Report By:

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

NATIONAL TAB

Comfort. Under control.

Report: TAB REPORT
Function: Test, Adjust, & Balance
Date: 04/18/2023

PROJECT

04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

2100 ARDEN WAY

SACRAMENTO, CA 95825

Client

Alliance Retail Construction Inc.
5952 Clark Center Ace

Sarasota, FL 34238

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

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Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

FCU’s w/ Diffusers

Each of the FCU’s 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 FCU was then adjusted to within tolerance of the specified design. Each terminal diffuser was balanced to within tolerance 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.

Variable Air Volume (VAV) Terminals

The VAV's were calibrated in a call for max cooling and the correction factors are reported on the individual asset. While in a call for full cooling, the individual air devices were then balanced within design tolerance. The VAVs were then stroked to minimum cool and the airflow values reported. The VAV was then stroked to heating and the airflow values reported. It was verified that there was a sufficient temp rise on each VAV.

Outside Air Fan

The OAF provides ventilation air to HVAC units throughout the space. All equipment on the duct system was first turned on in a full fan speed condition. The total airflow was measured via traverse and then adjustment was made to bring the total flow within design tolerance. The individual branches to each unit were then traversed and balanced until they were within design tolerances. Once balancing was completed, the overrides were released

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

Final Building Tests

After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of -0.02" wc to +0.02" wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: AHU/RTU

Comfort. Under control.

Asset: VRF1 AREA:OFFICE/ FITTING

Unit Data		
	Design	**Actual**
MFG	MITSUBISHI	MITSUBISHI
Serial Num	-	13W018417GEHB4
Model Num	TPEFY048MH	TPEFYP072MH140A
Type	FCU	FCU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	2
Final Filter Size 1	-	20X24X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	208	208/230
Rated Amperage	-	7.7/6.6

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Electrical		
	Design	**Actual**
VFD Min Setpt	-	N/A
VFD Max Setpt	-	N/A

Test Data		
	Design	**Actual**
SF CFM	1200	1168
SF RPM	-	NA
RA CFM	1030	991
OA CFM	170	177-431
RL Voltage	-	210
RL Amperage	-	5.3
SF Rotation	-	CCW
RA Damper Position	-	60%-80%
Min OA Damper Position	-	40%-20%
Min OA Damper Type	-	MOTORIZED

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.17"
Fan Suction SP	-	-0.38"
Fan Discharge SP	-	0.31"
Total ESP	0.50"	0.48"
OA Temp (db/wb)	-	69.4/58.1
RA Temp (db/wb)	-	74.9/61.8

General		
	Design	**Actual**
Fan Rotation Correct	-	NA
Unit Filters Clean	-	YES

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Notes:

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Project:04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

VRF1/OFFICE/ FITTING

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	ASM OFFICE	CSD1	8"	225	1	0	203	203	90.2
SGRD2	HC OFFICE	CSD1	8"	125	1	169	127	127	101.6
SGRD3	EMP. LOUNGE	CSD2	8"	175	1	311	192	192	109.7
SGRD4	EMP. LOUNGE	CSD2	8"	175	1	351	181	181	103.4
SGRD5	RESTROOM CORRIDOR	CSD3	6"	50	1	129	47	47	94.0
SGRD6	RESTROOM	CSD3	6"	50	1	104	49	49	98.0
SGRD7	RESTROOM	CSD3	6"	50	1	143	53	53	106.0
SGRD8	VAV 1			350	1	0	316	316	90.3

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: AHU/RTU

Comfort. Under control.

