Report By:

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

Report: TAB Report

Function: Test, Adjust, & Balance

Date: 10/08/2024

Completed By: National TAB

PROJECT

Dr. Snell (Liberty Twp, OH)

5307 Hildenbrand Way

Liberty Township, OH 45011

Client

BACHMAN'S HVAC SOLUTIONS
4058 CLOUGH WOODS DR.

BATAVIA, OH

National TAB

Project: Dr. Snell (Liberty Twp, OH)

Table Of Contents

NATIONAL TAB Comfort. Under control.		105 Stone Village Dr Fort Mill, SC 29708 803-646-1559 joe@nationaltab.com	
Client:	Bachman's Inc.	Project:	Dr. Snell
Email:	mmckinney@bachmansinc.com	QUOTE #:	JMH-NT-14798
ATTN:	Michael McKinney	BID DATE:	6/28/2023
Address:		Jobsite location:	Kyle's Station - Liberty Township, OH

Thank you for allowing National TAB this opportunity to bid on the testing and balancing of this project.
The following is our understanding of the scope of work and the associated cost.

Equipment:	**Qty.:**	**Equipment:**	**Qty.:**
AHUs Exhaust Air Devices			

SCOPE OF WORK:

1. TAB of listed equipment

This proposal includes a written report to be submitted upon completion of all work by National TAB.

TOTAL PRICE = $ 2,395.00

Any parts if required will be additional. However, no parts will be provided without initial approval unless National TAB, LLC has agreed with the client for a set fee to perform specific task. Lift rental to be additional if required if not provided by owner or GC. Work to be performed 1st shift only.

Not included in price: Prevailing Wage, Sound and Vibration testing, Indoor Air Quality testing, and Pre-testing is not included unless price is specified separately above.

WE HEREBY PROPOSE to furnish labor complete in accordance with NATIONAL TAB specifications, for the sum of: Two Thousand Three Hundred Ninety Five US Dollars and Zero Cents and any selected options stated above. Payment to be Terms as specified by our acct department. New accounts are required to fill out a credit application.

Acceptance of proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made in accordance to terms agreed upon. **Client Signature** _____ **Client Date of Acceptance**_____	**Authorized Signature for NT:** Joe Hertenstein **Date:** 06/28/23

CheckList List

- Site Pictures

Dr. Snell (Liberty Twp, OH)

CheckList Information

Name :	Site Pictures	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	10/08/2024 - Jordan Best - National TAB		

CheckList Item Details

F-1

Comment:

10/08/2024

F-2

Comment:

10/08/2024

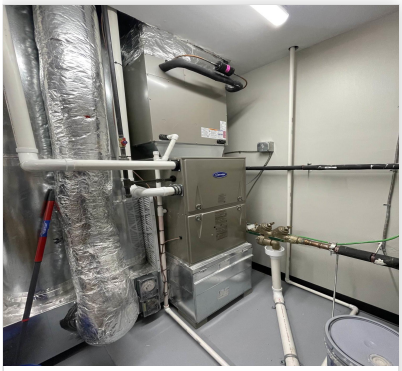
F-3

Comment:

10/08/2024

F-4

Comment:



10/08/2024

EF-1

Comment:

10/08/2024

EF-2

Comment:

10/08/2024

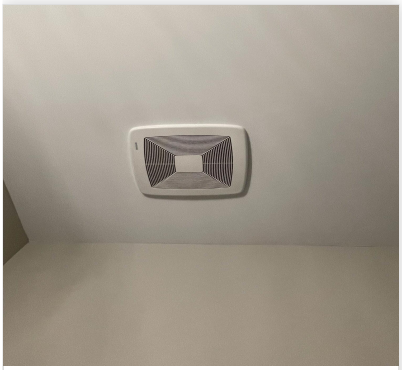
EF-3

Comment:

10/08/2024

EF-4

Comment:



10/08/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: Split Sys Furnace

Asset: F-1 AREA:102

Unit Data		
	Design	**Actual**
MFG	NA	CARRIER
Model Num	NA	59SC6A080M21
Serial Num	-	5023A43451
Configuration	-	HORIZONTAL
Filter Size Size 1	-	24"X30"X1"

Test Data		
	Design	**Actual**
SF CFM	2000	1926
Motor Speed SetPt	-	18
RL Amperage	-	12.29
RA CFM	1800	1742
OA CFM	200	184

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAD-OCEAN
Horsepower	-	1
Phase	1	1
Voltage	115	120
Amperage	-	13.1

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.80"
Discharge ESP	-	0.22"
Total ESP	0.50	1.02"

Completed By: Jordan Best on 10/07/2024

Notes:
. Located in mezzanine
. OA duct / return combined with F-4
. Amps read with fan door open.
. Amps listed (10.1) max units amps.

Written By: Jordan Best on 10/07/2024

Diffuser Supply (GRD)

F-1/102

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	106	LS1	8	200	184	187	93.5
SGRD2	107	LS1	8	200	197	183	91.5
SGRD3	108	LS1	8	200	109	173	86.5
SGRD4	109	LS1	8	200	167	193	96.5
SGRD5	111	LS1	8	200	149	183	91.5
SGRD6	117	CD1	8	200	226	198	99.0
SGRD7	112	CD1	8	200	216	203	101.5
SGRD8	113	CD1	8	200	218	187	93.5
SGRD9	114	CD1	8	200	224	208	104.0
SGRD10	117	CD1	8	200	221	211	105.5
Total				2000	1911	1926	96.3%

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: Split Sys Furnace

Asset: F-2 AREA:127

Unit Data		
	Design	**Actual**
MFG	NA	CARRIER
Model Num	NA	59SC6A060M17
Serial Num	-	0324A44390
Configuration	-	VERTICAL
Filter Size Size 1	-	18"X25"X1"

Test Data		
	Design	**Actual**
SF CFM	1650	1420
Motor Speed SetPt	-	18
RL Amperage	-	10.52
RA CFM	1490	1258
OA CFM	160	162

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAD-OCEAN
Horsepower	-	0.75
Phase	1	1
Voltage	115	120
Amperage	-	10.1

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.96"
Discharge ESP	-	0.14"
Total ESP	0.50	1.1"

Completed By: Jordan Best on 10/07/2024

Notes:
. Amps read with fan door open.
. Amps listed (10.1) max units amps.
. Unit below design flow at highest fan speed set pt.

Written By: Jordan Best on 10/07/2024

National TAB

Project:Dr. Snell (Liberty Twp, OH)

Split Sys Furnace

Diffuser Supply (GRD)

F-2/127

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	131	CD1	10	300	226	237	79.0
SGRD2	132	CD1	10	300	239	253	84.3
SGRD3	129	CD1	6	50	66	46	92.0
SGRD4	126	CD1	8	200	146	156	78.0
SGRD5	126	CD1	8	200	166	178	89.0
SGRD6	126	CD1	8	200	145	157	78.5
SGRD7	126	CD1	8	200	196	210	105.0
SGRD8	127	CD1	8	200	169	183	91.5
Total				1650	1353	1420	86.06%

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: Split Sys Furnace

Asset: F-3 AREA:OFFICES

Unit Data		
	Design	**Actual**
MFG	NA	CARRIER
Model Num	NA	59SC6A040M14
Serial Num	-	3823A44954
Configuration	-	VERTICAL
Filter Size Size 1	-	14"X30"X1"

Test Data		
	Design	**Actual**
SF CFM	700	734
Motor Speed SetPt	-	13
RL Amperage	-	3.40
RA CFM	680	578
OA CFM	80	84

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAD-OCEAN
Horsepower	-	0.5
Phase	1	1
Voltage	115	120
Amperage	-	7

Performance Data		
	Design	**Actual**
Suction ESP	-	-0.49"
Discharge ESP	-	0.1"
Total ESP	0.50	0.59"

