GROUND ENGINEERING

Client: Jon Conlon
The Medical Center of Aurora
1501 South Potomac
Aurora, CO 80012

OR 4 Renovation

Report Date: Sep 23, 2022
Work Order No.: 22-4411.StructuralSteel(Field).0001; ver: 1
Work Order Date: Sep 22, 2022
Reviewed by: Austin Nicodemus

Structural Steel

General Contractor: Swinerton Builders
Performed by: Karl Myers
Steel Erector/Fabricator: D & E Steel
Structure Type: Building - Steel
Placement Location: OR 4 level 2 framing
Summary Comments: As directed by Rick Fowler with Swinerton Builders.

GROUND received copies of American Welding Society (AWS) D1.1 welding procedure specification (WPS), welder qualification test record (WQTR) and continuity log for D & E Steel.

Visual Special Inspections

Connection Comments: GROUND observed joist panel point braces in 8 locations on OR 4 level 2 framing.

Visual

Completed fillet welds were observed to be in compliance with the project plans and American Welding Society (AWS) D1.1-20 clause 8 and table 8.1.

Visual Non-Compliance

On-Site Notifications

Name	Company
Rick Fowler	Swinerton Builders

Results apply only to the specific items and locations referenced and at the time of testing, observations or special inspections. This report should not be reproduced, except in full, without the written permission of GROUND Engineering Consultants, Inc.

Swinerton Builders
2001 Clayton Road 7th Floor
Concord, California 94520
415 / 421-2980, FAX /

PROJECT MANAGEMENT Transmittal

No 00047

PROJECT: CO22: TMCA OR #4

DATE: 11/22/2022

To: PATH21 ARCHITECTURE, INC.
2245 CURTIS ST., STE. 100
DENVER CO 80205

RE: Medical Gas Piping - Med Gas Certification

ATTN: Jacki Lund

JOB: 22035033

WE ARE SENDING:		SUBMITTED FOR:		ACTION TAKEN:	
	Shop Drawings	✓	Approval		Approved as Submitted
	Letter		Your Use		Approved as Noted
	Prints		As Requested		Returned After Loan
	Change Order		Review and Comment		Resubmit
	Plans				Submit
	Samples	SENT VIA:			Returned
	Specifications	✓	Attached ☐ Separate Cover		Returned for Corrections
	Other:			✓	Due Date: 12/06/2022
✓	Submittal:				Other:

Line	Item	Package	Code	Rev.	QTY	Date	Description	Status
1	Submittal	226000	226000-003	1		11/22/2022	Medical Gas Piping - Med Gas Certification	Submitted

REMARKS:

CC:

Submittal Stamp
Swinerton Builders
Submittal #

Reviewed only as to the general design and requirements of the contract documents. Subcontractor to verify dimensions, quantities, and field conditions for proper and complete installation of this work. Approval shall not relieve subcontractor or supplier from responsibility for errors or deviations from the contract documents

Jesse Thuerk
11/22/2022 10:55:32 AM

By | Date

Signed: Lindsey Roush

MEDICAL
AIR TESTING & SERVICES, INC.

1370 Harlan Street
Lakewood, Colorado 80214
Phone: 303-279-2491, 1-800-863-3247
Fax: 303-279-7132
www.medairtesting.com

NFPA 99 MEDICAL GAS SYSTEMS VERIFICATION

VERIFICATION LOCATION: MEDICAL CENTER OF AURORA - SOUTH CAMPUS
1501 S. POTOMAC ST.
AURORA, CO 80012

JOB DESCRIPTION: O.R. 4 REMODEL

VERIFICATION DATE: November 15, 2022

MECHANICAL CONTRACTOR: U.S. ENGINEERING
1100 W. 120TH AVE. SUITE 900
WESTMINSTER, CO 80234

THIS VERIFICATION CONSISTS OF THE FOLLOWING MEDICAL GAS EQUIPMENT QUANTITIES:

	ZONE VALVES	ALARM PANELS	OUTLETS / INLETS
O2	1	1	3
VAC	1	1	6
MA	1	1	3
N2O	1	1	3
WAGD	0	0	3
N2	1	1	2
CO2	13	1	1

(PLEASE CONTACT MEDICAL AIR SYSTEMS, INC. REGARDING VACUUM & MEDICAL AIR DEMAND / SIZING)

VERIFICATION IS PER NFPA 99, 2012 EDITION. THE FINDINGS ARE ATTACHED

REMARKS: **ANY MODIFICATIONS OR ALTERATIONS TO THE MEDICAL GAS SYSTEMS SHALL REQUIRE RE-VERIFICATION.**

MEDICAL AIR TESTING & SERVICES, INC. HAS INSPECTED THIS SYSTEM FOR ADHERENCE TO THE NFPA 99, MEDICAL GAS AND VACUUM SYSTEMS, 2012 EDITION.

