GDI ENGINEERING

GDI ENGINEERING
INNOVATING SOLUTIONS

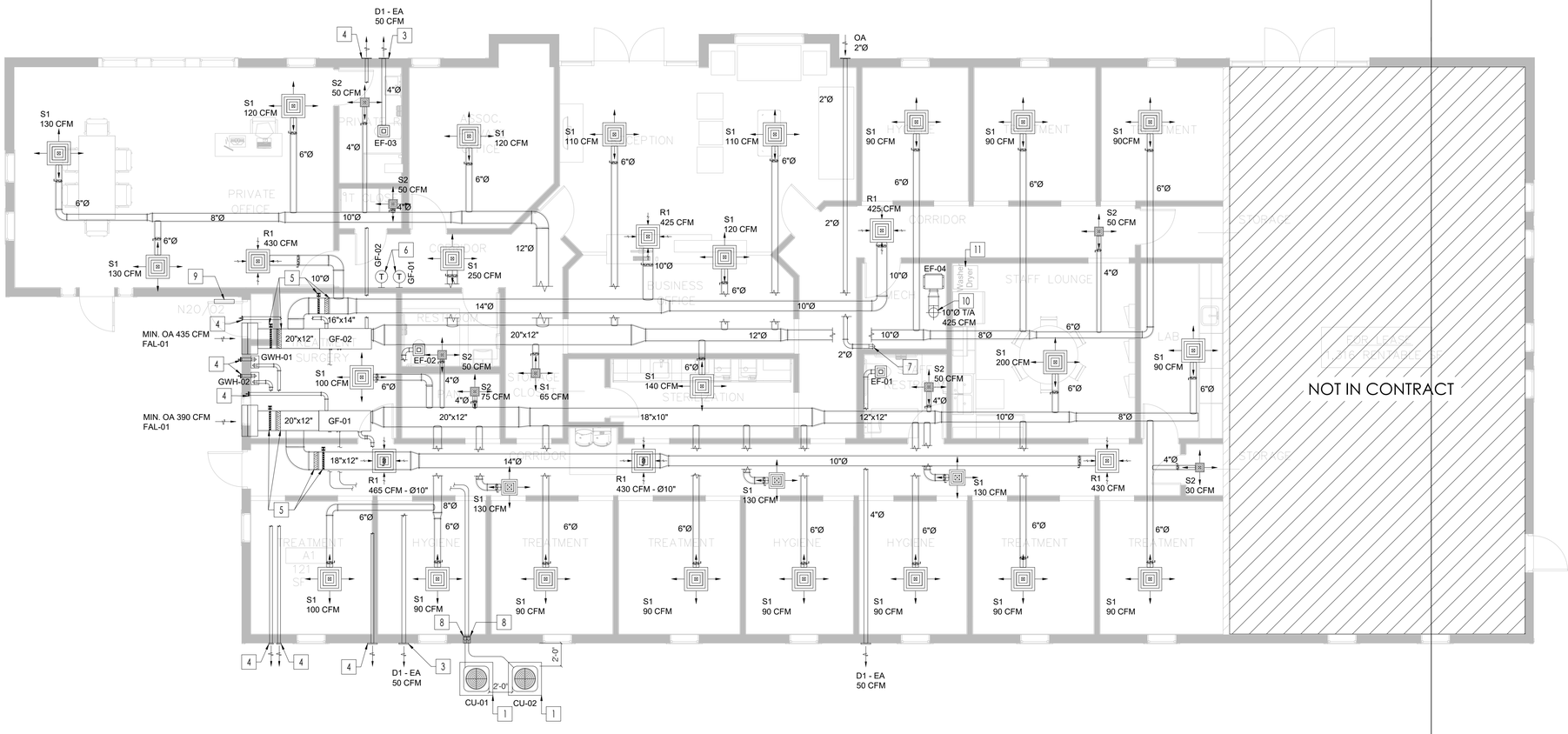
Bemis Family Dental Office

Healthcare

Lake Worth- Texas

MECHANICAL KEYED NOTES:

1. OUTDOOR CONDENSING UNIT CONCRETE HOUSEKEEPING SLAB - INSTALL UNIT ON VIBRATION ISOLATORS.
2. WALL MOUNTED GRILLE FOR FRESH AIR
3. EXHAUST DUCT TERMINATION TO OUTDOORS TO BE SPACED FROM ANY OPERABLE WINDOW BY >3'. THE LOCATIONS PROVIDED ARE WITHIN THE 3' LIMIT FROM THE PROPERTY LINE.
4. GAS VENT FROM / TO OUTDOORS TO BE LOCATED AWAY FROM DOORS & OPERABLE WINDOWS AS SPECIFIED BY THE INTERNATIONAL FUEL GAS CODE APPENDIX C - EXIT TERMINALS OF MECHANICAL DRAFT & DIRECT VENTING SYSTEMS.
5. MODULATING MOTORIZED DAMPER + LOW LEAKAGE CLASS BACKDRAFT DAMPER TO PROVIDE ECONOMIZER OPERATION - PROVIDE COMPLETE WITH NECESSARY CONTROLS, INSTRUMENTS & SEQUENCE OF OPERATION AS RECOMMENDED BY THE MANUFACTURER'S AND ENERGY CODE.
6. PROVIDE A/C THERMOSTATS AT MIN. +48" ABOVE FLOOR LEVEL, COORDINATE WITH THE ARCHITECT FOR FINAL INSTALLATION POSITION PRIOR TO CABLE PULLING AND FIXATION.
7. 2"Ø OUTDOOR AIR CONNECTION TO COMPRESSOR AIR INLET FROM OUTDOORS - SEE MEDICAL EQUIPMENT SUBMITTAL FOR CONNECTION DETAILS.
8. EXTERIOR WALL SEAL PENETRATION OUTLET WITH ELASTOMETRIC LINE-SET COMPRESSION SLEEVE TYPE "TITAN GS30" BY AIREX MANUFACTURING INC. & REFRIGERANT PIPE LINES TO ABOVE IN WALL.
9. PROVIDE DOOR TRANSFER GRILL, COORDINATE WITH DENTAL EQUIPMENT SUPPLIER AND GENERAL CONTRACTOR FOR FINAL SIZE OF OPENING AND FOR INSTALLATION DETAIL. TRANSFER GRILL TO PROVIDE 72 in² OPENING AREA.
10. EXHAUST DUCT UP TO ROOF, COORDINATE WITH THE GENERAL CONTRACTOR AND THE ARCHITECT FOR THE FINAL POSITION AND FOR THE WATERPROOFING DETAILS, RISE ABOVE ROOF SHOULD COMPLY WITH THE MECHANICAL CODE REQUIREMENTS.
11. HEAT PUMP TYPE VENTLESS DRYER.



BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

MECHANICAL FLOOR PLAN

Drawen By: O.K	Scale: 3/16" = 1'-0"
Date: 08.18.2023	PROJ.NO.:

M200

2/6 SHEET NO.

