWINGS FOR REVIEW, THE CONTRACTOR SHALL REVIEW AND CERTIFY SAME AS TO COMPLIANCE WITH THE PLANS AND SPECIFICATIONS AND FOR DIMENSIONAL SUITABILITY FOR THE APPLICATIONS.
O. WHEN ALTERNATE OR SUBSTITUTED EQUIPMENT IS USED, CONTRACTOR IS RESPONSIBLE FOR COORDINATING SPACE REQUIREMENTS, CONFIGURATIONS, CHANGES IN SUPPORTS OR STRUCTURAL MEMBERS, ELECTRICAL REQUIREMENTS, AND COORDINATION OF OTHER TRADES THAT MAY BE AFFECTED BY THEIR USE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SAME WHEN USING LISTED APPROVED MANUFACTURERS OTHER THAN THE BASIS OF DESIGN.
P. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND PERSONNEL REQUIRED FOR TESTING OF INSTALLED EQUIPMENT.
Q. THE CONTRACTOR SHALL DEMONSTRATE THE PROPER OPERATION AND CALIBRATION OF ALL SYSTEMS TO THE OWNER, AT A TIME AS AGREED TO BY THE OWNER AND DIRECTED BY THE OWNER.
R. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH OPERATION AND MAINTENANCE MANUALS FOR ALL SYSTEMS WITHIN 15 DAYS OF THE COMPLETION OF THE PROJECT.
S. THE CONTRACTOR SHALL INCLUDE THE COST FOR COMMISSIONING BY BOWMAN CONSULTING GROUP TO VERIFY THE PERFORMANCE OF THE SYSTEM CONTROLS SHOWN ON THIS DRAWING. THIS INCLUDES A COMMISSIONING PLAN, VERIFYING THE OPERATION OF ALL SYSTEMS PER CODE REQUIREMENTS, AND PROVIDING A FINAL COMMISSIONING REPORT. FINAL COMMISSIONING REPORT IS DUE UPON COMPLETION OF THE PROJECT.

1. CODES, REGULATIONS, AND STANDARDS:
ALL WORK SHALL BE IN STRICT ACCORD WITH LOCAL GOVERNING LAWS, ORDINANCES, AND REGULATIONS; ALL WORK MUST BE IN FULL ACCORDANCE WITH ALL CODES, ORDINANCES, AND CODE RULINGS. CONTRACTOR SHALL PROVIDE, WITHOUT EXTRA CHARGE, THE LABOR AND MATERIALS REQUIRED FOR FULL CODE COMPLIANCE.
2.
3. ALL MATERIALS SHALL BE NEW AND SHALL COMPLY WITH THE SPECIFICATIONS ON DRAWINGS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LOCAL FEES, PERMITS, AND SERVICES OF INSPECTION AUTHORITIES REQUIRED BY THE WORK OF THE PROJECT. THE CONTRACTOR SHALL ARRANGE FOR ALL INSPECTIONS WHEN THEY BECOME DUE AND SHALL NOT COVER NEW WORK UNTIL APPROVED BY THE INSPECTION AUTHORITY.

A. GUARANTEE:
THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP, MATERIALS, AND EQUIPMENT PROVIDED FOR THE PROJECT AGAINST DEFECTS AND/OR FAULTY WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.
B. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE DEFECTIVE OR FAULTY WORKMANSHIP, MATERIALS, OR EQUIPMENT, AND SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF OTHER PROPERTY OR WORK DAMAGED AS A RESULT, WITHOUT CHARGE TO THE OWNER AND AS QUICKLY AS POSSIBLE, DURING THE GUARANTEE PERIOD.

BUILDING CODE DATA

	CODE	EDITION
GENERAL	WASHINGTON STATE BUILDING CODE	2018
HVAC/MECHANICAL	WASHINGTON STATE MECHANICAL CODE	2018
PLUMBING	WASHINGTON STATE PLUMBING CODE	2018
ELECTRICAL	N.E.C. OF WASHINGTON STATE	2020
FIRE PROTECTION	WASHINGTON STATE FIRE CODE	2018
	NFPA STANDARDS	CURRENT
FUEL	FUEL GAS CODE OF WASHINGTON	2018
ENERGY	WASHINGTON STATE ENERGY CODE	2018
LOCAL AMENDMENTS	STATE OF WASHINGTON AMENDMENTS	CURRENT

NOTES:
A. ALL WORK PERFORMED SHALL COMPLY WITH THE REQUIREMENTS OF THE LISTED CODES, LOCAL CODE AMENDMENTS, AND REFERENCED STANDARDS AS ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AH J).
B. ALL WORK SUBJECT TO INSPECTION BY THE AHJ AT THE PROJECT SITE FOR COMPLIANCE