THE FOLLOWING IS A LIST OF DEFICIENCIES, AREAS OF CONCERN AND/OR NOTABLE ISSUES THAT YOUR FACILITY NEEDS TO AT LEAST BE MADE AWARE OF WHICH MAY HAVE BEEN FORMALLY PERMITTABLE AT THE TIME OF DESIGN, HOWEVER DO NOT MEET THE STANDARDS REQUIRED BY THE NFPA 99. IF THESE CIRCUMSTANCES EXIST, PLEASE NOTE THAT PER NFPA 99, 2012 EDITION (5.1.1.4) "AN EXISTING SYSTEM THAT IS NOT IN STRICT COMPLIANCE WITH THE PROVISIONS OF THIS STANDARD SHALL BE PERMITTED TO BE CONTINUED IN USE AS LONG AS THE AUTHORITY HAVING JURISDICTION HAS DETERMINED THAT SUCH USE DOES NOT CONSTITUTE A DISTINCT HAZARD TO LIFE." ALSO NOTE THAT ALL NON-TESTED ITEMS WERE INACCESSIBLE AT THE TIME OF THIS EVALUATION. ALL NOTATIONS ARE MADE IN REFERENCE TO THE NFPA 99.

NFPA 99, 2012 DEFFICIENCIES:

(PLEASE REVIEW THE NEXT 2 PAGES FOR REMAINDER OF POTENTIAL NFPA 99 DEFFICIENCIES LIST)

(PLEASE REVIEW THE NEXT PAGE FOR REMAINDER OF POTENTIAL NFPA 99 DEFFICIENCIES LIST)

O.R. 4 VERIFED GOOD PER NFPA 99 AND READY FOR PATIENT USE.

THIS REPORT WAS APPROVED BY: 

THANK YOU FOR YOUR SUPPORT OF OUR SERVICES. IN CASE OF EMERGENCY OR FOR FURTHER ASSISTANCE, CONTACT MEDICAL AIR TESTING & SERVICES, INC. VIA PHONE AT (800) 863-3247 OR (303) 279-2491. YOU MAY ALSO REACH US VIA E-MAIL AT info@medicalairsystems.com.

TESTING CRITERIA FOR VERIFICATION OF MEDICAL GAS SYSTEMS

IT IS THE INTENT OF THE MEDICAL GAS VERIFICATION TO TEST THE GENERAL OPERATING CONDITION OF ALL MEDICAL GAS SYSTEM COMPONENTS. THIS REPORT LISTS THEIR CONDITION AND ADDRESSES POTENTIAL HAZARDS. THE VERIFICATIONS ARE DESIGNED TO PROVIDE A "SYSTEM VERIFICATION" AS OUTLINED BY NPFA 99, 5.1.12.3 (2012), WHICH VERIFIES THE INSTALLATION AND PERFORMANCE STANDARDS TO WHICH THE SYSTEM(S) WAS CONSTRUCTED AND IS ONLY REQUIRED WHEN THE SYSTEM IS NEW, OR AN EXISTING SYSTEM HAS BEEN BREACHED AND/OR SYSTEM COMPONENTS HAVE BEEN REPLACED.

PLEASE BE ADVISED THAT THIS DOCUMENT IS ONLY A REPORT OF OUR FINDINGS AND THAT WE ARE NOT CONSIDERED TO BE THE AUTHORITY HAVING JURISDICTION. THE COMMENTS NOTED IN THE PREVIOUS PAGES OF OUR DOCUMENT REFER TO ANY NOTABLE CONCERNS AND/OR DEFICIENCIES THAT WERE DISCOVERED AT THE TIME OF OUR VERIFICATION.

ALL MEDICAL GAS SYSTEMS WILL BE TESTED TO THE MINIMUM STANDARDS SET FORTH BY NFPA 99, 2012 EDITION UNLESS OTHERWISE NOTIFIED BY THE AUTHORITY HAVING JURISDICTION FOR THE FACILITY. IF THERE IS ANY QUESTION AS TO WHICH CATEGORY THE FACILITY IS CATEGORIZED AS, THE AUTHORITY HAVING JURISDICTION IS RESPONSIBLE FOR DETERMINING THE FACILITY'S STATUS. THE MEDICAL GAS SYSTEMS WILL THEREFORE BE TESTED TO THOSE REQUIREMENTS.

ALL CRITICAL CARE AREAS WILL BE ASSUMED TO INCLUDE THOSE DEFINED BY NFPA 99, 2012 EDITION AND THEREFORE TESTED FOR THE REQUIRED CRITERIA UNLESS OTHERWISE NOTIFIED BY THE AUTHORITY HAVING JURISDICTION FOR THE FACILITY.