Air System Sizing Summary for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:20AM

Air System Information

Air System Name	01.AHU-01	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	2040.0 ft²
Air System Type	SZCAV	Location	Dallas, Texas

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates
Sizing Data	Calculated	Space CFM Sizing	Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load	3.2 Tons	Load occurs at	Aug 1505
Total coil load	39.7 MBH	OA DB / WB	100.2 / 74.8 °F
Sensible coil load	33.4 MBH	Entering DB / WB	83.4 / 69.3 °F
Max CFM at Jul 1500	1442 CFM	Leaving DB / WB	61.3 / 58.5 °F
Max block CFM	1442 CFM	Bypass Factor	0.100
Sum of peak zone CFM	1442 CFM	Bypass Factor	0.100
Sensible heat ratio	0.843	Resulting RH	56 %
CFM/Ton	447.1	Design supply temp	58.0 °F
BTU/hr (sen)	33.4	Zone T-stat Check	1 of 1 OK
BTU/hr-ft²	19.0	Max zone temperature deviation	0.0 °F
Water flow @ 10.0 °F rise	N/A		

Central Heating Coil Sizing Data

Max coil load	33.4 MBH	Load occurs at	Des Htg
Coil CFM at Des Htg	1442 CFM	BTU/hr-ft²	16.4
Max coil CFM	1442 CFM	Ent. DB / Lvg DB	55.2 / 77.2 °F
Water flow @ 20.0 °F drop	N/A		

Supply Fan Sizing Data

Actual max CFM	1442 CFM	Fan motor BHP	0.07 BHP
Standard CFM	1411 CFM	Fan motor kW	0.05 kW
Actual max CFM/ft²	0.71 CFM/ft²	Fan static	0.25 in wg

Outdoor Ventilation Air Data

Design airflow CFM	396 CFM	CFM/person	15.00 CFM/person
CFM/ft²	0.19 CFM/ft²		

Zone Sizing Summary for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:20AM

Air System Information

Air System Name	01.AHU-01	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	2040.0 ft²
Air System Type	SZCAV	Location	Dallas, Texas

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates
Sizing Data	Calculated	Space CFM Sizing	Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	Reheat Coil Load (MBH)	Reheat Coil Water (gpm) @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water (gpm) @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	1442	1442	0.71	0.0	0.0	0.0	0.0	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	25.9	Sep 1400	11.3	2040.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
01.ZONE-1	1	25.9	Sep 1400	1442	11.3	2040.0	0.71

Air System Design Load Summary for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:20AM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 100.2 °F / 74.8 °F			HEATING OA DB / WB 17.0 °F / 13.9 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	216 ft²	4280	-	216 ft²	-	-
Wall Transmission	894 ft²	1215	-	894 ft²	3695	-
Roof Transmission	2040 ft²	3380	-	2040 ft²	2947	-
Window Transmission	216 ft²	2123	-	216 ft²	5268	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	2040 ft²	0	-	2040 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2300 W	7847	-	0 W	0	-
Task Lighting	0 W	0	-	0 W	0	-
Electric Equipment	300 W	1024	-	0 W	0	-
People	30	8050	4200	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
** Total Zone Loads	-	28186	4200	-	11970	0
Zone Conditioning	-	24031	4200	-	11917	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	1419 CFM	0	-	1419 CFM	0	-
Ventilation Load	500 CFM	10844	2989	500 CFM	27645	0
Supply Fan Load	1419 CFM	175	-	1419 CFM	-175	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
** Total System Loads	-	35550	6869	-	39590	0
Cooling Coil Loads	-	35550	6870	-	0	0
Central Heating Coil	-	-	-	-	39590	-
** Total Conditioning	-	35550	6870	-	39590	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

System Psychrometrics for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:20AM

August DESIGN COOLING DAY, 1500

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	100.2	0.0124(sat)	500	400	9454	1892
Vent. - Return Mixing	Outlet	83.4	0.01186	1442	833	-	-
Central Cooling Coil	Outlet	61.3	0.01090	1442	833	33635	6077
Central Heating Coil	Outlet	61.3	0.01090	1442	833	0	-
Supply Fan	Outlet	61.4	0.01090	1442	833	176	-
Cold Supply Duct	Outlet	61.4	0.01090	1442	833	-	-
Zone Air	-	77.2	0.01136	1442	950	24053	3120
Return Plenum	Outlet	77.2	0.01136	1442	950	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080, At site altitude = 1.057 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4745.8, At site altitude = 4645.1 BTU/(hr-CFM)
Site Altitude = 597.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	24053	Cooling	24053	77.2	1442	950	0	0

System Psychrometrics for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:20AM

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	17.0	0.0009(sat)	500	400	-27645	0
Vent. - Return Mixing	Outlet	55.0	0.00094	1442	423	-	-
Central Cooling Coil	Outlet	55.2	0.00094	1442	423	0	0
Central Heating Coil	Outlet	77.2	0.00094	1442	423	33421	-
Supply Fan	Outlet	77.3	0.00094	1442	423	176	-
Cold Supply Duct	Outlet	77.3	0.00094	1442	423	-	-
Zone Air	-	69.4	0.00094	1442	432	11997	0
Return Plenum	Outlet	69.4	0.00094	1442	432	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080, At site altitude = 1.057 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4745.8, At site altitude = 4645.1 BTU/(hr-CFM)
Site Altitude = 597.0 ft

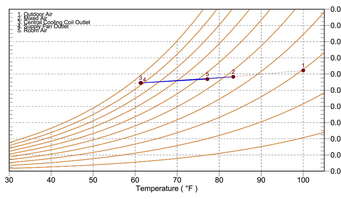
TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	-11252	Heating	-11997	69.4	1442	432	0	0

System Psychrometrics for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:22AM

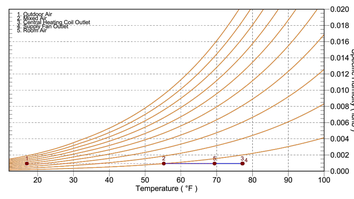
Location: Dallas, Texas
Altitude: 597.0 ft.
Data for: August DESIGN COOLING DAY, 1500



System Psychrometrics for 01.AHU-01

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:22AM

Location: Dallas, Texas
Altitude: 597.0 ft.
Data for: WINTER DESIGN HEATING



Air System Sizing Summary for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

Air System Information

Air System Name	02.AHU-02	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	2300.0 ft²
Air System Type	SZCAV	Location	Dallas, Texas

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates
Sizing Data	Calculated	Space CFM Sizing	Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load	3.5 Tons	Load occurs at	Jul 1500
Total coil load	42.4 MBH	OA DB / WB	97.8 / 73.4 °F
Sensible coil load	32.6 MBH	Entering DB / WB	84.5 / 69.7 °F
Max CFM at Jul 1500	1419 CFM	Leaving DB / WB	60.8 / 58.3 °F
Max block CFM	1419 CFM	Coil ADP	58.1 °F
Sum of peak zone CFM	1419 CFM	Bypass Factor	0.100
Sensible heat ratio	0.769	Resulting RH	56 %
CFM/Ton	421.3	Design supply temp	58.0 °F
BTU/hr (sen)	650.6	Zone T-stat Check	1 of 1 OK
Water flow @ 10.0 °F rise	N/A	Max zone temperature deviation	0.0 °F

Central Heating Coil Sizing Data

Max coil load	39.1 MBH	Load occurs at	Des Htg
Coil CFM at Des Htg	1419 CFM	BTU/hr-ft²	17.0
Max coil CFM	1419 CFM	Ent. DB / Lvg DB	55.9 / 76.9 °F
Water flow @ 20.0 °F drop	N/A		

Supply Fan Sizing Data

Actual max CFM	1419 CFM	Fan motor BHP	0.06 BHP
Standard CFM	1388 CFM	Fan motor kW	0.05 kW
Actual max CFM/ft²	0.62 CFM/ft²	Fan static	0.20 in wg

Outdoor Ventilation Air Data

Design airflow CFM	500 CFM	CFM/person	14.29 CFM/person
CFM/ft²	0.22 CFM/ft²		

Zone Sizing Summary for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

Air System Information

Air System Name	02.AHU-02	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	2300.0 ft²
Air System Type	SZCAV	Location	Dallas, Texas