Completed By: Jordan Best on 10/08/2024

Notes:
. Amps read with fan door open
. Amps listed (10.1) max units amps

Written By: Jordan Best on 10/08/2024

National TAB

Project:Dr. Snell (Liberty Twp, OH)

Split Sys Furnace

Diffuser Supply (GRD)

F-3/OFFICES

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	128	CD1	6	50	41	45	90.0
SGRD2	124	CD1	6	50	46	47	94.0
SGRD3	122	CD1	8	100	123	103	103.0
SGRD4	125	CD1	8	100	164	92	92.0
SGRD5	123	CD1	8	100	154	125	125.0
SGRD6	121	CD1	8	100	149	107	107.0
SGRD7	119	CD1	8	100	140	108	108.0
SGRD8	118	CD1	6	50	65	53	106.0
SGRD9	105	CD1	6	50	62	54	108.0
Total				700	944	734	104.86%

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: Split Sys Furnace

Asset: F-4 AREA:TREATMENT

Unit Data		
	Design	**Actual**
MFG	NA	CARRIER
Model Num	NA	59SC6A080M21
Serial Num	-	3823A46565
Configuration	-	VERTICAL
Filter Size Size 1	-	20"x30"x1"

Test Data		
	Design	**Actual**
SF CFM	2050	1771
Motor Speed SetPt	-	18
RL Amperage	-	12.18
RA CFM	1850	1579
OA CFM	200	192

Motor Data		
	Design	**Actual**
Motor MFG	-	BROAD-OCEAN
Frame	-	NA
Horsepower	-	1
Motor Rpm	-	NA
Phase	1	1
Voltage	115	120
Amperage	-	13.1

Performance Data		
	Design	**Actual**
Suction ESP	-	-1.10"
Discharge ESP	-	0.13"
Total ESP	0.50	1.23"

Completed By: Jordan Best on 10/08/2024

Notes:
. Amps read with fan door open
. Amps listed (13.1) max units amps
. MSET shows in mezzanine, located on floor
. OA duct / return duct combined with F-1
. Unit below design flow at highest fan speed set pt.

Written By: Jordan Best on 10/07/2024

Diffuser Supply (GRD)

F-4/TREATMENT

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	106	CD1	8	200	215	184	92.0
SGRD2	107	CD1	8	200	235	194	97.0
SGRD3	105	CD1	8	200	162	169	84.5
SGRD4	109	CD1	8	200	139	139	69.5
SGRD5	111	CD1	8	200	162	177	88.5
SGRD6	117	CD1	8	200	154	161	80.5
SGRD7	112	CD1	8	200	164	184	92.0
SGRD8	113	CD1	8	200	157	162	81.0
SGRD9	114	CD1	8	200	166	174	87.0
SGRD10	117	CD1	8	200	173	176	88.0
SGRD11	115	CD1	6	50	49	51	102.0
Total				2050	1776	1771	86.39%

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: FAN - Exhaust

Asset: EF-1 AREA:105

Unit Data		
	Design	**Actual**
MFG	NA	BROAN
Model Num	NA	XE080-F
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	60	76
RL Voltage	-	115
RL Amperage	-	0.18

Motor Data		
	Design	**Actual**
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	0.2

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: FAN - Exhaust

Asset: EF-2 AREA:124

Unit Data		
	Design	**Actual**
MFG	NA	BROAN
Model Num	NA	XE080-F
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	60	73
RL Amperage	-	0.16

Motor Data		
	Design	**Actual**
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	0.2

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: FAN - Exhaust

Asset: EF-3 AREA:128

Unit Data		
	Design	**Actual**
MFG	NA	BROAN
Model Num	NA	XE080-F
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	60	62
RL Amperage	-	0.13

Motor Data		
	Design	**Actual**
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	0.2

Completed By: Jordan Best on 10/07/2024

National TAB

Project: Dr. Snell (Liberty Twp, OH)