WE UNDERSTAND THAT SOME EXISTING SYSTEMS WERE INSTALLED AND TESTED TO PREVIOUS STANDARDS AND MAY NOT MEET PRESENT CODE REQUIREMENTS. NFPA 99, 5.1.1.4 (2012) ADDRESSES THESE SITUATIONS AND REFERS THEIR CONTINUANCE TO THE AUTHORITY HAVING JURISDICTION TO DETERMINE WHETHER THEY CONSTITUTE A DISTINCT HAZARD TO LIFE OR ARE NOT USEABLE.

MEDICAL GAS ZONES (E.R., P.A.C.U., PATIENT ROOMS, ETC.) ARE LISTED IN ORDER BY FLOOR AND IN SOME CASES BY BUILDING. UPON ENTERING A ROOM, OUTLETS/INLETS ARE LISTED STARTING WITH THE FIRST TO THE LEFT, PROCEEDING CLOCKWISE AROUND THE ROOM. IT IS ALWAYS OUR INTENT TO TEST ALL OUTLETS IN THE SYSTEM, HOWEVER IT IS RECOGNIZED THAT IT MAY NOT BE POSSIBLE TO TEST EVERY SINGLE ONE. SOME OUTLETS/INLETS MAY BE INACCESSIBLE OR IN USE. OUTLETS/INLETS THAT WERE NOT TESTED ARE LISTED BUT HAVE NO PERFORMANCE DATA. POTENTIAL PROBLEMS ARE NOTED ON THE COMMENT SECTION AND ARE DESCRIBED IN MORE DETAIL ON THE SUMMARY PAGES.

IT IS NOT PRACTICAL TO LIST EACH SPECIFIC PROBLEM FOUND (UNDECTABLE LEAKAGE, BENT FACE PLATE, DEFECTIVE OUTLET/INLET, ETC.). THE INTENT IS TO PROVIDE GUIDANCE FOR HOSPITAL PERSONNEL TO BE ABLE TO QUICKLY LOCATE SPECIFIC PROBLEM AREAS IN ORDER TO REPAIR AND RETEST THE SPECIFIC PROBLEM'S) NOTED.

ALL CHAPTER AND PARAGRAPH REFERENCES IN THIS DOCUMENT ARE TAKEN FROM NPFA 99, STANDARD ON GAS AND VACUUM SYSTEMS, 2012 EDITION.

TESTING QUALITY ASSURANCE

MEDICAL AIR TESTING & SERVICES' TECHNICAL SERVICE STAFF IS EXPERIENCED AND CONSISTS OF FACTORY TRAINED PERSONNEL WHO HAVE ALSO OBTAINED THE FOLLOWING INDUSTRY REQUIRED CREDENTIALS:

- ASME IX BRAZER
- ASSE 6010 MEDICAL GAS SYSTEMS INSTALLER
- ASSE 6020 MEDICAL GAS SYSTEMS INSPECTOR
- ASSE 6030 MEDICAL GAS SYSTEMS VERIFIER
- ASSE 6040 MEDICAL GAS SYSTEMS MAINTENANCE PERSONNEL
- ASSE 6050 MEDICAL GAS SYSTEMS INSTRUCTOR
- CMGV - MGPHO CREDENTIALED MEDICAL GAS SYSTEMS VERIFIER

ANY OR ALL OF THE FOLLOWING EQUIPMENT HAVE BEEN USED IN THE TESTING AND ANYLYSIS OF THE MEDICAL GAS SYSTEMS:

- NST MODEL G2000, MEDICAL GAS ANALYZER, S/N: 059
- FOXBORO MODEL MIB, PORTABLE AMBIENT AIR ANALYZER, S/N: 274405
- AINSWORTH MODEL A-200 DS AA, SERIES BALANCE, READABILITY OF .01MG
- 25 MM MEMBRANE PTFE FILTERS
- NYAD MODEL MA-160B, TRACE DEW POINT MONITOR, S/N: 1993
- MINIOX 1, OXYGEN ANALYZER
- MIRAN SAPPHIRE I-R ANALYZER MODEL 205BML1A3N, S/N: 205B-79520-408
- BACHARACH N2O ANALYZER MODEL 19-3314, S/N: 9475
- BACHARACH CO2 ANALYZER MODEL , S/N:
- MERIAM 0-30" HG VACUUM GAUGE MODEL 31111500, S/N: 505562
- MERIAM 0-100 PSI PRESSURE GAUGE MODEL 31110100, S/N: 505561
- MERIAM 0-300 PSI PRESSURE GAUGE MODEL 3111200, S/N: 505560
- DWYER 0-10 SCFM FLOW METER MODEL RMB-57-SSV

THE TESTING EQUIPMENT LISTED ABOVE USED FOR ANNUAL MEDICAL GAS EVALUATIONS AND FOR MEDICAL GAS SYSTEM VERIFICATIONS HAS ITSELF BEEN TESTED AND CALIBRATED TO MEET THE NECESSARY REQUIREMENTS AND THEREFORE ACCURATELY REPRESENTS THE RESULTING DATA INFORMATION IN THE FOLLOWING SECTIONS OF THE DOCUMENT.