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone CFM Sizing	Sum of space airflow rates
Sizing Data	Calculated	Space CFM Sizing	Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	Reheat Coil Load (MBH)	Reheat Coil Water (gpm) @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water (gpm) @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	1419	1419	0.62	0.0	0.0	0.0	0.0	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	25.5	Jul 1500	11.8	2300.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
02.ZONE-2	1	25.5	Jul 1500	1419	11.8	2300.0	0.62

Air System Design Load Summary for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 97.8 °F / 73.4 °F			HEATING OA DB / WB 17.0 °F / 13.9 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	174 ft²	3780	-	174 ft²	-	-
Wall Transmission	1286 ft²	1802	-	1286 ft²	4386	-
Roof Transmission	2040 ft²	3342	-	2040 ft²	2947	-
Window Transmission	174 ft²	1551	-	174 ft²	4242	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	2040 ft²	0	-	2040 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2300 W	7847	-	0 W	0	-
Task Lighting	0 W	0	-	0 W	0	-
Electric Equipment	300 W	1024	-	0 W	0	-
People	30	8050	4200	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
** Total Zone Loads	-	27596	4200	-	11575	0
Zone Conditioning	-	24031	4200	-	11917	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	1419 CFM	0	-	1419 CFM	0	-
Ventilation Load	500 CFM	10844	2989	500 CFM	27645	0
Supply Fan Load	1419 CFM	175	-	1419 CFM	-175	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
** Total System Loads	-	35595	6869	-	39590	0
Cooling Coil Loads	-	35595	6870	-	0	0
Central Heating Coil	-	-	-	-	39590	-
** Total Conditioning	-	35595	6870	-	39590	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

System Psychrometrics for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

July DESIGN COOLING DAY, 1300

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	97.8	0.0124(sat)	500	400	9454	1892
Vent. - Return Mixing	Outlet	84.8	0.01170	1419	808	-	-
Central Cooling Coil	Outlet	60.8	0.01066	1419	808	35550	6870
Central Heating Coil	Outlet	60.8	0.01066	1419	808	0	-
Supply Fan	Outlet	60.9	0.01066	1419	808	175	-
Cold Supply Duct	Outlet	60.9	0.01066	1419	808	-	-
Zone Air	-	77.2	0.01129	1419	1030	24531	4200
Return Plenum	Outlet	77.2	0.01129	1419	1030	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080, At site altitude = 1.057 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4745.8, At site altitude = 4645.1 BTU/(hr-CFM)
Site Altitude = 597.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	29196	Cooling	24531	77.2	1419	1030	0	0

System Psychrometrics for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	17.0	0.0009(sat)	500	400	-27645	0
Vent. - Return Mixing	Outlet	50.9	0.00094	1419	412	-	-
Central Cooling Coil	Outlet	50.9	0.00094	1419	412	0	0
Central Heating Coil	Outlet	76.9	0.00094	1419	412	39590	-
Supply Fan	Outlet	77.1	0.00094	1419	412	175	-
Cold Supply Duct	Outlet	77.1	0.00094	1419	412	-	-
Zone Air	-	69.3	0.00094	1419	419	-11617	0
Return Plenum	Outlet	69.3	0.00094	1419	419	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080, At site altitude = 1.057 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.8, At site altitude = 4645.1 BTU/(hr-CFM)
Site Altitude = 597.0 ft

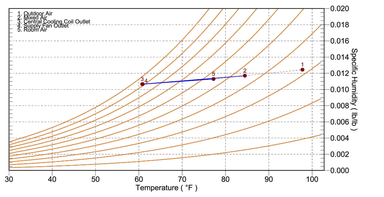
TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	-11575	Heating	-11617	69.3	1419	419	0	0

System Psychrometrics for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

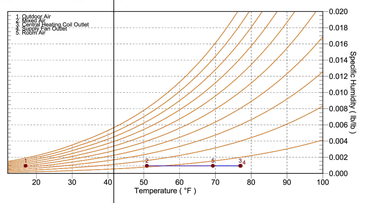
Location: Dallas, Texas
Altitude: 597.0 ft.
Data for: July DESIGN COOLING DAY, 1300



System Psychrometrics for 02.AHU-02

Project Name: 2.2.650.John Berris Dental Office
Prepared by: TLO
08/04/2022
12:23AM

Location: Dallas, Texas
Altitude: 597.0 ft.
Data for: WINTER DESIGN HEATING



BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

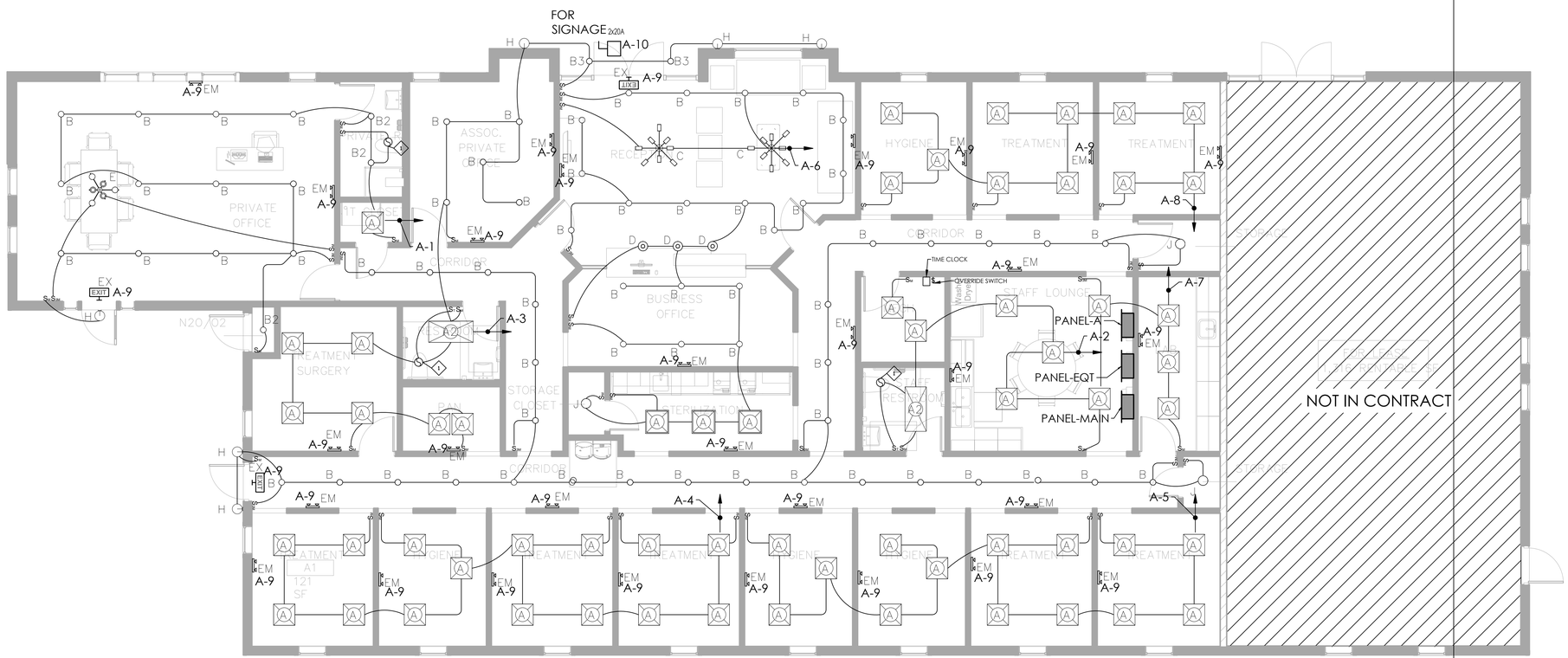
LOT 1, BLOCK A-BEMIS FAMILY DENTAL ADDITION

MECHANICAL HEAT LOAD CALCULATION

Drawn By: O.K | Scale: NTS
Date: 08.18.2023 | PROJ.NO.:

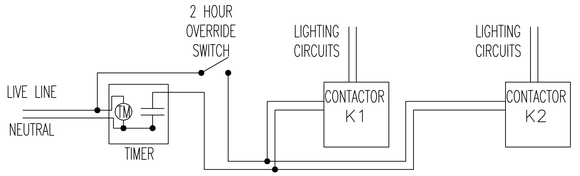
M400

4/6 SHEET NO.