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO — STATE OF WASHINGTON — 22011739 — REGISTERED PROFESSIONAL ENGINEER — 01/05/2024

CHIPOTLE MEXICAN GRILL

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007
BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

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Project No.
230413

Contents:
MECHANICAL LEGENDS AND NOTES

M010

TEMPERATURE CONTROLS

1. THE HVAC SYSTEM CONTROLS ARE TO BE FULLY AUTOMATIC UNLESS OTHERWISE LISTED BELOW.
   1.1. CONTROLS SHALL HAVE INTEGRAL FAULT DETECTION AND DIAGNOSTIC CAPABILITIES.
2. COORDINATE WITH ELECTRICAL CONTRACTOR FOR INTERFACE WITH LINE VOLTAGE WIRING, CONNECTIONS, RELAYS, ETC.
3. SETPOINTS:
   3.1. OCCUPIED:
      3.1.1. HEATING: 72 DEGREES FAHRENHEIT (ADJUSTABLE).
      3.1.2. COOLING: 75 DEGREES FAHRENHEIT (ADJUSTABLE).
   3.2. UNOCCUPIED:
      3.2.1. HEATING: 55 DEGREES FAHRENHEIT (ADJUSTABLE).
      3.2.2. COOLING: 85 DEGREES FAHRENHEIT (ADJUSTABLE).
4. THERMOSTATS OR TEMPERATURE SENSORS:
   4.1. ALL SETPOINTS ARE TO BE ADJUSTABLE.
   4.2. TEMPERATURE CONTROL SETUP AND SETBACK SHALL BE ACCOMPLISHED BY MEANS OF A DEDICATED PROGRAMMABLE THERMOSTAT WITH ADJUSTABLE HEATING AND COOLING SETPOINTS.
   4.3. CONTRACTOR SHALL PROGRAM THERMOSTATS FOR OCCUPIED/UNOCCUPIED PERIODS BASED ON A SCHEDULE PROVIDED BY OWNER.
   4.4. CONTROLS SHALL HAVE A 5 DEGREE F. DEAD-BAND FOR AUTO-CHANGEOVER SYSTEMS, WITH OVERLAP RESTRICTIONS.
   4.5. SYSTEM SHALL HAVE A MINIMUM OF A 7-DAY PROGRAM.
   4.6. PROVIDE A 2-HOUR MINIMUM OCCUPIED OVERRIDE.
   4.7. PROVIDE MINIMUM A 10-HOUR BATTERY BACKUP.
5. CONTROLS ARE TO BE ELECTRIC/ ELECTRONIC.
8. ROOFTOP UNITS (RTU-1, RTU-2):
   8.1. THE TEMPERATURE IN EACH ZONE IS CONTROLLED BY SPACE TEMPERATURE SENSORS CONNECTED TO THE THERMOSTATS LOCATED IN THE OFFICE. ALL ZONES SHALL OPERATE WITH CONTINUOUS FAN OPERATION DURING OCCUPIED TIMES AND INTERMITTENTLY AS NEEDED TO MAINTAIN SET POINTS DURING UNOCCUPIED TIMES. OUTSIDE AIR DAMPER SHALL BE OPEN CONTINUOUSLY WHEN EITHER IN OCCUPIED MODE OR WHEN THE HOOD SYSTEM IS ON AND SHALL BE CLOSED DURING UNOCCUPIED PERIODS.
   8.2. THE THERMOSTATS SHALL DETERMINE OCCUPIED/UNOCCUPIED STATUS VIA TIME CLOCK SCHEDULE (OWNER DETERMINED)
9. EXHAUST FAN (EF-2):
   9.1. EXHAUST FAN TO RUN DURING ALL OCCUPIED HOURS (OWNER DETERMINED).
10. KITCHEN HOOD SYSTEM (HD-1, EF-1):
   10.1. EXHAUST FAN EF-1 SHALL BE A CONTROL CIRCUIT ACTIVATED BY A SWITCH AND INCLUDES A FIRE PROTECTION OVERRIDE.
   10.2. EF-1 SHALL HAVE AUTOMATIC CONTROLS TO ENGAGE WHEN ANY APPLIANCE UNDER HD-1 IS TURNED ON