VERIFICATION TESTING PROCEDURES PER NFPA 99, 2012 - 5.1.12.3

ZONE VALVE BOX ASSEMBLIES:

1) VERIFY PROPER LOCATION / CONDITION

2) VERIFY PROPER LABELING

3) VERIFY THAT THERE IS NO LEAKAGE IN ASSEMBLY

4) PERFORM VALVE TEST

AREA ALARM PANELS:

1) VERIFY PROPER LOCATION / CONDITION

2) VERIFY EMERGENCY ELECTRICAL POWER

3) VERIFY "POWER ON" INDICATION

4) VERIFY FUNCTIONAL PERFORMANCE OF VISUAL AND AUDIBLE SIGNALS

5) VERIFY PROPER LABELING

6) VERIFY CURRENT PRESSURE / VACUUM INDICATIONS FOR EACH GAS MONITORED

7) VERIFY CURRENT HIGH / LOW SET POINTS FOR EACH GAS MONITORED

8) VERIFY CURRENT PRESSURE / VACUUM INDICATIONS FOR EACH GAS WITH CALIBRATED GAUGES

9) CALIBRATE PRESSURE / VACUUM ALARM SENSORS PER MANUFACTURER'S RECOMMENDATIONS

MASTER ALARM PANELS:

1) VERIFY PROPER LOCATION / CONDITION

2) VERIFY EMERGENCY ELECTRICAL POWER

3) VERIFY "POWER ON" INDICATION

4) VERIFY FUNCTIONAL PERFORMANCE OF VISUAL AND AUDIBLE SIGNALS

5) VERIFY PROPER LABELING

6) VERIFY PROPER OPERATION OF ALL REQUIRED ALARM SIGNALS

7) VERIFY ALL SET POINTS FOR EACH GAS MONITORED

OUTLET / INLET STATIONS:

1) VERIFY PROPER OPERATION AND CONDITION

2) VERIFY PROPER LABELING

3) VERIFY PROPER OPERATION OF VALVES AND THAT THERE IS NO LEAKAGE

4) VERIFY PROPER OPERATION AND CONDITION OF LATCHING MECHANISM

5) VERIFY PROPER OPERATIONAL PRESSURES

6) VERIFY PROPER STATIC PRESSURES

7) PERFORM STANDING PRESSURE TESTS

8) PERFORM CROSS-CONNECTION TESTS

9) PERFORM VALVE TESTS

10) PERFORM PIPING PURGE TESTS

11) PERFORM PIPING PARTICULATE TESTS

12) PERFORM PIPING PURITY TESTS

13) PERFORM MEDICAL GAS CONCENTRATION TESTS ON ALL POSITIVE-PRESSURE GASES

14) PERFORM MEDICAL AIR PURITY TESTS (FOR SYSTEM START-UP ONLY)

15) PERFORM MEDICAL AIR QUALITY TESTS

16) PERFORM FLOW RATE AND TRANSIENT FLOW RATE TESTS

ZONE VALVE BOX FOR: O.R. 4

ASSEMBLY LOCATION: OUTSIDE O.R. 4

SEE PAGE #8 FOR EXPLANATION OF TESTING PROCEDURES

TEST #	TEST PROC.	GAS	AREA SERVED	ZVB LABELED PROPERLY	ZVB LOCATED PROPERLY	PRESS/VAC INDICATOR PRESENT	ZVB VISIBLE & OPERABLE
1	1-4	CO2	O.R. 4	YES	YES	YES	YES
2	1-4	O2	O.R. 4	YES	YES	YES	YES
3	1-4	N2O	O.R. 4	YES	YES	YES	YES
4	1-4	MA	O.R. 4	YES	YES	YES	YES
5	1-4	N2	O.R. 4	YES	YES	YES	YES
6	1-4	VAC	O.R. 4	YES	YES	YES	YES
7							

TEST #'S	COMMENTS	DATE REPAIRED	REPAIRED BY

NOTES: EXISTING ZONE VALVE BOX

AREA ALARM PANEL LOCATION: NURSES STATION

MANUFACTURER: AMICO **MODEL:** ALERT

SEE PAGE #8 FOR EXPLANATION OF TESTING PROCEDURES

TEST #	TEST PROC.	GAS	INDICATED PRESSURE	INDICATED LOW ALARM	INDICATED HIGH ALARM	ALARM LABELED PROPERLY	ALARM LOCATED PROPERLY	SENSORS LOCATED PROPERLY	VISUAL SIGNAL	AUDIBLE SIGNAL
1	1-9	O2	54 PSIG	44 PSIG	66 PSIG	YES	YES	YES	YES	YES
2	1-9	MA	55 PSIG	44 PSIG	66 PSIG	YES	YES	YES	YES	YES
3	1-9	VAC	22 " HG	12 " HG	- " HG	YES	YES	YES	YES	YES
4	1-9	CO2	52 PSIG	41 PSIG	63 PSIG	YES	YES	YES	YES	YES
5	1-9	N2O	50 PSIG	40 PSIG	60 PSIG	YES	YES	YES	YES	YES
6	1-9	N2	175 PSIG	145 PSIG	195 PSIG	YES	YES	YES	YES	YES
7										

