Report By:

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

Report: CERTIFIED TAB REPORT

Function: Test, Adjust, & Balance

Date: 11/12/2024

Completed By: National TAB

PROJECT

Sherwin Williams (Sacramento, CA)

3510 Truxel Rd

Sacramento, CA _____

Client

B&M Builders, Inc.

11330 Sunrise Park Drive

Suite C

Rancho Cordova, CA 95742

National TAB

Project: Sherwin Williams (Sacramento, CA)

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CERTIFICATION

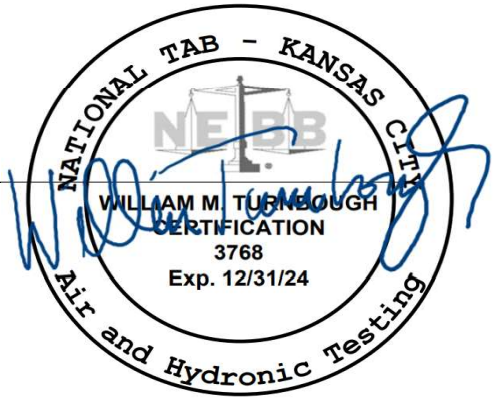
PROJECT: SHERWIN WILLIAMS (SACRAMENTO, CA)

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.

NEBB TAB FIRM:	National TAB - Kansas City
REGISTRATION NO:	3768
CERTIFIED BY:	Will Turnbough
DATE:	11/12/2024

Submitted and Certified by:

NEBB TAB FIRM:	National TAB - Kansas City
TAB PROFESSIONAL:	Will Turnbough
REGISTRATION NO:	CP-24289
CERTIFICATION EXP:	12/31/2024



Sherwin Williams (Sacramento, CA)

PROJECT TEAM MEMBERS

Architect/Engineer/Consultant:	CASE Engineering 796 Merus Court St. Louis, MO, 63026
Mechanical Contractor:	B&M Builders, Inc. 11330 Sunrise Park Drive Suite C Rancho Cordova, CA, 95742

Project Summary

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

Ceiling Exhaust Fans
The ceiling exhaust fans were measured using a flow hood. If speed adjustment was provided, the fan speed was adjusted to within design tolerance. Any equipment that fell outside of this tolerance is noted throughout the report.

Asset: RTU-1 AREA:SALES 101

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	242710226L
Model Num	NA	WHC102H3RKA2FK6D1A0A
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	37.5X24
Num PreFilter 1	-	4
PreFilter Size 1	-	20X25X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	2.75
Motor Rpm	-	949
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	7.30
Service Factor	-	NL

Test Data		
	Design	**Actual**
SF CFM	3400	3434
RA CFM	2850	2873
OA CFM	550	561
RL Voltage	-	216/216/215
RL Amperage	-	1.83/1.83/1.84
OA Damper Position	-	15%
Brake Horse Power	-	0.68

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.31"
Fan Suction SP	-	-0.52"
Fan Discharge SP	-	0.33"
Total ESP	1.0	0.64"
Fan Total SP	-	0.85"

Unit Data - PHOTO LOG

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Diffuser Supply (GRD)

RTU-1/SALES 101

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1	SALES 101	S1	16	200	123	217	108.5
SGRD2	SALES 101	S1	16	250	175	251	100.4
SGRD3	SALES 101	S1	16	200	131	211	105.5
SGRD4	SALES 101	S1	16	250	168	245	98.0
SGRD5	SALES 101	S1	10	250	203	267	106.8
SGRD6	SALES 101	S2	8	150	121	144	96.0
SGRD7	SALES 101	S2	6	50	110	49	98.0
SGRD8	SALES 101	S1	18	200	171	187	93.5
SGRD9	SALES 101	S1	18	250	209	234	93.6
SGRD10	SALES 101	S1	18	200	181	192	96.0
SGRD11	SALES 101	S1	18	250	211	261	104.4
SGRD12	SALES 101	S1	16	200	158	198	99.0
SGRD13	SALES 101	S1	16	250	201	261	104.4
SGRD14	SALES 101	S1	16	200	144	211	105.5
SGRD15	SALES 101	S1	16	250	189	259	103.6
SGRD16	SALES 101	S1	10	250	171	247	98.8
Total				3400	2666	3434	101%