HVAC GENERAL NOTES

1. THE NEW MECHANICAL SYSTEMS SHALL BE BY THE MECHANICAL CONTRACTOR. THIS INCLUDES, BUT IS NOT LIMITED TO:
   1.1. THE AIR DISTRIBUTION SYSTEMS WITH: AIR HANDLING EQUIPMENT, DUCTWORK, FLEXIBLE DUCT, DIFFUSERS, GRILLES, DAMPERS, CONTROL SYSTEMS, ETC.
2. CONTRACTOR SHALL SECURE THE SERVICES OF AN INDEPENDENT TEST, ADJUST, AND BALANCE CONTRACTOR WHO IS A MEMBER OF THE NEBB OR EQUIVALENT. FOLLOWING ALL TAB WORK, SUBMIT TEST RESULTS IN A BOUND MANUAL, STAMPED AND SIGNED BY A CERTIFIED BALANCING SUPERVISOR OR REGISTERED PE ON STAFF WITH TAB CONTRACTOR. REQUIRED FINAL AIR AND HYDRONIC BALANCE TOLERANCE SHALL BE +10% TO -5% OF QUANTITIES SHOWN ON THESE PLANS.
3. PROJECT DESIGN CONDITIONS ARE:
   3.1. LOCATION: BELLINGHAM, WA
   3.2. SITE ELEVATION: 206 FEET.
   3.3. HVAC DESIGN CONDITIONS PER PER CHVAC LOAD PROGRAM WHICH MEETS OR EXCEEDS ASHRAE 99% HEATING, 1% COOLING ARE:
      3.3.1. LOCATION USED FOR CONDITIONS: BELLINGHAM, WASHINGTON
      3.3.2. HEATING OUTDOOR DB: 21 DEGREES FAHRENHEIT.
      3.5.3. COOLING OUTDOOR DB/MCWB: 76/64 DEGREES FAHRENHEIT.
      3.5.4. INDOOR DESIGN TEMPERATURES AS STATED IN THE TEMPERATURE CONTROLS INFORMATION.
4. IDENTIFY ALL HVAC AND REFRIGERATION EQUIPMENT AS TO THE AREA SERVED BY THE EQUIPMENT. IDENTIFICATION SHALL BE ENGRAVED PLASTIC TAGS PERMANENTLY AFFIXED TO EACH PIECE OF EQUIPMENT.
5. PROVIDE ALL CURBS, SUPPORTS, AND ANCHORS FOR MECHANICAL WORK. NO CHAIN, TAPE OR WIRE MAY BE USED FOR HANGING OR SUPPORTING.
8. RECEIVE, UNCRATE, ASSEMBLE, AND INSTALL ALL EQUIPMENT FURNISHED BY THIS CONTRACT AND FURNISHED BY THE OWNER IN CONFORMANCE TO MANUFACTURER'S RECOMMENDATIONS.
9. DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS. WHERE DUCT LINER IS USED, OVERALL OUTSIDE DUCT DIMENSIONS SHALL BE ADJUSTED TO ALLOW FOR LINER THICKNESS.
10. ALL SHEET METAL TO BE MADE AND INSTALLED TO SMACNA STANDARDS (AND IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE) WITH 45 DEGREE MAXIMUM REDUCING, 30 DEGREE MAXIMUM EXPANDING TRANSITIONS. ALL EXPOSED RECTANGULAR TO BE PAINT LOCK GALVANIZED. SINGLE BLADE TURNING VANES AND 1.5 CENTERLINE RADIUS FOR ALL ELBOWS AND TEES.
11. ALL SUPPLY AND RETURN RECTANGULAR DUCTS TO HAVE 1" THICK 2 LB/CF DENSITY ACOUSTIC DUCT LINER MINIMUM R-5 CLASS I, UL-181.
12. ALL OUTSIDE AIR DUCTS TO HAVE R-8 1-1/2" THICK AND 1-1/2 LB/CF DENSITY UL 181 CLASS ONE FIBERGLASS DUCT WRAP.
13. DUCT LINER SHALL BE ATTACHED WITH STIC-CLIPS 15"OC EACH WAY AND 100% COVERAGE OF FLAME PROOF ADHESIVE. INCREASE DUCT TO ALLOW FOR LINER. SEAL ALL DUCT AIRTIGHT WITH TWO COATS OF DUCT SEALANT. DUCT SEALANT TO BE CLEAR PAINTABLE SILICON CAULK ON ALL EXPOSED DUCTWORK.
14. CAULK ALL DUCT LONGITUDINAL AND TRANSVERSE JOINTS AND SEAMS AIR AND WATER TIGHT WITH PERMANENT COMMERCIAL CAULK PER MANUFACTURER'S RECOMMENDATIONS.
15. CONCEALED ROUND SUPPLY DUCTS SHALL BE LOW-PRESSURE CONSTRUCTION, SEALED AIRTIGHT AND EXTERNALLY INSULATED WITH 1-1/2", 3/4 LB/CF DENSITY BLANKET INSULATION WITH FOIL SCRIM KRAFT FACING. FOIL TAPE ALL JOINTS, MINIMUM R5 FIBERGLASS.
16. EXPOSED ROUND DUCTS SHALL BE PAINT LOCK SPIRAL ONE GAGE HEAVIER THAN SMACNA STANDARD. HARD PIPE TO DIFFUSERS (NO FLEX) AND SEAL WITH CLEAR, PAINTABLE, SILICONE CAULK.
17. ALL FLEXIBLE DUCTWORK SHOWN SHALL BE INSULATED, CLASS I, UL 181, SEMI-RIGID FLEXIBLE DUCT. R4.2 FLEXMASTER 5M OR THERMOPILEX XMK, AND SHALL CONFORM TO LOCAL CODES. NO FLEX DUCT IN EXPOSED AREAS.