TEST #'S	COMMENTS	DATE REPAIRED	REPAIRED BY

NOTES: EXISTING AREA ALARM PANEL

OUTLET/INLET ZONE: O.R. 4

MANUFACTURER: AMICO **MODEL:** OHIO/ DISS

SEE PAGE #9 FOR EXPLANATION OF TESTING PROCEDURES

TEST #	TEST PROC.	ROOM NAME/NUMBER	GAS	GAS TESTED	STATIC PRESS/VAC	TRANSIENT/ FLOW RATE	PRESS/VAC FLOW @ 3.5 SCFM	PROPER LATCH	CORRECT INDICIA	LEAK PRESENT
1	1-16	O.R. 4	N2	N2	175 PSIG	5.0 SCFM	171 PSIG	YES	YES	NO
2	1-16	O.R. 4	N2O	N2O	50 PSIG	3.5 SCFM	50 PSIG	YES	YES	NO
3	1-16	O.R. 4	MA	MA	55 PSIG	3.5/6.0 SCFM	51 PSIG	YES	YES	NO
4	1-16	O.R. 4	O2	O2	54 PSIG	3.5/6.0 SCFM	52 PSIG	YES	YES	NO
5	1-16	O.R. 4	WAGD	WAGD	22 " HG	3.8 SCFM	20 " HG	YES	YES	NO
6	1-16	O.R. 4	VAC	VAC	22 " HG	3.8 SCFM	20 " HG	YES	YES	NO
7	1-16	O.R. 4	N2O	N2O	50 PSIG	3.5 SCFM	50 PSIG	YES	YES	NO
8	1-16	O.R. 4	MA	MA	55 PSIG	3.5/6.0 SCFM	51 PSIG	YES	YES	NO
9	1-16	O.R. 4	O2	O2	54 PSIG	3.5/6.0 SCFM	52 PSIG	YES	YES	NO
10	1-16	O.R. 4	WAGD	WAGD	22 " HG	4.0 SCFM	20 " HG	YES	YES	NO
11	1-16	O.R. 4	VAC	VAC	22 " HG	3.2 SCFM	20 " HG	YES	YES	NO
12	1-16	O.R. 4	N2	N2	175 PSIG	5.0 SCFM	171 PSIG	YES	YES	NO
13	1-16	O.R. 4	VAC	VAC	22 " HG	3.7 SCFM	20 " HG	YES	YES	NO
14	1-16	O.R. 4	CO2	CO2	52 PSIG	3.5 SCFM	50 PSIG	YES	YES	NO
15	1-16	O.R. 4	VAC	VAC	22 " HG	3.8 SCFM	20 " HG	YES	YES	NO
16	1-16	O.R. 4	VAC	VAC	22 " HG	3.8 SCFM	20 " HG	YES	YES	NO
17	1-16	O.R. 4	VAC	VAC	22 " HG	4.0 SCFM	20 " HG	YES	YES	NO
18	1-16	O.R. 4	WAGD	WAGD	22 " HG	4.0 SCFM	20 " HG	YES	YES	NO
19	1-16	O.R. 4	O2	O2	54 PSIG	3.5/6.0 SCFM	52 PSIG	YES	YES	NO
20	1-16	O.R. 4	MA	MA	55 PSIG	3.5/6.0 SCFM	51 PSIG	YES	YES	NO
21	1-16	O.R. 4	N2O	N2O	50 PSIG	3.5 SCFM	50 PSIG	YES	YES	NO
22										
23										
24										
25										
26										
27										
28										
29										
30										

TEST #'S	COMMENTS	DATE REPAIRED	REPAIRED BY

NOTES:

NFPA 99 MEDICAL GAS VERIFICATION TESTS: PIPING PURITY & PARTICULATE TESTS

SAMPLE LOCATIONS: SOURCE SAMPLE & MOST REMOTE OUTLETS

PIPING PURITY TESTS

TEST #	PIPELINE SYSTEM	TOTAL HYDROCARBONS (PPM)	HALOGENATED HYDROCARBONS (PPM)	DEW POINT (DEGREES - F)	PARTICULATE TESTS (QTY / GAS)	PARTICULATE TESTS (PASS / FAIL)
1	O2	0.0	0.2	- 40 °F	N/A	N/A
2	N2O	0.0	0.2	- 32 °F		
3	MA	0.0	0.3	- 24 °F		
4	N2	0.0	0.1	- 41 °F		
5	CO2	0.0	0.1	- 30 °F		
6						
7						
8						
9						
10						

TEST #'S	COMMENTS	DATE REPAIRED	REPAIRED BY

NOTES:

Swinerton Builders
2001 Clayton Road 7th Floor
Concord, California 94520
415 / 421-2980, FAX /

PROJECT MANAGEMENT Transmittal

No 00078

PROJECT: CO22: TMCA OR #4

DATE: 01/04/2023

To: PATH21 ARCHITECTURE, INC.
2245 CURTIS ST., STE. 100
DENVER CO 80205

RE: HVAC - Final TAB Report

ATTN: Jacki Lund

JOB: 22035033

WE ARE SENDING:		SUBMITTED FOR:		ACTION TAKEN:	
	Shop Drawings	✓	Approval		Approved as Submitted
	Letter		Your Use		Approved as Noted
	Prints		As Requested		Returned After Loan
	Change Order		Review and Comment		Resubmit
	Plans				Submit
	Samples	SENT VIA:			Returned
	Specifications	✓	Attached ☐ Separate Cover		Returned for Corrections
	Other:			✓	Due Date: 01/18/2023
✓	Submittal:				Other:

Line	Item	Package	Code	Rev.	QTY	Date	Description	Status
1	Submittal	233113	233113-006	1		01/04/2023	HVAC - Final TAB Report	Submitted

REMARKS: OR 4 Room Pressure fluctuates between .032 and .036 as of 1.4.2022

CC:

Submittal Stamp
Swinerton Builders
Submittal #
Reviewed only as to the general design and requirements of the contract documents. Subcontractor to verify dimensions, quantities, and field conditions for proper and complete installation of this work. Approval shall not relieve subcontractor or supplier from responsibility for errors or deviations from the contract documents
Jesse Thuerk
01/04/2023 12:16:32 PM
By Date

Signed: Lindsey Roush

AIR-RIGHT, INC.

Precise.Accurate.Reliable.

T.A.B. Report

Project:

The Medical Center of Aurora
OR #4
1501 S. Potomac St.
Aurora CO. 80012

Prepared for:

US Engineering

Report issue date:
January 3, 2023

Air-Right, Inc.
Project Number
22330

747 Sheridan Blvd, Unit 8B
Lakewood, Colorado 80214
Phone: (303) 232-5145
Fax: (303) 232-1238
e-mail: henry@air-rightinc.com

TESTING, ADJUSTING AND BALANCING BUREAU
THE PROFESSIONAL'S CHOICE™

AIR-RIGHT, INC.
Precise.Accurate.Reliable.

Test, Adjust, and Balance Report

The data presented in this report is an exact record of system performance and was obtained in compliance with NEBB procedural standards. Any variance from the design requirements shall be documented in this report.

The results shown and information presented in this report is certified to be accurate and complete to the extent possible by the equipment and procedures used to balance the project.

The final air distribution system measurements are in compliance with NEBB Procedural Standards for testing, adjusting, and balancing of environmental systems, and the project specifications.

CERTIFIED BY: _____ Date: January 3, 2023

Air-Right, Inc. warrants the air system presented in this report is operating at the specified levels as shown in this report at and only at this time. Air-Right, Inc. makes no other warranties, stated or implied, concerning the continued performance, operation, or safety in the use of this equipment past this this time.

NEBB Air and Hydronic Systems Certified Professional:
Timothy A. Topping NEBB Number 2589
Certification Expiration/renewal date: 03/31/2024



NEBB®

AIR-RIGHT, INC.
Precise.Accurate.Reliable.

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AIR-RIGHT, INC.
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ABBREVIATIONS

ACU	Air Conditioning Unit
AHU	Air Handling Unit
AMP(S)	Amps
ATMOS	Atmosphere
BAS	Building Automation System
CD	Ceiling Diffuser
CFM	Cubic Feet per Minute
CRAC	Computer Room Air Conditioner
CWP	Chilled Water Pump
DD	Direct Drive
DDB	Dual Duct Box
dP (DP)	Differential Pressure
EF	Exhaust Fan
EFF	Efficiency
EI	Exhaust Inlet
ERV	Energy Recovery Vessel
FCU	Fan Coil Unit
FFU	Fan Filter Unit
FL Amps	Full Load Amperage
FLR	Floor Register
FPM	Feet per Minute
FPVAV	Fan Powered Variable Air Volume
FR	Frame
FT. HD.	Feet of Head
FUR	Furnace
GPM	Gallons per Minute
HP	Horse Power
HRV	Heat Recovery Vessel
HWP	Heating (Hot) Water Pump
Hx (HX)	Heat Exchanger
Hz (HZ)	Hertz
MAU (MUA)	Make-Up Air Unit
Max	Maximum
Min	Minimum
NA	Not Applicable
NAC	No Access
NG	None (Not) Given
NI	Not Installed
No	Number
OSA	Outside Air
PD	Pressure Drop
PDU	Pool Dehumidification Unit
PF	Power Factor
PH	Phase
PSI	Pounds per Square Inch
RF	Return Fan
RI	Return Inlet
RPM	Revolutions per Minute
RTU	Roof Top Unit
SF	Service Factor
SD	Supply Diffuser
SF	Supply Fan
SWR	Side Wall Register
TSTAT	Thermostat
VAV	Variable Air Volume
Volt	Voltage
VP	Velocity Pressure

AIR-RIGHT, INC.
Precise.Accurate.Reliable.