Asset: VRF12 AREA:STOCK

Unit Data		
	Design	**Actual**
MFG	MITSUBISHI	MITSUBISHI
Serial Num	-	1ZW000977GEHB1
Model Num	TPEFY048MH	TPEFYP048OA140A
Type	FCU	FCU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	2
Final Filter Size 1	-	16X24X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	208	208/230
Rated Amperage	-	NL

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Electrical		
	Design	**Actual**
VFD Min Setpt	-	N/A
VFD Max Setpt	-	N/A

Test Data		
	Design	**Actual**
SF CFM	750	812
SF RPM	-	NA
RA CFM	120	171
OA CFM	630	641-812
RL Voltage	-	210
RL Amperage	-	2.2
SF Rotation	-	CCW
RA Damper Position	-	15%-0%
Min OA Damper Position	-	85%-100%
Min OA Damper Type	-	MOTORIZED

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.12"
Fan Suction SP	-	-0.33"
Fan Discharge SP	-	0.27"
Total ESP	0.55"	0.39"
OA Temp (db/wb)	-	69.4/58.1
RA Temp (db/wb)	-	74.9/61.8

General		
	Design	**Actual**
Fan Rotation Correct	-	NA
Unit Filters Clean	-	YES

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Notes:

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Project:04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

VRF12/STOCK

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	STOCKROOM	DSG1	8X6	150	1	145	164	164	109.3
SGRD2	STOCKROOM	DSG1	8X6	150	1	178	162	162	108.0
SGRD3	STOCKROOM	DSG1	8X6	150	1	168	159	159	106.0
SGRD4	STOCKROOM	DSG1	8X6	150	1	142	163	163	108.7
SGRD5	STOCKROOM	DSG1	8X6	150	1	221	164	164	109.3

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: AHU/RTU

Comfort. Under control.

Asset: VRF13 AREA:STOCK

Unit Data		
	Design	**Actual**
MFG	MITSUBISHI	MITSUBISHI
Serial Num	-	19W000837GEHB3
Model Num	TPEFY096A0	TPEFYP096OA140A
Type	FCU	FCU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	2
Final Filter Size 1	-	20X24X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	208	208/230
Rated Amperage	-	NL

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Electrical		
	Design	**Actual**
VFD Min Setpt	-	N/A
VFD Max Setpt	-	N/A

Test Data		
	Design	**Actual**
SF CFM	1300	1401
SF RPM	-	NA
RA CFM	300	419
OA CFM	1000	982-1401
RL Voltage	-	209
RL Amperage	-	2.9
SF Rotation	-	CCW
RA Damper Position	-	20%-0%
Min OA Damper Position	-	80%-100%
Min OA Damper Type	-	MOTORIZED

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.12"
Fan Suction SP	-	-0.34"
Fan Discharge SP	-	0.23"
Total ESP	0.6"	0.35"
OA Temp (db/wb)	-	69.4/58.6
RA Temp (db/wb)	-	74.9/61.8

General		
	Design	**Actual**
Fan Rotation Correct	-	NA
Unit Filters Clean	-	YES

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Notes:

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Project:04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

VRF13/STOCK

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SALES	DSG1	10X6	185	1	97	201	201	108.6
SGRD2	SALES	DSG1	10X6	185	1	131	199	199	107.6
SGRD3	SALES	DSG1	10X6	185	1	127	198	198	107.0
SGRD4	SALES	DSG1	10X6	185	1	102	195	195	105.4
SGRD5	SALES	DSG1	10X6	185	1	202	200	200	108.1
SGRD6	SALES	DSG1	10X6	185	1	321	201	201	108.6
SGRD7	SALES	DSG1	10X6	190	1	479	207	207	108.9

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: AHU/RTU

Comfort. Under control.

Asset: VRF14 AREA:STOCK

Unit Data		
	Design	**Actual**
MFG	MITSUBISHI	MITSUBISHI
Serial Num	-	19W000847GEHB3
Model Num	TPEFY096A0	TPEFYP096OA140A
Type	FCU	FCU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	N/A
OA Filter Size 1	-	N/A
Num Final Filter 1	-	2
Final Filter Size 1	-	20X24X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NL
Frame	-	NL
Horsepower	-	NL
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	208	208/230
Rated Amperage	-	NL

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Electrical		
	Design	**Actual**
VFD Min Setpt	-	N/A
VFD Max Setpt	-	N/A