18. ALL FLEXIBLE DUCT TAKEOFFS SHALL BE CONICAL BELL MOUTH SPIN-IN FITTINGS WITH MANUAL VOLUME DAMPER WHERE POSSIBLE. MAKE CONNECTION WITH DRAW BANDS AT EACH END OF FLEX.
19. ALL FLEXIBLE DUCT TO BE SAME SIZE AS DIFFUSER CONNECTION.
20. LIMIT FLEXIBLE DUCTWORK TO 5-FT MAXIMUM LENGTH.
21. THIS CONTRACTOR SHALL COORDINATE ALL DUCTWORK PRIOR TO INSTALLATION.
22. WEATHERPROOF ALL MECHANICAL ROOF PENETRATIONS PER CODES AND ALL ROOFING MANUFACTURER RECOMMENDATIONS.
23. PROVIDE SMOKE DETECTORS IN RETURN DUCT FOR MECHANICAL SYSTEMS OVER 2000 CFM (INDIVIDUALLY OR COLLECTIVELY IN A SHARED RETURN AIR PLENUM) AS REQUIRED BY THE MECHANICAL CODE IN EFFECT ON THE PROJECT.
24. PROVIDE SLEEVES AND COLLARS FOR ALL DUCTWORK AND PIPES THROUGH WALL, FLOORS, AND CEILINGS. SEAL ALL EXTERNAL PENETRATIONS OF FIRE RATED WALL, FLOORS, AND CEILINGS WITH APPROVED FIRE STOP MATERIAL IN COMPLIANCE WITH ASTM E 814 AND UL 1479..
25. CONFIRM VOLTAGE, PHASE, AND AMPACITY WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT. ALL CONTROL AND INTERLOCK WIRING FOR MECHANICAL EQUIPMENT BY MECHANICAL CONTRACTOR. THREE-PHASE MOTORS TO HAVE MAGNETIC STARTERS WITH PROTECTION ON ALL THREE LEADS. CONTROL AND HEATING/COOLING EQUIPMENT TO AUTOMATICALLY RESTART AFTER POWER FAILURE. ALL WIRING SHALL BE WITHIN CONDUIT AS REQUIRED BY CODE.
26. A MINIMUM CLEARANCE OF 30 INCHES SHALL BE PROVIDED AROUND ALL EQUIPMENT (I.E., FANS, PUMPS, BOILERS, AIR CONDITIONERS, ETC.) FOR SERVICE AND MAINTENANCE AND AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS.
27. ROOF MOUNTED EQUIPMENT LOCATED WITHIN 10 FEET OF THE EDGE OF THE ROOF SHALL BE PROVIDED WITH SAFETY RAILINGS AS REQUIRED PER CODES OR AS DETAILED ON THE ARCHITECTURAL DRAWINGS.
28. REFRIGERANT PIPING SHALL BE TYPE "ARC" SOFT OR HARD DRAWN COPPER WITH WROUGHT COPPER BRAZED FITTINGS.
   28.1. INSULATE ALL EXPOSED NEW PIPING, VALVES AND FITTINGS FOR REFRIGERANT SUCTION LINE SERVICE:
      28.1.1. 1/2" THICK ELASTOMERIC PIPE INSULATION INSTALLED IN COMPLIANCE WITH MANUFACTURERS STANDARD INSTALLATION INSTRUCTIONS.
      28.1.2. REFRIGERANT SUCTION PIPE INSULATION SHALL BE WRAPPED WITH ALUMINUM JACKETING SECURED TO PIPE AND INSULATION AT MINIMUM 24" ON CENTER.
29. ALL PIPE INSULATION MATERIALS SHALL CONFORM TO ASTM 84, NFPA 50A AND 255 AND UL 723 NOT TO EXCEED RATING OF 25 FLAME SPREAD AND 50 SMOKE DEVELOPED. ALL INSTALLED INSULATION SHALL MEET OR EXCEED ASHRAE STANDARD 90.1.
30. ALL DUCT AND PIPE INSULATION EXPOSED OUTSIDE SHALL BE WEATHER PROTECTED AND UV RESISTANT WITH ALUMINUM JACKET.
31. SEE TEMPERATURE CONTROLS THIS SHEET FOR TEMPERATURE CONTROLS REQUIREMENTS.
32. ALL RECIRCULATED AIR SHALL PASS THROUGH STANDARD 2" THICK PLEATED MERV 8 THROW AWAY FILTERS. PROVIDE ONE ADDITIONAL SET FOR OWNER AT PROJECT COMPLETION.
33. INSTALL ALL NEW MECHANICAL EQUIPMENT IN COMPLETE COMPLIANCE WITH MANUFACTURER'S STANDARD INSTALLATION INSTRUCTIONS. ARRANGE ALL EQUIPMENT TO PERMIT EASY REMOVAL OF COILS, MOTORS, FILTERS, AND ALL OTHER PARTS WHICH MIGHT REQUIRE PERIODIC REPLACEMENT OR MAINTENANCE.
34. GENERAL NOTES APPLY TO MECHANICAL SHEETS.
35. WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.
36. CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.
37. COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO — STATE OF WASHINGTON — 01/05/2024 — 22011739 — REGISTERED PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007
BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