System/Unit: FAN - Exhaust

Asset: EF-4 AREA:129

Unit Data		
	Design	**Actual**
MFG	NA	BROAN
Model Num	NA	XE080-F
Type	CEILING	CEILING

Test Data		
	Design	**Actual**
CFM	60	79
RL Amperage	-	0.15

Motor Data		
	Design	**Actual**
Phase	1	1
Voltage (rated)	115	120
Amperage (rated)	-	0.2

Completed By: Jordan Best on 10/07/2024

MECHANICAL LEGEND

10"ø — ROUND DUCTWORK AND SIZE	CD–10 / 400 — CEILING DIFFUSER – DUCT SIZE AND CFM (SEE SCHEDULE)
24 X 12 — RECTANGULAR DUCTWORK AND SIZE	RG1–12 — RETURN GRILLE AND DUCT SIZE (SEE SCHEDULE)
2' X 2' LAY–IN CEILING DIFFUSER	T — HEATING AND COOLING THERMOSTAT
2' X 2' LAY–IN RETURN GRILLE	SD — SMOKE DETECTOR

MECHANICAL GENERAL NOTES:

1. IT IS NOT THE INTENT OF THE DRAWINGS TO DESCRIBE EVERY FEATURE AND DETAIL OF THE WORK. EQUIPMENT AND DUCTWORK IS DRAWN TO SCALE WHEREVER POSSIBLE. FOR CLARITY CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC. ARE NOT SHOWN AT EVERY REQUIRED LOCATION.

2. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, PROCEDURES OR SEQUENCES USED BY THE CONTRACTOR TO COMPLETE THIS PROJECT.

3. ELECTRIC AND BUILDING CONSTRUCTION ARE BY OTHERS. LOW VOLTAGE CONTROL WIRING FROM THERMOSTAT TO THE EQUIPMENT SHALL BE BY THE MECHANICAL CONTRACTOR.

4. EXTENSIVE COORDINATION IS REQUIRED WITH OTHER TRADES AND THE OWNER. EVERY EFFORT SHALL BE MADE TO ACCOMMODATE THE DEMANDS OF OTHER TRADES AND THE OWNER AS REQUIRED TO COMPLETE THE PROJECT. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR COORDINATION OF DETAILS AS MAY AFFECT HIS OWN WORK.

5. ALL WORK SHALL COMPLY WITH THE MOST RECENT EDITION OF THE MECHANICAL AND BUILDING CODES. WORKMANSHIP SHALL REPRESENT THE HIGHEST STANDARD OF THE INDUSTRY. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL CUTTING, PATCHING, LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM AS SHOWN ON THESE PLANS AND AS REQUIRED BY CODE.

6. BALANCE THE SUPPLY, RETURN AND EXHAUST AS REQUIRED TO ASSURE THE PROPER OPERATION OF THE SYSTEM. PERFORM ALL TESTS AND ADJUSTMENTS AS REQUIRED TO BALANCE THE SYSTEM. A COMPLETED BALANCE REPORT SHALL BE AVAILABLE TO THE OWNER AND ENGINEER IF REQUESTED.

7. COORDINATE THERMOSTAT LOCATIONS WITH ARCHITECT/OWNER BEFORE ROUGH–IN. UNLESS OTHERWISE NOTED OR REQUIRED, THE CENTERLINE OF THERMOSTATS SHALL BE LOCATED 5'–0" ABOVE FINISHED FLOOR .

8. COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS. MAKE MINOR DUCT MODIFICATIONS TO ACCOMMODATE OTHER TRADES.

9. LOCATE ALL EQUIPMENT FOR UNOBSTRUCTED ACCESS AS REQUIRED FOR PROPER MAINTENANCE. VERIFY AND MAINTAIN REQUIRED CLEARANCES AS INDICATED BY THE EQUIPMENT MANUFACTURER.

10. ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.

11. ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.

12. SHEET METAL DUCTWORK SHALL BE FABRICATED OF GALVANIZED STEEL AND INSTALLED IN ACCORDANCE WITH SMACNA AND THE BUILDING AND MECHANICAL CODES.