LIGHTING SCHEDULE							
TAG	MOUNT	DESCRIPTION	MANUF.	QTY	SUPPLIED BY	INSTALLED BY	WATTAGE
A	LAY-IN	2' X 2' LED EDGE-LIT FLAT PANEL	LITHONIA	59	GC	GC	33W
A2	LAY-IN	2' X 4' LED EDGE-LIT FLAT PANEL (WET LOCATION)	LITHONIA	2	GC	GC	33W
B	CEILING	6" OPEN LED DOWNLIGHT WF6 ADJ	LITHONIA	67	GC	GC	13W
B2	CEILING	6" OPEN LED DOWNLIGHT (WET LOCATION)		3	GC	GC	13W
B3	CEILING	6" OPEN LED DOWNLIGHT (EXTERIOR)		2	GC	GC	13W
C	CEILING (PENDANT)	MOLLIS CHANDELIER (OR SIMILAR MODERN DECORATIVE)	MAYTONI	2	GC	GC	75W
D	CEILING (PENDANT)	BLACK & GOLD PENDANT (OR SIMILAR MODERN DECORATIVE)	LITHONIA	3	GC	GC	20W
E	CEILING (PENDANT)	NOSTALGIA PENDANT LAMP (6) (OR SIMILAR MODERN DECORATIVE)	MAYTONI	1	GC	GC	50W
EX	MULTI	THERMOPLASTIC EXIT SIGN W/ STENCIL FACE	LITHONIA		GC	GC	10W
G	WALL	AFFINITY THERMOPLASTIC NORMALLY-OFF EMERGENCY LIGHTING UNIT	LITHONIA		GC	GC	20W
H	WALL	DECORATIVE WALL SCONCE (EXTERIOR)	TBD	9	GC	GC	20W
I	WALL	LITHONIA WDGE3 WALL PACK, FULL CUT-OFF	LITHONIA		GC	GC	20W
J	CEILING	SURFACE MOUNT LED	TBD	4	GC	GC	20W

"AS Per Section 3-20-1.B of the Zoning Ordinance,
screening shall be provided so that materials stored in any outdoor storage area and/or equipment at grade or on the roof area screened from adjacent streets, no matter the street grade, and all properties at the same grade."



TIME CLOCK
SHALLBE 365DAY 24/HOUR TYPE
THE MAXIMUM SETTING FOR THE OVERRIDE CONTROL
SHALL NOT EXCEED 2HOURS.

RCP GENERAL NOTES

1. CEILING GRID TO BE SUSPENDED FROM STRUCTURE ABOVE. IF GRID SUPPORTS ARE BLOCKED BY UTILITIES ABOVE, TRAPEZE-TYPE SUPPORTS TO BE CONSTRUCTED FROM UNISTRUT TO SPAN BLOCKAGES.
2. LIGHT FIXTURES LOCATED WITHIN CEILING GRID TO BE SUPPORTED FROM THE STRUCTURE ABOVE, INDEPENDENTLY OF THE CEILING GRID.
3. CEILING GRIDS TO BE CENTERED WITHIN INDIVIDUAL SPACES.

ELECTRICAL LEGEND

- JUNCTION BOX FOR EXHAUST FANS
- D — DIMMER
- S_M — OCCUPANCY SENSOR
- S — ONE WAY LIGHTING SWITCH
- S_3 — TWO WAYS LIGHTING SWITCH
- EM — EMERGENCY LIGHTING WALL MOUNTED WITH INTERNAL BACK UP BATTERY WITH MINIMUM 90 MINS AUTONOMY
- EXIT / EX — EXIT SIGN WALL MOUNTED WITH INTERNAL BACK UP BATTERY WITH MINIMUM 90 MINS AUTONOMY
- C — SELF CONTAINED SMOKE/CARBON MONOXIDE (120 W/BATTERY BACKUP) - CEILING MOUNTED

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

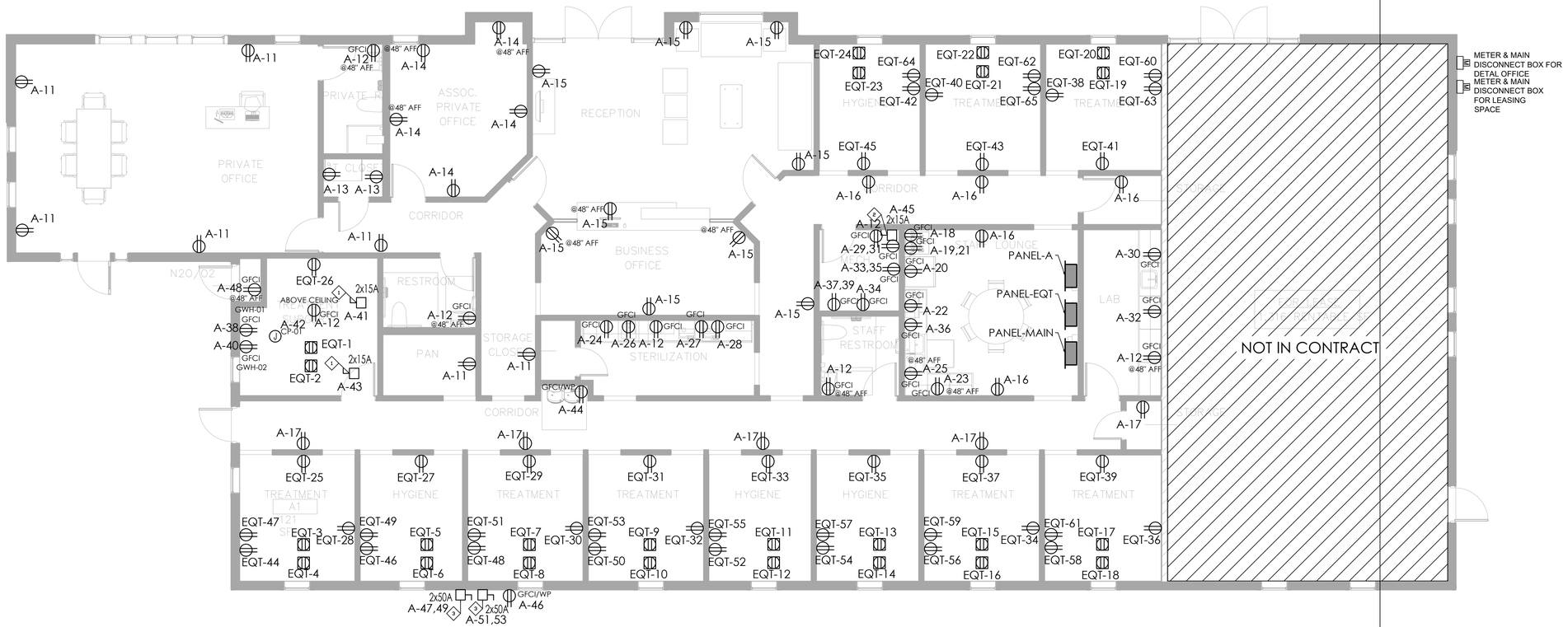
LOT 1, BLOCK A-BEMIS FAMILY DENTAL ADDITION

LIGHTING LAYOUT

Drawen By: A.B | Scale: 3/16" = 1'-0"
Date: 08.03.2023 | PROJ.NO.:

E200

3/8 SHEET NO.