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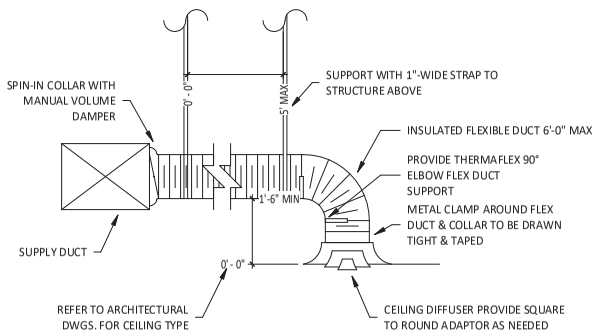
Project No.
230413

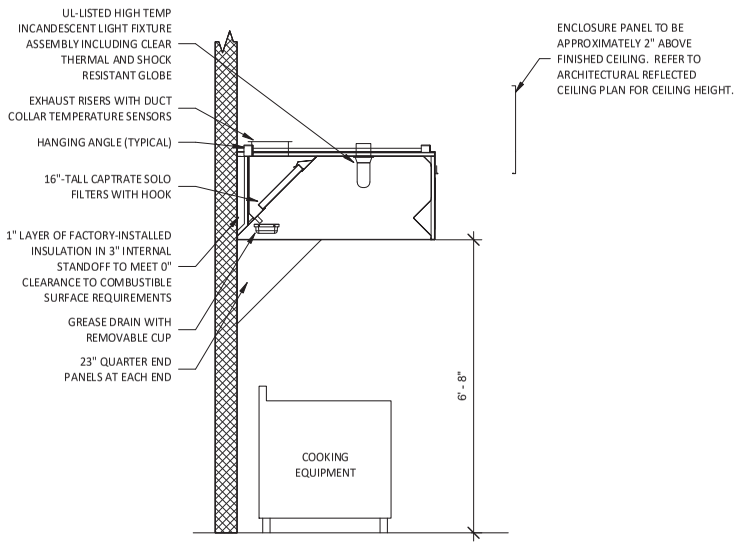
Contents:
MECHANICAL CONTROLS AND NOTES

M020



NOTE:
1. METHOD OF INSTALLATION FOR AIRTIGHT SEAL IS TYPICAL FOR ALL FLEX CONNECTIONS TO AIR DISTRIBUTION DEVICES.