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Asset: RTU-2 AREA:WHOLESALE 102

Unit Data		
	Design	**Actual**
MFG	NA	TRANE
Serial Num	-	243111512L
Model Num	NA	WHC092H3RKA2FK6D1A0A6
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	37.5X24
Num PreFilter 1	-	4
PreFilter Size 1	-	20X25X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	2.75
Motor Rpm	-	903
Phase	3	3
Rated Voltage	208	208
Rated Amperage	-	7.30
Service Factor	-	NL

Test Data		
	Design	**Actual**
SF CFM	3000	2976
RA CFM	2475	2456
OA CFM	525	520
RL Voltage	-	216/215/216
RL Amperage	-	1.79/1.8/1.78
OA Damper Position	-	18%
Brake Horse Power	-	0.67

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.28"
Fan Suction SP	-	-0.45"
Fan Discharge SP	-	0.37"
Total ESP	1.0	0.65"
Fan Total SP	-	0.82"

Unit Data - PHOTO LOG

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Completed By: Zack Eismin on 11/11/2024

Diffuser Supply (GRD)

RTU-2/WHOLESALE 102

Asset							
Asset Name	Location	Type	Size	DESIGN CFM	CFM(1)	FINAL CFM	% to design
SGRD1	WHOLESALE 102	S1	22	250	201	251	100.4
SGRD2	WHOLESALE 102	S1	22	250	193	254	101.6
SGRD3	WHOLESALE 102	S1	20	250	182	243	97.2
SGRD4	WHOLESALE 102	S1	20	250	171	230	92.0
SGRD5	WHOLESALE 102	S1	18	250	209	241	96.4
SGRD6	WHOLESALE 102	S1	18	250	222	253	101.2
SGRD7	WHOLESALE 102	S1	18	250	241	267	106.8
SGRD8	WHOLESALE 102	S1	18	250	111	239	95.6
SGRD9	WHOLESALE 102	S1	14	250	169	271	108.4
SGRD10	WHOLESALE 102	S1	14	250	177	231	92.4
SGRD11	WHOLESALE 102	S1	14	250	203	244	97.6
SGRD12	WHOLESALE 102	S1	14	250	219	252	100.8
Total				3000	2298	2976	99.2%

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National TAB

Project: Sherwin Williams (Sacramento, CA)

System/Unit: FAN - Exhaust

Comfort. Under Control.
www.nationaltab.com

Asset: EF-1 AREA:RR

Unit Data		
	Design	**Actual**
MFG	NA	S&P
Model Num	NA	PCD110XP
Serial Num	-	220739748
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	100	97
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.25	0.27"