Test Data		
	Design	**Actual**
SF CFM	1300	1425
SF RPM	-	NA
RA CFM	300	402
OA CFM	1000	1023-1425
RL Voltage	-	210
RL Amperage	-	3.1
SF Rotation	-	CCW
RA Damper Position	-	20%-0%
Min OA Damper Position	-	80%-100%
Min OA Damper Type	-	MOTORIZED

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.085"
Fan Suction SP	-	-0.24"
Fan Discharge SP	-	0.31"
Total ESP	0.6"	0.395"
OA Temp (db/wb)	-	69.4/58.6
RA Temp (db/wb)	-	74.9/61.8

General		
	Design	**Actual**
Fan Rotation Correct	-	NA
Unit Filters Clean	-	YES

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Notes:

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Project:04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

AHU/RTU

Comfort. Under control.

Diffuser Supply (GRD)

VRF14/STOCK

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
SGRD1	SALES	DSG1	10X6	185	1	121	202	202	109.2
SGRD2	SALES	DSG1	10X6	185	1	153	203	203	109.7
SGRD3	SALES	DSG1	10X6	185	1	191	201	201	108.6
SGRD4	SALES	DSG1	10X6	180	1	123	195	195	108.3
SGRD5	SALES	DSG1	10X6	180	1	237	197	197	109.4
SGRD6	SALES	DSG1	10X6	180	1	342	192	192	106.7
SGRD7	SALES	DSG1	10X6	180	1	201	195	195	108.3
SGRD8	FOH STORAGE	WSG1	6X6	25	1	97	27	27	108.0

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VAV - Single Duct

HVAC EQUIPMENT/

Asset									
Asset Name	**Type**	**Inlet Size**	**Design Max CFM**	**Max CFM**	**Design Min CFM**	**Min CFM**	**Design Heat CFM**	**Heat CFM**	**Ak (max)**
VAV1	SINGLE	8"	350	316	105	101	NA	NA	NA

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: FAN - Exhaust

Comfort. Under control.

Asset: EF1 AREA:RESTROOMS

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SQ-080-VG	SQ-080-VG-X
Serial Num	-	21818307
Type	INLINE	INLINE
Configuration	HORIZONTAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	1/10	NA
Motor Rpm	-	NA
Phase	1	NA
Voltage (rated)	120	NA
Amperage (rated)	-	NA
Service Factor	-	NA

Test Data		
	Design	**Actual**
CFM	275	254
Fan RPM	1684	NA
Fan Rotation	-	CCW
Motor RPM	-	NA
System SetPt	-	ON
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	0.5"	0.29"
Fan Inlet SP	-	-0.13"
Fan Discharge SP	-	0.16"

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Project:04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

FAN - Exhaust

Comfort. Under control.

Diffuser Ret/Exh (GRD)

EF1/RESTROOMS

Asset									
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	JANITORS CLOSET	CEG1	6"	75	1	69	69	69	92.0
EGRD2	RESTROOM	CEG1	8"	100	1	94	94	94	94.0
EGRD3	RESTROOM	CEG1	8"	100	1	91	91	91	91.0

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Project: 04-17-23 NIKE CLEARANCE - SACRAMENTO, CA

System/Unit: FAN - Supply

Comfort. Under control.

Asset: SF1 AREA:VRF-1

Unit Data		
	Design	**Actual**
MFG	GREENHECK	GREENHECK
Model Num	SQ-90-VG	SQ-90-VG
Serial Num	-	21818310
Type	INLINE	INLINE
Configuration	HORIZONTAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	1/10	NA
Motor Rpm	-	NA
Phase	1	NA
Voltage (rated)	120	NA
Amperage (rated)	-	NA
Service Factor	-	NA

Gas Heat		
	Design	**Actual**

Test Data		
	Design	**Actual**
CFM	435	431-177
SF RPM	1668	NA
Motor RPM	-	NA
SF System SetPt	-	ON
RL Voltage	-	NA
RL Amperage	-	NA
Total ESP	-	0.12"
Fan Discharge SP	-	0.12"