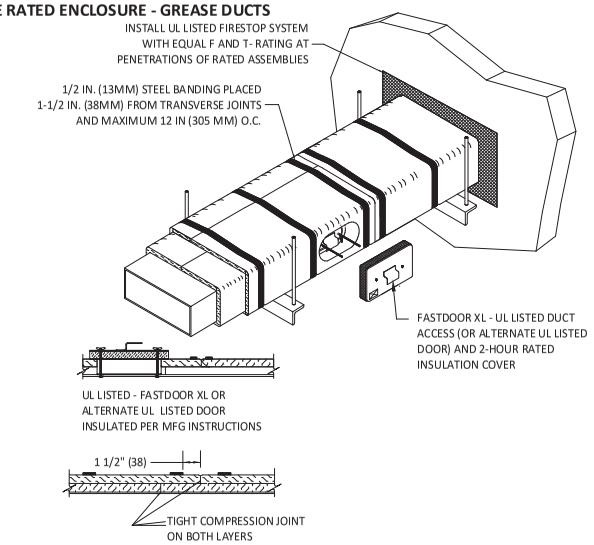
1 M700 DIFFUSER CONNECTION
NOT TO SCALE



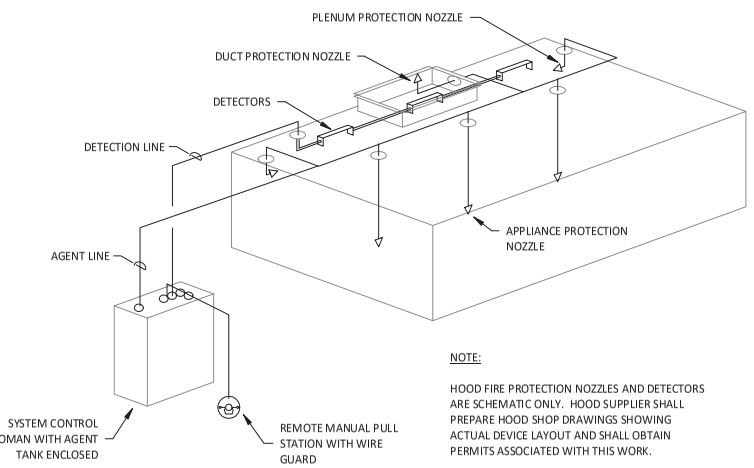
2 M700 HOOD SECTION VIEW
NOT TO SCALE

FIRE RATED ENCLOSURE - GREASE DUCTS

1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNKT.G18 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1- OR 2-HOUR ENCLOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC CODE EVALUATION PER REPORT UL ER 14229-01.
2. COMPLIANT TO THE FOLLOWING CODES:
   NFPA 96
   INTERNATIONAL MECHANICAL CODE
   WASHINGTON STATE MECHANICAL CODE
3. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
4. MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
5. INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS, OR ALTERNATE DOOR UL LISTED PER UL1978, AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT ON HORIZONTAL RUNS.
6. SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8 IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
7. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
8. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.

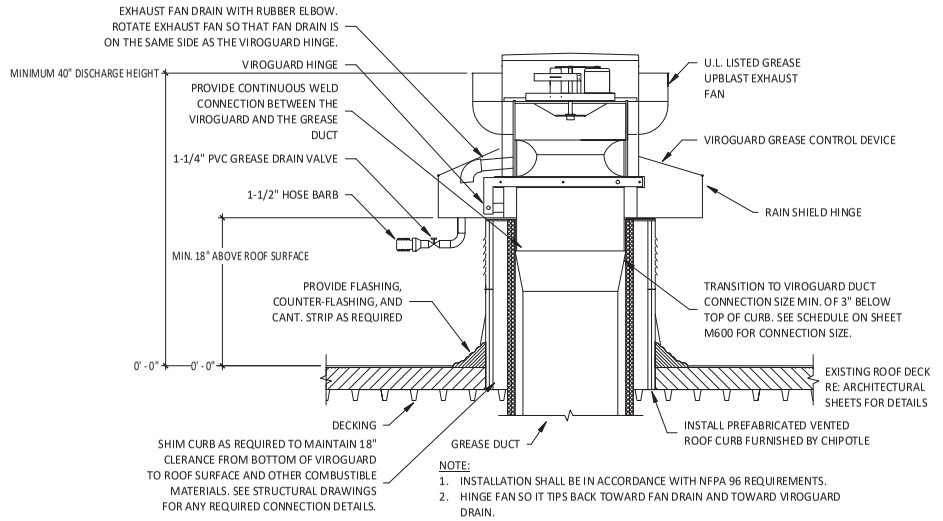


3 M700 FIREMASTER DUCT WRAP - UL HNKT-G18
NOT TO SCALE



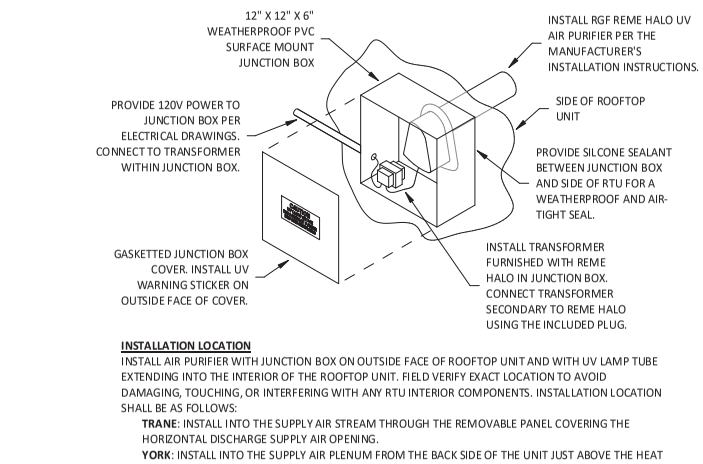
NOTE:
HOOD FIRE PROTECTION NOZZLES AND DETECTORS ARE SCHEMATIC ONLY. HOOD SUPPLIER SHALL PREPARE HOOD SHOP DRAWINGS SHOWING ACTUAL DEVICE LAYOUT AND SHALL OBTAIN PERMITS ASSOCIATED WITH THIS WORK.