ELECTRICAL LEGEND

- DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
- DUPLEX RECEPTACLE - FLOOR MOUNTED IG DENOTES: IG TYPE
- QUADRIPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
- YxXXA — NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED
- DAYLIGHT SENSOR TO CONTROL LUMINARIES IN DAYLIGHT ZONE
- FLOOR DATA OUTLET WITH CAT5 CONNECTION
- WALL MOUNTED ELECTRIC JUNCTION BOX
- FLOOR MOUNTED ELECTRIC JUNCTION BOX

SHEET NOTES:

1. PROVIDE NEMA 3R DISCONNECT SWITCH FOR GF
2. PROVIDE NEMA 3R DISCONNECT SWITCH FOR EXHAUST FAN
3. PROVIDE NEMA 3R DISCONNECT SWITCH FOR CU

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

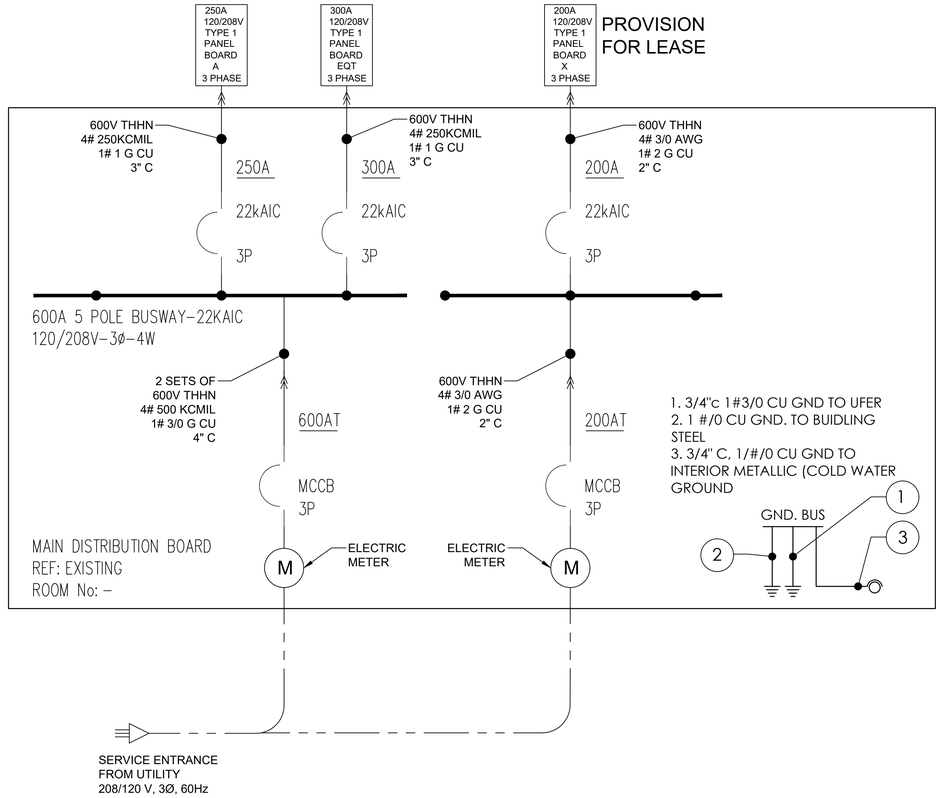
LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

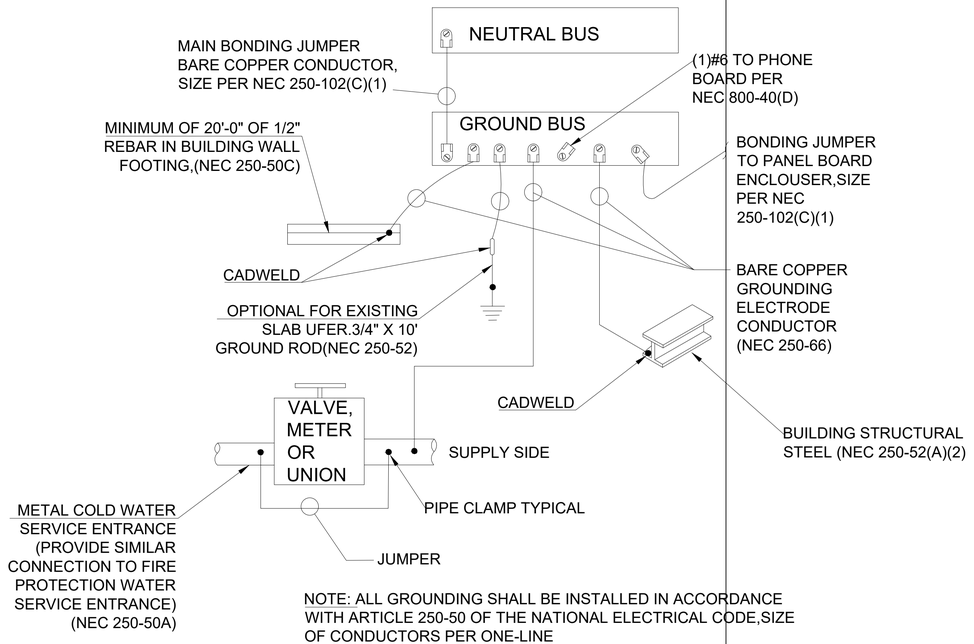
POWER LAYOUT

Drawen By: A.B	Scale: 3/16" = 1'-0"
Date: 08.03.2023	PROJ.NO.:

E300

4/8 SHEET NO.





NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE,SIZE OF CONDUCTORS PER ONE-LINE

GROUNDING DETAIL

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

LOT 1, BLOCK A-BEMIS FAMILY DENTAL ADDITION

SINGLE LINE DIAGRAM & GROUNDING DETAILS

Drawen By: A.B	Scale: NTS
Date: 08.03.2023	PROJ.NO.:

E400

5/8 SHEET NO.

DRAINAGE KEYED NOTES:

1 — 2" WALL CLEAN-OUT.

2 — 4" FLOOR CLEAN-OUT.

3 — 3" VENT STACK TO ABOVE.

4 — 1 1/2" DRAIN PIPE FROM ATTIC HUB DRAIN TO CONNECT THE INDIRECT WASTE DRAINS OF THE WATER HEATER, T&P VALVES, BACK-FLOW PREVENTER AND THE AC EVAPORATORS CONDENSATE.

5 — 1 1/2" INDIRECT WASTE CONNECTION FOR DRINKING FOUNTAIN WITH VENT RISE.

6 — 1 1/2" INDIRECT WASTE CONNECTION FOR VACUUM TANKS AND COMPRESSOR TOWARDS TO THE FLOOR DRAIN.

7 — 3" FLOOR DRAIN WITH TRAP PRIMER.

8 — WASTE DROP & 2" VENT RISE.

9 — WASHING MACHINE TRAPPED & VENTED INDIRECT WASTER CONNECTION.

FROM IPC - TABLE 709.1:

DRAINAGE FIXTURE UNIT VALUES (DFU)

FIXTURE	D.F.U	QTY.	TOTAL D.F.U
WATER CLOSET	4.0	3	12
LAVATORY	1.0	3	3.0
DRINKING FOUNTAIN	0.5	1	0.5
SHOWER	2.0	1	2.0
KITCHEN SINK	2.0	1	2.0
WASHING MACHINE	2.0	1	2.0
FLOOR DRAIN	2.0	5	10.0
SERVICE SINK	2.0	1	2.0
DENTAL LAVATORY	1.0	12	12.0
TOTAL DFU =			**45.5**

AS PER IPC - TABLE 710.1(1):

- MAIN SEWER PIPE: 4"Ø

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

DRAINAGE FLOOR PLAN

Drawen By: O.K	Scale: 3/16" = 1'-0"
Date: 08.18.2023	PROJ.NO.:

P200

2/7 SHEET NO.