13. ALL MATERIALS, METHODS AND EQUIPMENT SHALL BE IN STRICT ACCORDANCE WITH THE BUILDING STANDARDS AS APPROVED BY THE OWNER.

14. ALL SUPPLY DUCT IN SEMI–CONDITIONED AREAS (ABOVE THE CEILING) SHALL BE INSULATED WITH 1 1/2" THICK FOIL BACKED INSULATION.

15. PROVIDE FLEXIBLE DUCT CONNECTIONS TO ALL SUPPLY DIFFUSERS UNLESS OTHERWISE NOTED. FLEXIBLE DUCT SHALL BE FACTORY FABRICATED UL 181, CLASS 1 AIR DUCT INSTALLED PER THE MANUFACTURER RECOMMENDATIONS, AT 5' MAXIMUM LENGTHS. FLEXIBLE DUCT SHALL NOT BE USED FOR RETURN OR EXHAUST DUCT.

16. DUCT SIZES TO ALL CEILING DIFFUSERS ARE TO BE THE SAME AS THE DIFFUSER NECK SIZES.

17. INSTALL DAMPERS AT ALL BRANCH DUCTS AND AS REQUIRED TO PROPERLY BALANCE THE SYSTEM.

18. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE PLANS, ARE INTERNAL CLEAR DIMENSIONS. DUCT SIZES SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.

19. PROVIDE ALL 90° SQUARE ELBOWS WITH UNVANED SMOOTH RADIUS CONSTRUCTION WITH RADIUS EQUAL TO 1–1/2 TIMES THE DUCT WIDTH. WHERE SPACE IS NOT AVAILABLE FOR THIS RADIUS, PROVIDE ELBOW WITH TURNING VANES. AVOID SITUATIONS WHICH WOULD REQUIRE 90° FITTINGS BACK TO BACK.

20. PROVIDE ACCESS DOORS IN DUCTWORK FOR ALL SMOKE DETECTORS AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH MAY REQUIRE SERVICE AND/OR INSPECTION.