4 M700 FIRE SUPPRESSION SYSTEM SCHEMATIC
NOT TO SCALE



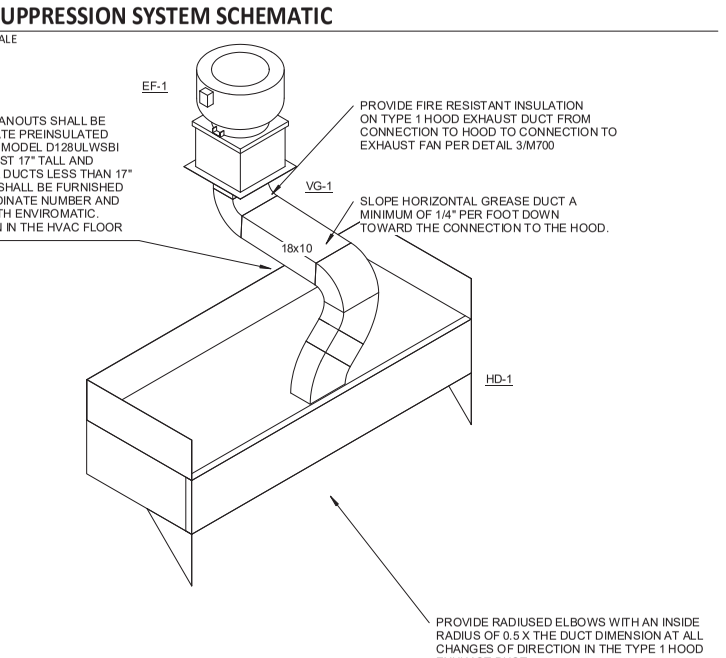
NOTE:
1. INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 96 REQUIREMENTS.
2. HINGE FAN SO IT TIPS BACK TOWARD FAN DRAIN AND TOWARD VIROGUARD DRAIN.

5 M700 GREASE EXHAUST FAN
NOT TO SCALE

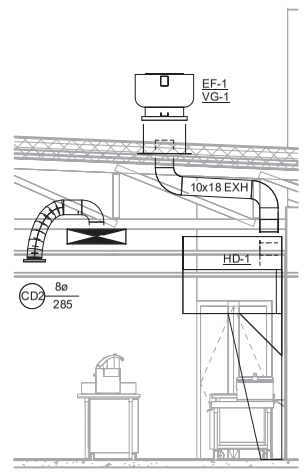


INSTALLATION LOCATION
INSTALL AIR PURIFIER WITH JUNCTION BOX ON OUTSIDE FACE OF ROOFTOP UNIT AND WITH UV LAMP TUBE EXTENDING INTO THE INTERIOR OF THE ROOFTOP UNIT. FIELD VERIFY EXACT LOCATION TO AVOID DAMAGING, TOUCHING, OR INTERFERING WITH ANY RTU INTERIOR COMPONENTS. INSTALLATION LOCATION SHALL BE AS FOLLOWS:
TRANE: INSTALL INTO THE SUPPLY AIR STREAM THROUGH THE REMOVABLE PANEL COVERING THE HORIZONTAL DISCHARGE SUPPLY AIR OPENING.
YORK: INSTALL INTO THE SUPPLY AIR PLENUM FROM THE BACK SIDE OF THE UNIT JUST ABOVE THE HEAT EXCHANGER.

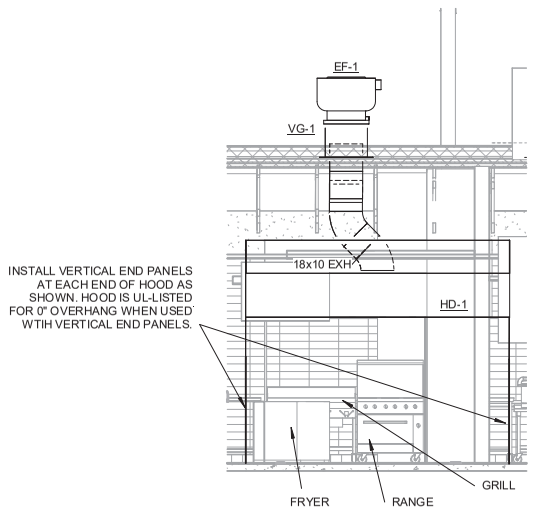
6 M700 UV AIR PURIFIER INSTALLATION
NOT TO SCALE



7 M700 HOOD EXHAUST ISOMETRIC
NOT TO SCALE



8 M700 DUCT SECTION AT HOOD
NOT TO SCALE



9 M700 HOOD ELEVATION
NOT TO SCALE

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL: 303-678-1108
WWW.BOWMANCOM