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	0.62
Service Factor	-	NL

Unit Data - PHOTO LOG

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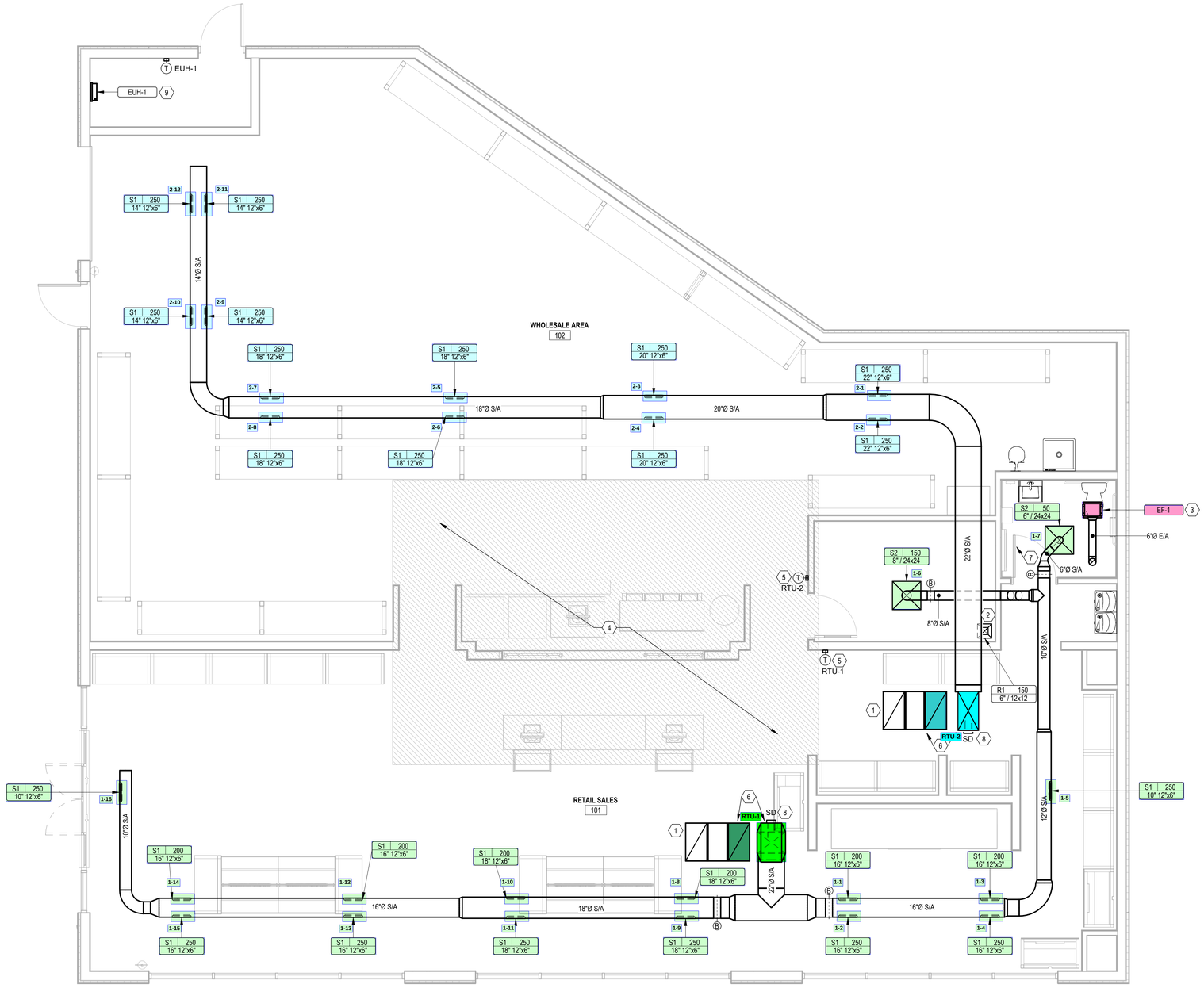
Abbreviation List

A = Area (ft^2)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A_k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T_{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T_{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T_{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO2 = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C_v = Flow Constant	K_v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T_{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
$\%_{ra}$ = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio

National TAB

Testing, Adjusting, and Balancing Equipment

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	Evergreen S-PVF-1 24D-00509	6/17/2024	6/17/2025
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper SRH77A S/N 100516003	9/18/2024	9/18/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Klein Tools CL800 S/N 1220C-C1	9/18/2024	9/18/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	Shimpo DT 207Lp S/N D1690029R	9/18/2024	9/18/2025



1 M100 MECHANICAL FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

1. MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK, VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

2. CONTRACTOR SHALL COORDINATE WORK INDICATED WITH PLUMBING, ELECTRICAL, FIRE PROTECTION, STRUCTURAL, AND ARCHITECTURAL DIVISIONS. SUBMIT 1/4" SCALE SHOP DRAWINGS FOR MECHANICAL SYSTEMS, DIMENSIONED TO INCORPORATE THE WORK OF OTHER TRADES. INDICATE SPACES RESERVED FOR PLUMBING PIPING, MECHANICAL PIPING, MECHANICAL DUCTWORK, & ELECTRICAL CONDUIT MAINS. VERIFY FIT OF MECHANICAL SYSTEMS PRIOR TO FABRICATION. COORDINATE ALL CHASE, SLEEVE, AND SLAB BLOCKOUT REQUIREMENTS BEFORE CONCRETE IS POURED OR BLOCK IS SET.