FROM IPC - TABLE E 103.3 (2):

WATER SUPPLY FIXTURE UNITS LOADS:

FIXTURE	OCCUPANCY	W.S.F.U	QTY.	TOTAL W.S.F.U
WATER CLOSET - FLUSHOMETER TANK	PUBLIC	2	1	2.0
LAVATORY	PUBLIC	2.0	1	2.0
WATER CLOSET - FLUSHOMETER TANK	PRIVATE	2	2	4.0
LAVATORY	PRIVATE	0.7	2	1.4
KITCHEN SINK	PRIVATE	1.4	1	1.4
SHOWER HEAD	PRIVATE	1.4	1	1.4
DRINKING FOUNTAIN	OFFICES, ETC.	0.25	1	0.25
WASHING MACHINE (8lb)	PRIVATE	1.4	1	1.4
DENTAL LAVATORY	PRIVATE	0.7	12	8.4
CLINICAL FAUCET	-	3.0	2	6.0
SERVICE SINK	OFFICES, ETC.	3.0	1	3.0
				TOTAL = 31.25 W.F.U
				EQUIVALENT FLOW (IPC TABLE E103.3(3)) = 23.6 GPM
				SELECT Ø1-1/2" MAIN PIPE AT < 5 FT/s

SCHEDULE No. 1

ELECTRIC WATER HEATER SCHEDULE

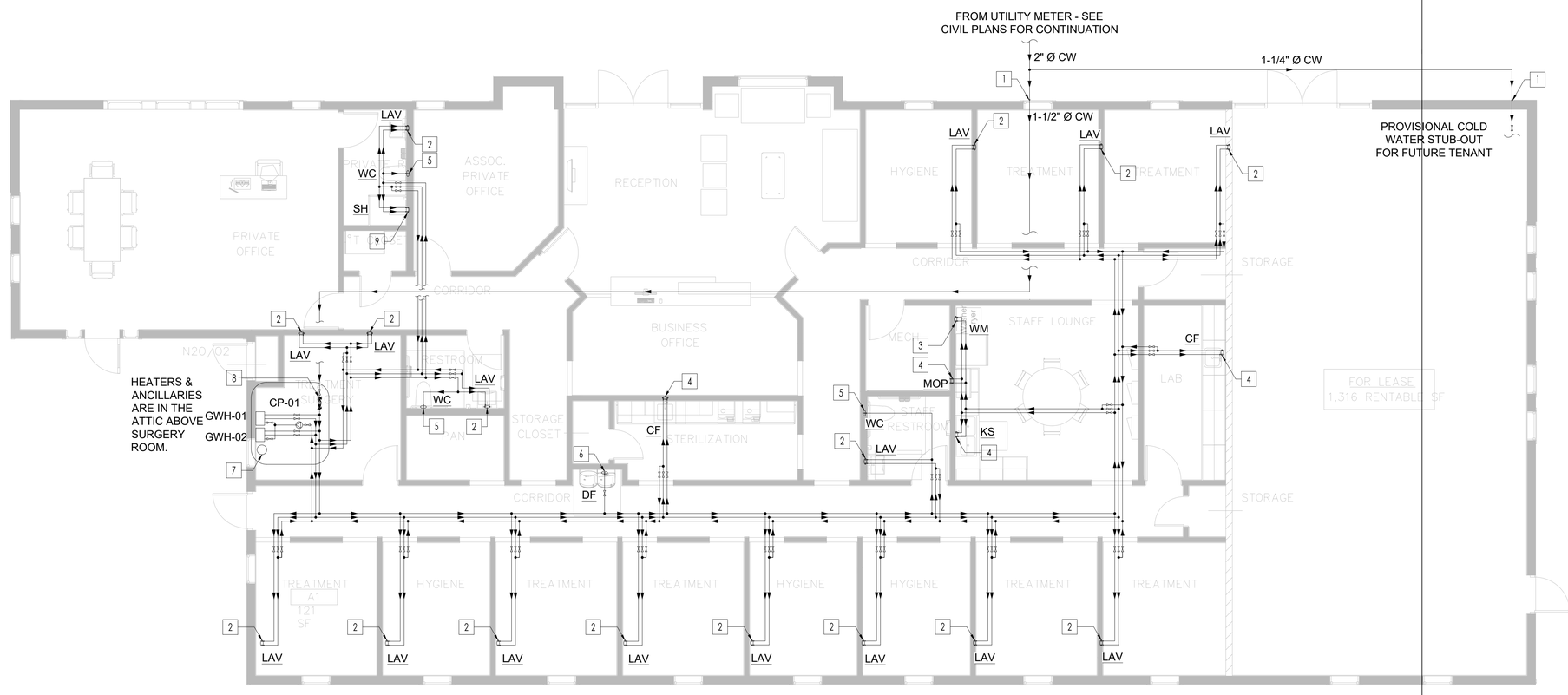
TAG	GWH-01	GWH-02
LOCATION	ATTIC	ATTIC
MANUFACTURER	A.O SMITH	A.O SMITH
MODEL	ACT-199I-N	ACT-199I-N
TYPE	TANKLESS NATURAL GAS	TANKLESS NATURAL GAS
MAXIMUM FLOW (GPM)	10	10
GAS INPUT MIN. / MAX. (BTU/hr)	15,000 / 199,000	15,000 / 199,000
UNIFORM ENERGY FACTOR (UEF)	0.93	0.93
APPROX. WEIGHT (lbs)	71	71
DIMENSIONS WxHxD	17.75" x 24.9" x 11.25"	17.75" x 24.9" x 11.25"
HOT & COLD WATER CONX. SIZE	3/4" & 3/4"	3/4" & 3/4"
GAS CONX. SIZE	3/4"	3/4"

NOTES:

1. PROVIDE ASME APPROVED T&P RELIEF VALVE WITH DRAIN.
2. PROVIDE ISOLATION VALVES ON BOTH THE COLD-WATER SUPPLY AND THE HOT-WATER PIPE LEAVING THE INSTANTANEOUS WATER HEATERS, AND PROVIDE HOSE BIB OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING.
3. PROVIDE 110V RECEPTACLE W/WATER-RESISTANT ENCLOSURE/COVER FOR TANKLESS W/H.
4. PROVIDE EXTERNAL RE-CIRCULATION PUMP.
5. FOR POWER SUPPLY, SEE ELECTRICAL SHEETS.

WATER SUPPLY KEYED NOTES:

1. DCW ENTRY TO BUILDING - SEE WATER ENTRY DETAIL.
2. DCW & DHW DROP IN WALL TO LAVATORY WITH THERMOSTATIC MIXING VALVE.
3. DCW & DHW DROP IN WALL FOR WASHING MACHINE TERMINALS - PROVIDE WATER HAMMER ARRESTORS & AUTOMATIC AIR VENTS AT THE TOP OF RISER.
4. DCW & DHW DROP IN WALL TO FIXTURE TERMINAL.
5. DCW DROP IN WALL TO TOILET TANK TERMINAL.
6. DCW DROP IN WALL WITH VACUUM BREAKER & BACKFLOW PREVENTER FOR DRINKING FOUNTAIN.
7. EXPANSION TANK WATTS PLT-12 OR EQUAL NEAR GAS WATER HEATER IN ATTIC - SEE SCHEDULE FOR DETAILS.
8. BACKFLOW PREVENTER - WATTS 009 OR EQUAL.
9. DCW & DHW DROP IN WALL TO SHOWER - PROVIDE PRESSURE / TEMPERATURE BALANCE ANTI-SCALDING VALVE.