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CHIPOTLE MEXICAN GRILL, INC.
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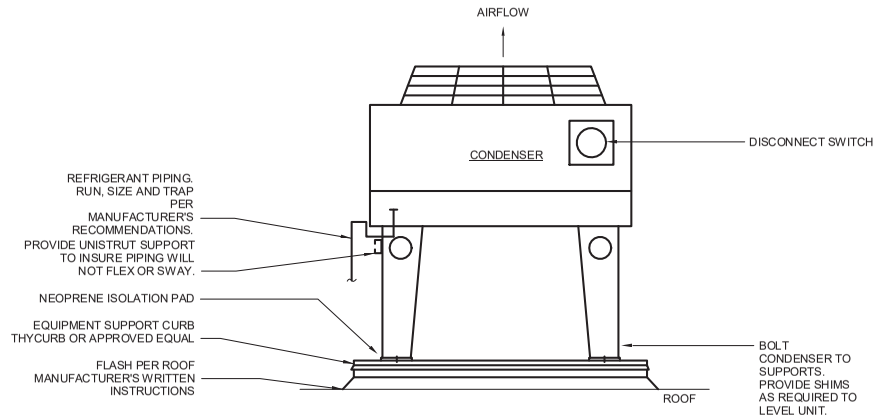
MECHANICAL DETAILS

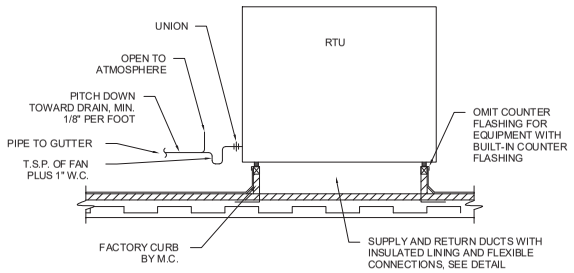
M700



3 M710 CONDENSING UNIT DETAIL

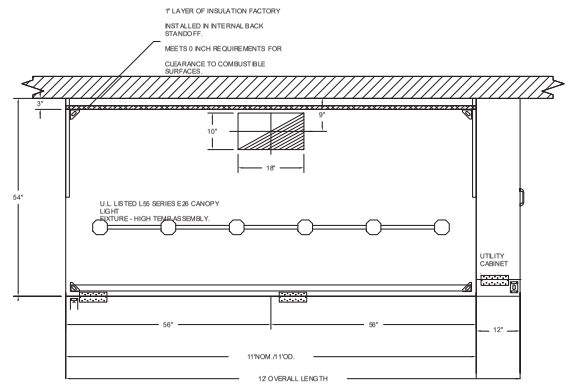
NOT TO SCALE

NOTES:
-PROVIDE CLEANOUT AT EVERY CHANGE IN DIRECTION GREATER THAN 45° AND AT MAX OF 50 INTERVALS.
-DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN.
-CONDENSATE DRAIN TRAP WITH SUFFICIENT RAP SEAL TO OFFSET PRESSURE AT DRAIN PAN.



5 M710 ROOFTOP UNIT DETAIL

NOT TO SCALE



2 M710 KITCHEN HOOD DETAIL

NOT TO SCALE

Consultant:

Bowman

323 3RD AVENUE, #100
LONGMONT, CO 80501

TEL 303-678-1108
WWW.BOWMAN.COM

PETER D' ANTONIO
STATE OF WASHINGTON
01/30/2024
22011739
REGISTERED
PROFESSIONAL ENGINEER

CHIPOTLE MEXICAN GRILL, INC.
PO BOX 182566
COLUMBUS, OH 43218-2566
TELEPHONE: 614.318.2400
INTERNET: WWW.CHIPOTLE.COM

STORE NO.: 46-5007
BELLINGHAM
104 S SAMISH WAY,
BELLINGHAM, WA 98225

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08/28/2023	PERMIT SET
10/13/2023	BID SET
11/10/2023	PLAN CHECK RESPONSE
01/05/2024	IFC SET

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Project No.
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MECHANICAL DETAILS

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