General		
	Design	**Actual**
Fan Rotation Correct	-	YES

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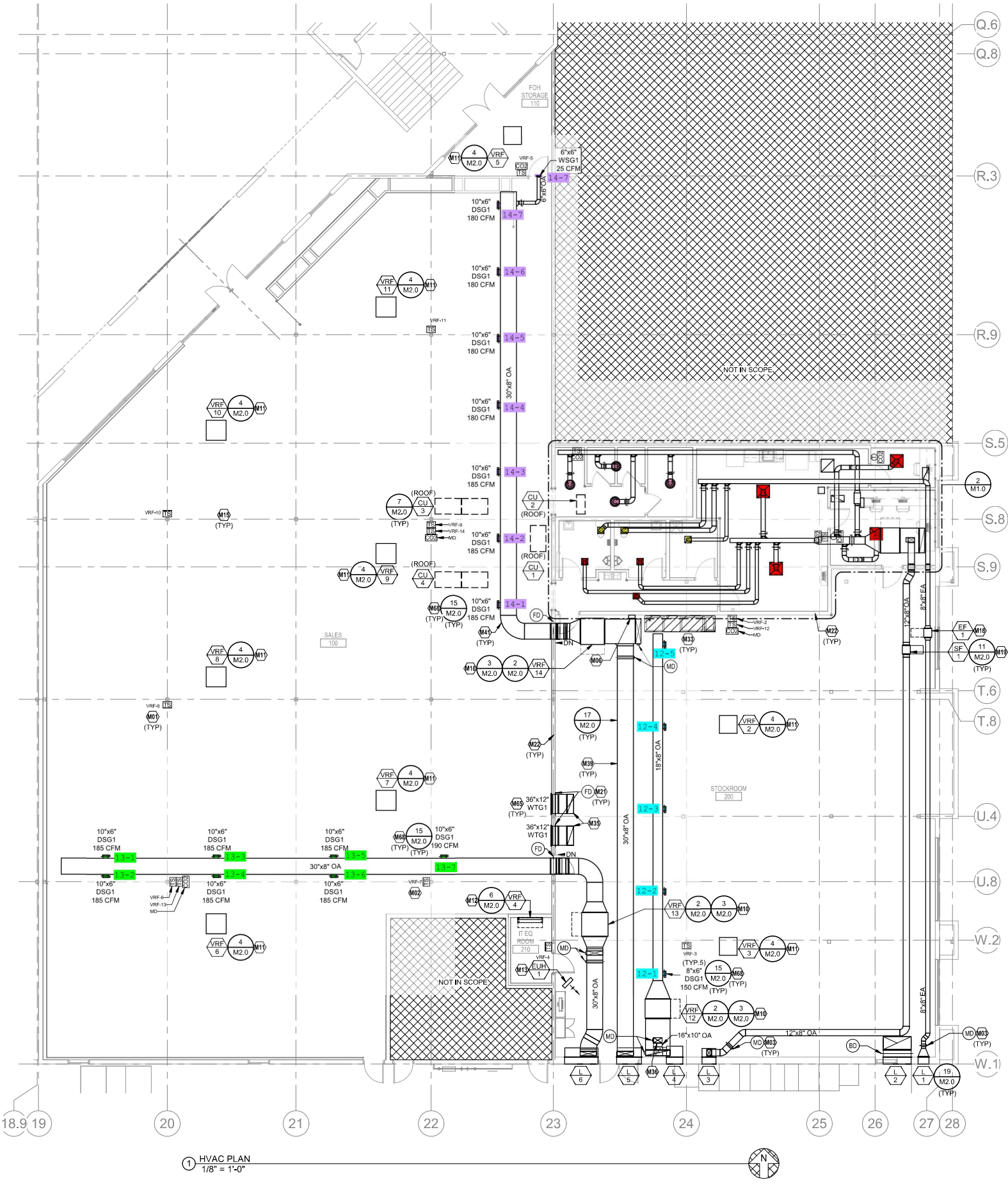
Notes:



1 HVAC PLAN
1/8" = 1'-0"