3. BOTTOM OF ALL DUCTWORK SHALL NOT BE LOWER THAN 12'-0" AFF.

4. FURNISH AND INSTALL GALVANIZED STEEL DUCTWORK, SIZES AS NOTED ON DRAWINGS. SIZES SHOWN ARE CLEAR, INSIDE DIMENSIONS. SEE ARCHITECTURAL DRAWINGS FOR EXTERNAL FINISH. SUSPEND WITH AIRCRAFT CABLE.

MECHANICAL KEYNOTES

#	
1	INSTALL TWO 90° ELBOWS TO TURN DUCT UP TOWARDS STRUCTURE. TERMINATE RA DUCT WITH 1/2" WIRE MESH APPROX. 18" BELOW STRUCTURE.
2	INSTALL RETURN GRILLE IN OFFICE CEILING AS SHOWN. LEAVE OPEN TO SPACE ABOVE CEILING.
3	NSTALL EF-1 IN BATHROOM CEILING AS SHOWN. ROUTE 6" DUCT FROM FAN UP THROUGH ROOF ABOVE. TERMINATE WITH RAINCAP AND BIRDSCREEN. VERIFY LOCATION IN FIELD.
4	DO NOT INSTALL ANY DUCTWORK, PLENUMS, ETC. IN THIS AREA.
5	FURNISH AND INSTALL 24/7 PROGRAMABLE THERMOSTAT WITH AUTO CHANGEOVER AND RELATED WIRING TO CONTROL ROOFTOP UNIT. MOUNT AT 42" AFF IN LOCATION SHOWN. THERMOSTAT TO BE HONEYWELL VISIONPRO 8000 WITH REDLINK OR APPROVED EQUAL. VERIFY FINAL MOUNTING LOCATION WITH OWNER/ARCH. VERIFY PROPER OPERATION IN FIELD. PROVIDE 100' T-STAT WIRE.
6	33"x18" SA AND 32"x18" RA DOWN FROM RTU ON ROOF. SEE ROOF PLAN ON SHEET M200.
7	GENERAL CONTRACTOR TO UNDERCUT DOOR 3/4" ABOVE THRESHOLD FOR TRANSFER AIR.
8	FURNISH AND INSTALL SUPPLY DUCT MOUNTED DUCT DETECTOR. UPON DETECTION OF SMOKE, DETECTOR SHALL SHUT DOWN UNIT. COORDINATE WIRING REQUIREMENTS WITH ELECTRICAL CONTRACTOR. PROVIDE WITH VISUAL OR AUDIBLE SIGNAL AT AN APPROVED LOCATION. SMOKE DETECTOR SHALL ACTIVATE VISIBLE OR AUDIBLE SIGNAL AT REMOTE ANNUNCIATOR WITHIN 5' OF THE MAIN SERVICE ENTRANCE, INSTALLED BETWEEN 42 AND 48" AFF THAT IDENTIFIES THE ACTIVATION OF THE DUCT SMOKE DETECTOR SUPERVISORY ALARM. SMOKE DETECTOR TROUBLE CONDITIONS (EG ELECTRICAL FAILURE, DISCONNECTED DEVICE, GROUND FAULT) SHALL ACTIVATE AUDIBLE AND VISIBLE ALARM AND SHALL BE IDENTIFIED AS "AIR DUCT DETECTOR TROUBLE".
9	FURNISH AND INSTALL UNIT HEATER AT LOCATION SHOWN. MOUNT UNIT HEATER AT 9'-0" AFF TO BOTTOM OF UH. PROVIDE WITH WALL MOUNTED THERMOSTAT.

LINGLE DESIGN GROUP, INC

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LICENSED PROFESSIONAL ENGINEER MATTHEW R. CASE 41121 MECHANICAL STATE OF CALIFORNIA

11/30/2023

PROJECT #:
LDG-CA-07-23

DRAWN BY: EC CHECKED BY: LW

PERMIT SET - 11/30/2023

SHERWIN WILLIAMS

STORE #:
XXXX

ADDRESS:
3510 TRUXEL RD,
SACRAMENTO CA

SHEET TITLE:
MECHANICAL FLOOR PLAN

SHEET NUMBER:
M100