LOCATION:

PROJECT NUMBER:
22330

CONTACT:
Roy Leamons

Outlet

Summary

SUMMARY

Name	Type	Size	Design CFM	Prelim CFM	Final CFM	% of Design
Outlet-001	SD	24x48	225	152	226	100
Outlet-002	SD	24x48	225	152	232	103
Outlet-003	SD	24x48	225	170	253	112
Outlet-004	SD	24x48	225	153	232	103
Outlet-005	SD	24x48	225	171	252	112
Outlet-006	SD	24x48	225	151	220	98
Outlet-007	SD	24x48	225	155	230	102
Outlet-008	SD	24x48	225	129	185	82
Outlet-009	SD	24x48	225	136	185	82
Totals			**2025**	**1369**	**2015**	

NOTES:

Summary
Outlet-001 / Final CFM
READ OR 4 ROOM FOR TOTAL TO MAINTAIN A PRESSURE OF 0.03

AIR-RIGHT, INC.
Precise.Accurate.Reliable.

LOCATION:

PROJECT NUMBER:
22330

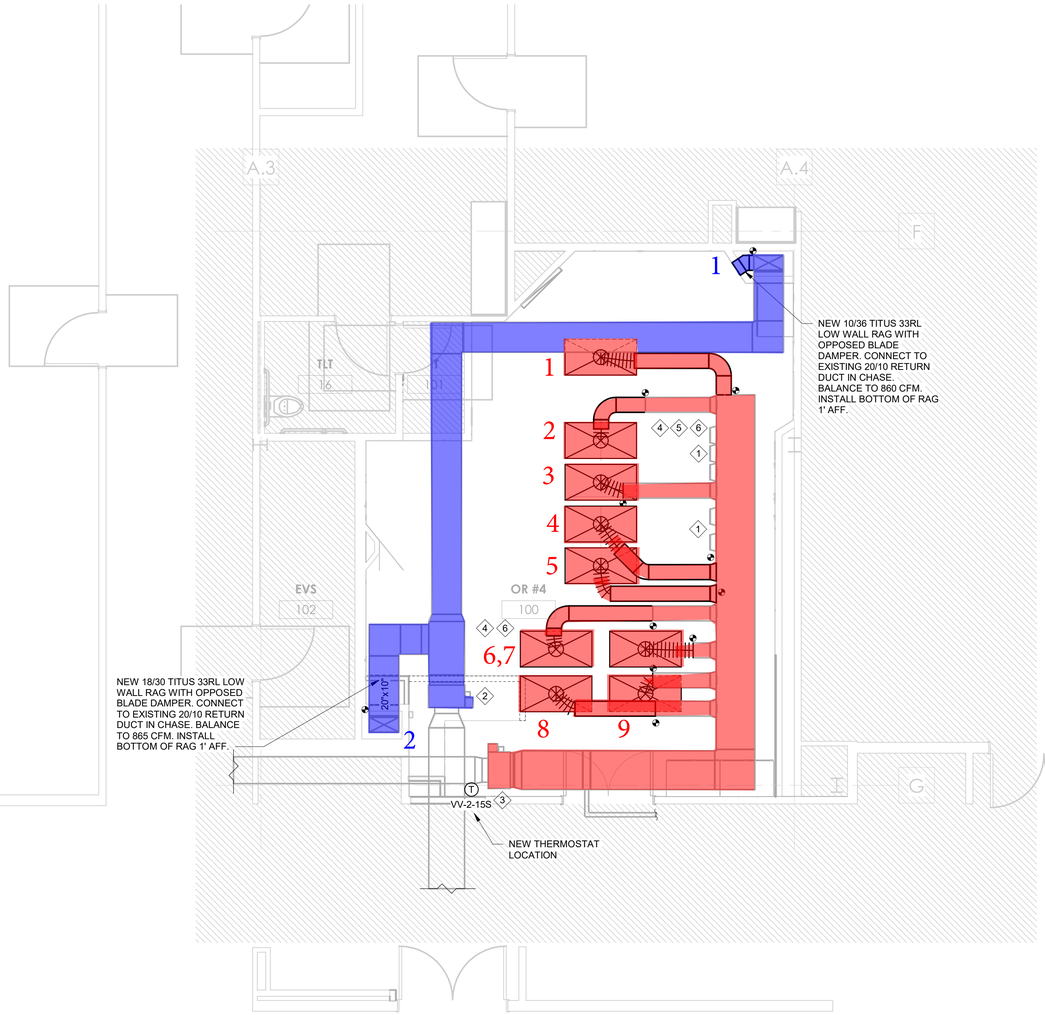
CONTACT:
Roy Leamons

Inlet

Summary

SUMMARY

Name	Type	Size	Design CFM	Prelim CFM	Final CFM	% of Design
Inlet-001	RG		860	729	784	91
Inlet-002	RG		865	942	800	92
Totals			**1725**	**1671**	**1584**	