BEMIS FAMILY DENTAL CLINIC

6617 CHARBONNEAU RD

CITY OF LAKE WORTH , TEXAS

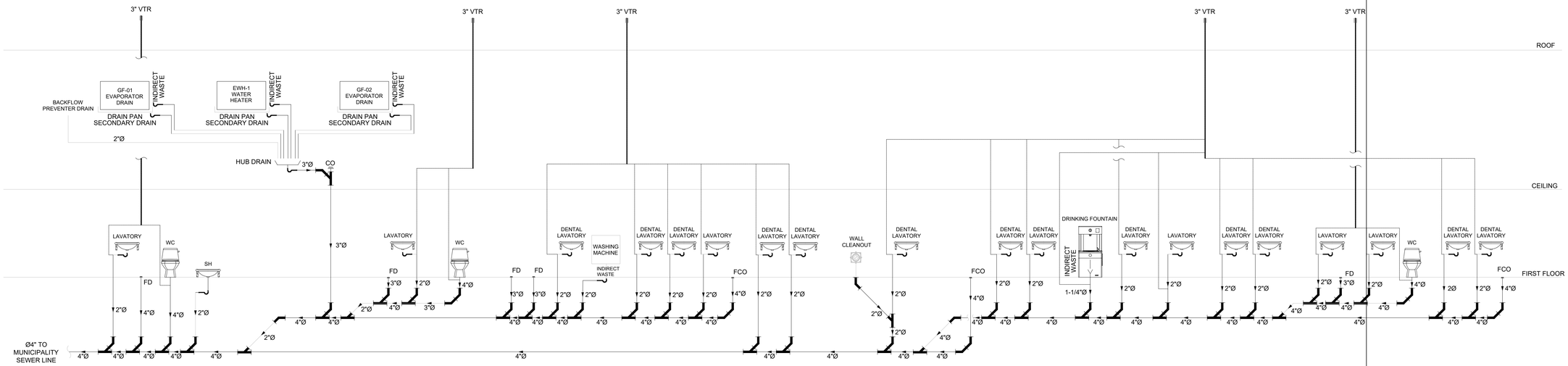
LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

WATER SUPPLY FLOOR PLAN

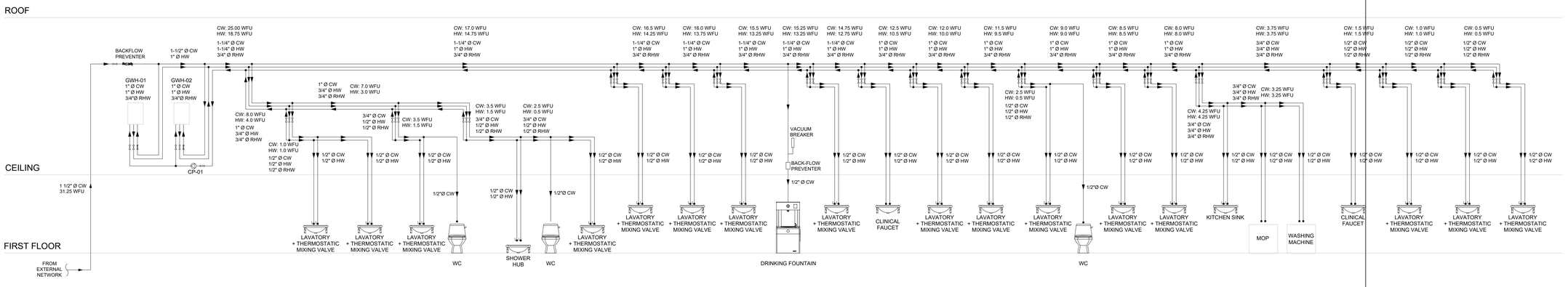
Drawen By: O.K	Scale: 3/16" = 1'-0"
Date: 08.18.2023	PROJ.NO.:

P300

3/7 SHEET NO.



DRAINAGE RISER DIAGRAM
Scale: NTS



WATER SUPPLY RISER DIAGRAM
SCALE : NTS

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

DRAINAGE & WATER SUPPLY RISER DIAGRAMS

Drawen By: O.K	Scale: NTS
Date: 08.18.2023	PROJ.NO.:

P500

5/7 SHEET NO.

2018 INTERNATIONAL FUEL GAS CODE CHECK:

CLEARANCES RULES

305.1 General
Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of listing, the manufacturer's instructions and this code. Manufacturers' installation instructions shall be available on the job site at the time of inspection. Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.
Unlisted appliances approved in accordance with Section 301.3 shall be limited to uses recommended by the manufacturer and shall be installed in accordance with the manufacturer's instructions, the provisions of this code and the requirements determined by the code official.

305.2 Hazardous Area
Equipment and appliances having an ignition source shall not be installed in Group H occupancies or control areas where open use, handling or dispensing of combustible, flammable or explosive materials occurs.

306.5 Equipment and Appliances on Roofs or Elevated Structures
Where equipment requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders.

Clearances Requirements:

308.4 Central-Heating Boilers and Furnaces
Clearance requirements for central-heating boilers and furnaces shall comply with Sections 308.4.1 through 308.4.5. The clearance to these appliances shall not interfere with combustion air; draft hood clearance and relief; and accessibility for servicing.

308.4.1 Appliance Clearances:
Central-heating furnaces and low-pressure boilers shall be installed with clearances in accordance with the manufacturer's instructions.

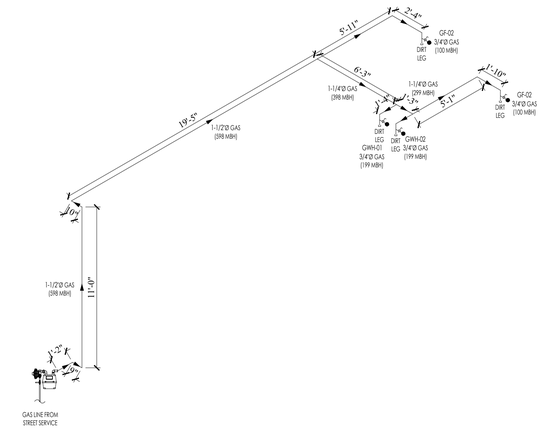
308.4.2 Clearance Reduction:
Central-heating furnaces and low-pressure boilers shall be permitted to be installed with reduced clearances to combustible material provided that the combustible material or appliance is protected as described in Table 308.2 and such reduction is allowed by the manufacturer's instructions.

308.4.3 Clearance for Servicing Appliances:
Front clearance shall be sufficient for servicing the burner and the furnace or boiler.

308.4.4 Plenum Clearances:
Where the furnace plenum is adjacent to plaster on metal lath or noncombustible material attached to combustible material, the clearance shall be measured to the surface of the plaster or other noncombustible finish where the clearance specified is 2 inches (51 mm) or less.

308.4.5 Clearance From Supply Ducts:
Supply air ducts connecting to listed central heating furnaces shall have the same minimum clearance to combustibles as required for the furnace supply plenum for a distance of not less than 3 feet (914 mm) from the supply plenum. Clearance is not required beyond the 3-foot (914 mm) distance.

415.1 Interval of Support
Piping shall be supported at intervals not exceeding the spacing specified in Table 415.1. Spacing of supports for CSST shall be in accordance with the CSST manufacturer's instructions.