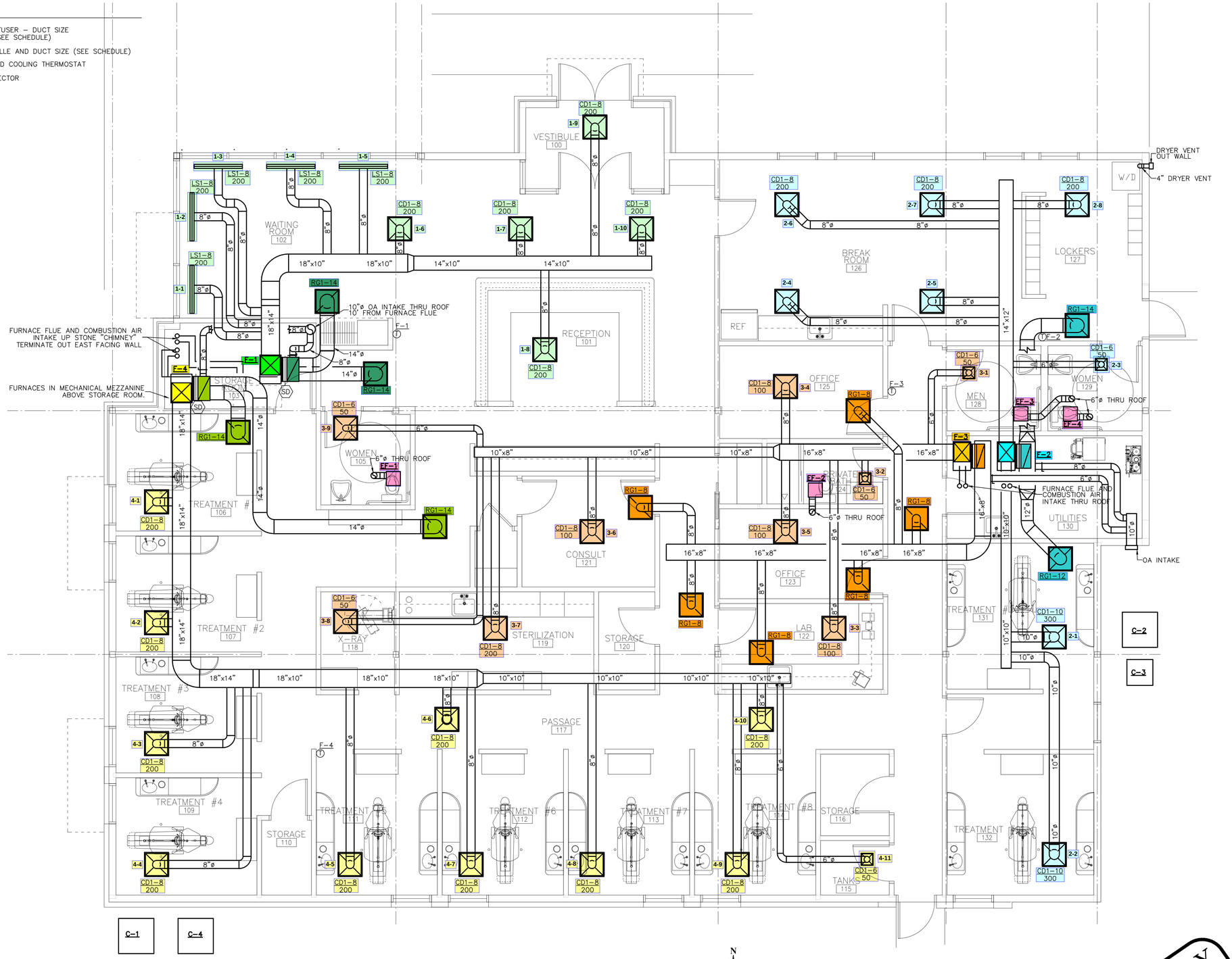
21. SMOKE DETECTORS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR.

22. TERMINATE ALL GAS VENTS FOR UNIT HEATERS, WATER HEATERS AND OTHER GAS APPLIANCES A MINIMUM OF 3'–0" ABOVE THE ROOF WITH A RAIN CAP.

23. TRAP ALL CONDENSATE WITH A MINIMUM 1" DEEP TRAP AT THE COOLING COIL. ROUTE ALL CONDENSATE FROM THE AIR CONDITIONING COIL TO THE NEAREST PLUMBING DRAIN. WHERE WATER DAMAGE WILL OCCUR IF THE CONDENSATE OVERFLOWS, PROVIDE A SECONDARY CONDENSATE DRAIN OR CONDENSATE PUMP WITH EQUIPMENT "KILL" FLOAT SWITCH.

24. COORDINATE EXTERIOR OPENING SIZE, LOCATION AND DETAILS WITH THE OWNER, ARCHITECT OR GENERAL CONTRACTOR.

25. SEAL ALL DUCTWORK AT JOINTS WITH UL181 LISTED TAPE OR MASTIC SEALANT.



HVAC FLOOR PLAN

SCALE: 1/4"=1'–0"

PRELIMINARY
NOT FOR CONSTRUCTION

PROPOSED NEW OFFICE BUILDING FOR:
ERIK SNELL DDS
KYLE'S STATION
LIBERTY TOWNSHIP OH

DESIGN BUILD ENGINEER:
SHAWN JACOBS, P.E.
ENGINEERING SERVICES
2075 HWY 467
DE MOSSVILLE, KY 41033
OFFICE: 859–472–1826
CELL: 513–919–2093

PROJECT ARCHITECT:
CLARISEY FRANK
ARCHITECTURE LTD
PO Box 36145 Cincinnati, OH 45236
Phone: 513–891–4556

DRAWING REVISION INFORMATION		
REV #	Date	Description
1	-	-

Date: 2/24/2023

JOB NUMBER:	Drawn By:
22-045	SMJ

M–1