1 OR #4 PLAN-MECH-NEW CONSTRUCTION

1/4" = 1'-0"

KEYED NOTES:

1. CAP UNUSED 10" ROUND SUPPLY DUCTS.
2. REBALANCE VV-2-15R TO 1725 CFM.
3. REBALANCE VV-2-15S TO 2025 CFM.
4. (9) RELOCATED 2X4 LAMINAR DIFFUSERS. PROVIDE NEW MOUNTING AND TRIM KITS. BALANCE EACH TO 225 CFM UTILIZING FACE ADJUSTABLE DAMPER.
5. COORDINATE ALL NEW DUCTWORK AROUND BOOM AND LIGHT SUPPORT STRUCTURE. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS.
6. ALL DIFFUSER CONNECTIONS TO BE 10" ROUND. CONNECT TO EXISTING DUCTWORK AS SHOWN.

GENERAL NOTES:

FIRE PROTECTION CONTRACTOR SHALL RE-WORK EXISTING SPRINKLER PIPING AND PROVIDE NEW QUICK-RESPONSE CONCEALED HEADS PER NFPA 13 REQUIREMENTS. COORDINATE WITH CEILING ELEMENTS AND OTHER TRADES. CONTRACTOR TO PRESUME SCOPE ENTAILS RELOCATION OF ALL BRANCH LINES/HEADS INSIDE THE ROOM.

PATH architecture + planning 21

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Consultant Team

MEP

Salas O'Brien
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No.	Description	Date

COLORADO LICENSED
58150
MICHAEL P THOMPSON
PROFESSIONAL ENGINEER

03/24/2022

21-035 TMCA SOUTH OR 4 RENOVATION

1501 S. POTOMAC ST.
AURORA, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	24 MARCH 2022
Project Number	21-035
Drawn by	EV
Checked by	JH

Sheet Title

OR #4 PLAN - MECH - NEW CONSTRUCTION

Sheet Number

M.202

3/24/2022 2:16:44 PM

American Welding Society®

Certifies that Welding Inspector

Karl M Myers

has complied with the requirements of AWS QC1,
Standard for AWS Certification of Welding Inspectors

21050501
CERTIFICATE NUMBER

May/01/2024
EXPIRATION DATE

AMERICAN WELDING SOCIETY INCORPORATED 1932 NEW YORK

AWS PRESIDENT

AWS QUALIFICATION & CERTIFICATION
COMMITTEE CHAIR

GROUND
ENGINEERING

January 3, 2023

Subject: Visual Welding Observation Summary Letter – **TMCA South OR 4 Renovation Tenant Improvement –** Aurora, Colorado

Permit Number: 2022-2136196 LT

Job Number: 22-4411

Mr. Jonathan Conlon
The Medical Center of Aurora
1501 South Potomac Street
Aurora, Colorado 80112

Attn: Mr. Street,

This letter summarizes the visual welding observations that Ground Engineering Consultants, Inc. (GROUND) performed during the construction of the TMCA South OR 4 Renovation Tenant Improvement project located at 1501 S Potomac St in Aurora, Colorado. The visual welding observations were performed on a part-time basis at times and locations scheduled by the owner, owner's representative, contractor, and/or subcontractor.

During construction, a Certified Welding Inspector (CWI) was at the project site to observe field welded structural steel connections for the joist panel point braces in 8 locations on OR 4 level 2 framing. Visual observations of the field welded connections were conducted on during one trip to the project site on 9/22/2022.

Based on the test results and to the best of our knowledge, it is our opinion that the visual welding observations as outlined above general accordance with project plans and specifications.

The visual welding observations as indicated above were periodically performed to provide data to the Owner, Contractor, and Subcontractors to assist them in evaluating the general compliance of the tested materials and/or work with the contract documents at the times of our observation and testing. We did not supervise, direct or have any control over the Contractor's work. We were not responsible for the Contractor's means, methods, procedures, techniques, or sequences of construction, nor responsible for Contractor to carry out the work in accordance with the contract documents.

If you have any questions concerning this letter, please contact our office.

Sincerely,
Ground Engineering Consultants, Inc.

Paul Gustafson

COLORADO LICENSED
SAMUEL JAMES THOMPSON
47220
PROFESSIONAL ENGINEER

Samuel J. Thompson, P.E.
cn=Samuel J. Thompson, P.E., o=Ground Engineering, ou, email=sam.thompson@groundeng.com, c=US
2023.01.03 08:26:46 -07'00'

Paul Gustafson

Reviewed by Sam Thompson, P.E.