GAS NETWORK ISOMETRIC VIEW
N.T.S

Section 401 (IFGC) General

401.1 Scope
This chapter shall govern the design, installation, modification and maintenance of piping systems. The applicability of this code to piping systems extends from the point of delivery to the connections with the appliances and includes the design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance of such piping systems.

401.1.1 Utility Piping Systems Located Within Buildings
Utility service piping located within buildings shall be installed in accordance with the structural safety and fire protection provisions of the International Building Code.
401.5 Identification

For other than steel pipe, exposed piping shall be identified by a yellow label marked "Gas" in black letters. The marking shall be spaced at intervals not exceeding 5 feet (1524 mm). The marking shall not be required on pipe located in the same room as the appliance served.

401.6 Interconnections
Where two or more meters are installed on the same premises but supply separate consumers, the piping systems shall not be interconnected on the outlet side of the meters.

401.7 Piping Meter Identification
Piping from multiple meter installations shall be marked with an approved permanent identification by the installer so that the piping system supplied by each meter is readily identifiable.

401.8 Minimum Sizes
Pipe utilized for the installation, extension and alteration of any piping system shall be sized to supply the full number of outlets for the intended purpose and shall be sized in accordance with Section 402.

401.9 Identification
Each length of pipe and tubing and each pipe fitting, utilized in a fuel gas system, shall bear the identification of the manufacturer.

Exceptions:
1. Steel pipe sections that are 2 feet (610 mm) and less in length and are cut from longer sections of pipe.
2. Steel pipe fittings 2 inches and less in size.
3. Where identification is provided on the product packaging or crating.
4. Where other approved documentation is provided.

GAS PIPES SIZING:

ITEM	INPUT - MBH	PIPE SIZE
GF-01 / FURNACE	100	3/4"
GF-02 / FURNACE	100	3/4"
GWH-01 / TANKLESS WATER HEATER	199	1"
GWH-02 / TANKLESS WATER HEATER	199	1"
TOTAL =	598	1 1/2"

GAS: NATURAL
INLET PRESSURE: LESS THAN 2 PSI
PRESSURE DROP: 0.5" W.C.
PIPE: SCHEDULE 40 / METALLIC
AS PER IFGC 2018 TABLE 402.4(2)
FOR PIPE LENGTH OF 50', BELOW ARE THE PIPE SIZES LIMITS:
3/4" = 151 CFH
1" = 284 CFH
1-1/4" = 583 CFH
1-1/2" = 873 CFH

GAS PIPING MATERIAL

403.4 Metallic Pipe
Metallic pipe shall comply with Sections 403.4.1 through 403.4.4.

403.4.1 Cast Iron
Cast-iron pipe shall not be used.

403.4.2 Steel
Steel, stainless steel and wrought-iron pipe shall be not lighter than Schedule 10 and shall comply with the dimensional standards of ASME B36.10M and one of the following standards:
1. ASTM A53/A53M.
2. ASTM A106.
3. ASTM A312.

403.4.3 Copper and Copper Alloy
Copper and copper alloy pipe shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic feet of gas (0.7 milligrams per 100 liters). Threaded copper, copper alloy and aluminum-alloy pipe shall not be used with gases corrosive to such materials.

403.4.4 Aluminum
Aluminum-alloy pipe shall comply with ASTM B241 except that the use of alloy 5456 is prohibited.
Aluminum-alloy pipe shall be marked at each end of each length indicating compliance. Aluminum-alloy pipe shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergents or sewage. Aluminum-alloy pipe shall not be used in exterior locations or underground.

403.5 Metallic Tubing
Tubing shall not be used with gases corrosive to the tubing material.

403.5.1 Steel Tubing
Steel tubing shall comply with ASTM A254.

403.5.2 Stainless Steel
Stainless steel tubing shall comply with ASTM A268 or ASTM A269.

403.5.3 Copper and Copper Alloy Tubing
Copper tubing shall comply with Standard Type K or L of ASTM B88 or ASTM B280.
Copper and copper alloy tubing shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic feet of gas (0.7 milligrams per 100 liters).

403.5.4 Aluminum Tubing
Aluminum-alloy tubing shall comply with ASTM B210 or ASTM B241. Aluminumalloy tubing shall be coated to protect against external corrosion where it is in contact with masonry, plaster or insulation, or is subject to repeated wettings by such liquids as water, detergent or sewage.
Aluminum-alloy tubing shall not be used in exterior locations or underground.

403.5.5 Corrugated Stainless Steel Tubing
Corrugated stainless steel tubing shall be listed in accordance with ANSI LC 1/CSA 6.26.

403.6 Plastic Pipe, Tubing and Fittings
Polyethylene plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D2513. Such pipe shall be marked "Gas" and "ASTM D2513."
Polyamide pipe, tubing and fittings shall be identified and conform to ASTM F2945. Such pipe shall be marked "Gas" and "ASTM F2945."
Polyvinyl chloride (PVC) and chlorinated polyvinyl chloride (CPVC) plastic pipe, tubing and fittings shall not be used to supply fuel gas.

403.6.1 Anodeless Risers
Plastic pipe, tubing and anodeless risers shall comply with the following:
Factory-assembled anodeless risers shall be recommended by the manufacturer for the gas used and shall be leak tested by the manufacturer in accordance with written procedures.
Service head adapters and field-assembled anodeless risers incorporating service head adapters shall be recommended by the manufacturer for the gas used, and shall be designed and certified to meet the requirements of Category I of ASTM D2513, and U.S. Department of Transportation, Code of Federal Regulations, Title 49, Part 192.281(e). The manufacturer shall provide the user with qualified installation instructions as prescribed by the U.S. Department of Transportation, Code of Federal Regulations, Title 49, Part 192.283(b).

403.6.2 LP-Gas Systems
The use of plastic pipe, tubing and fittings in undiluted liquefied petroleum gas piping systems shall be in accordance with NFPA 58.

403.6.3 Regulator Vent Piping
Plastic pipe and fittings used to connect regulator vents to remote vent terminations shall be PVC conforming to ANSI/UL 651. PVC vent piping shall not be installed indoors.

TABLE 415.1 / SUPPORT OF PIPING

STEEL PIPE, NOMINAL SIZE OF PIPE (INCHES)	SPACING OF SUPPROTS (FEET)	NOMINAL SIZE OF TUBING (SMOOTH-WALL) (inch O.D.)	SPACING OF SUPPROTS (FEET)
1/2	6	1/2	4
3/4 OR 1	8	3/4 OR 1	6
1 1/4 OR LARGER HORIZONTAL	10	1 1/4 OR LARGER HORIZONTAL	8
1 1/4 OR LARGER VERTICAL	EVERY FLOOR LEVEL	1 1/4 OR LARGER VERTICAL	EVERY FLOOR LEVEL

GAS PIPES MATERIAL:

1. ABOVE GROUND GAS PIPES IN SCHEDULE 40 STEEL.
2. TERMINATION TO APPLIANCES / EQUIPMENT IN CORRUGATED STAINLESS STEEL PIPES.
3. PROVIDE GROUNDING / BONDING AS REQUIRED BY THE CODE.
4. PIPING MATERIAL MUST COMPLY TO THE ONES SPECIFIED IN CODE / SEE CODE CHECK FOR DETAILS.

BEMIS FAMILY DENTAL CLINIC
6617 CHARBONNEAU RD
CITY OF LAKE WORTH , TEXAS

LOT 1, BLOCK A–BEMIS FAMILY DENTAL ADDITION

GAS CODE CHECK, ISOMETRIC VIEW & PIPE SIZING

Drawen By: O.K	Scale: NTS
Date: 08.18.2023	PROJ.NO.:

P600

6/7 SHEET NO.