

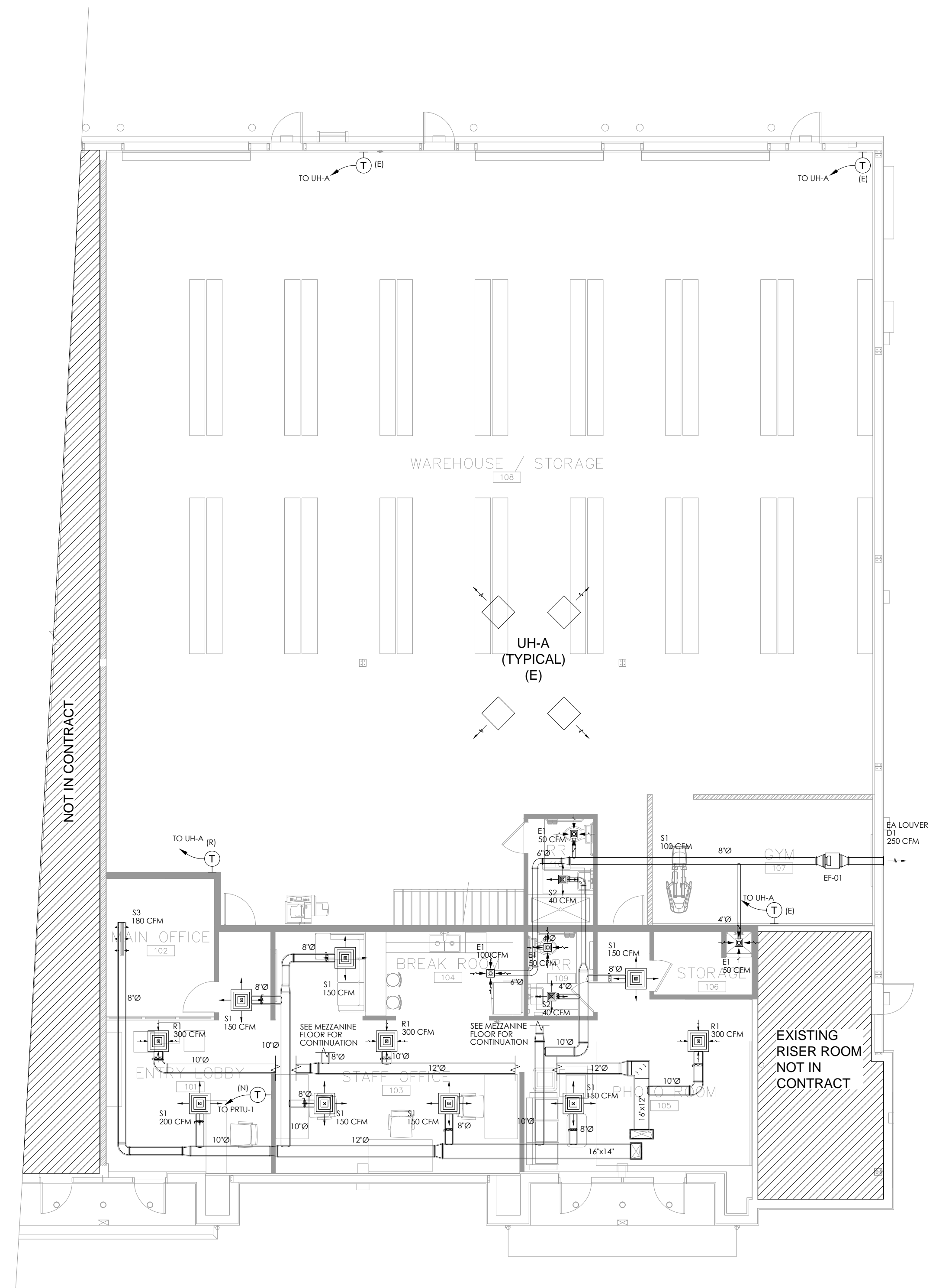
**GDI ENGINEERING**



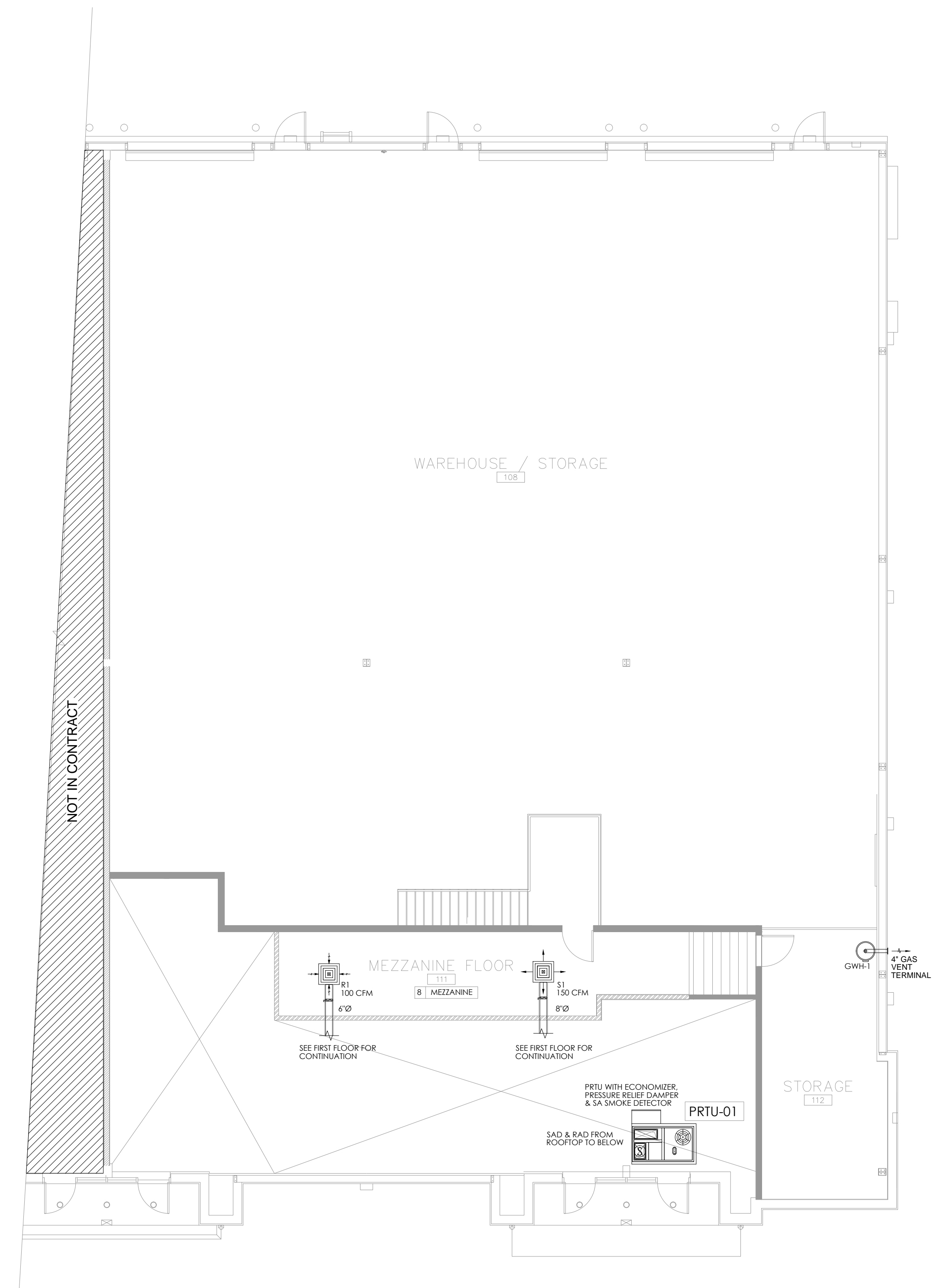
**Birdie Bean Clothing Retail and  
Warehouse**

Retail

**McKinney, Texas**



FIRST FLOOR PLAN SCALE 1/8"=1'-0" 1



MEZZANINE PLAN SCALE 1/8"=1'-0" 2

REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
 1600 CORPORATE CENTRAL DR.  
 SUITE 111  
 MCKINNEY, TEXAS 75069

1600 CORPORATE DRIVE  
 MCKINNEY, TEXAS 75069

MECHANICAL  
 LAYOUT .

Drawn By: Z.H Scale: 1/8"=1'-0"  
 Date: 05.18.2023 PROJ.NO.:

**M 2.00**

SHEET NO.

**SCHEDULE No. 1**  
**PACKAGED ROOFTOP UNIT - ELECTRIC COOLING / GAS HEAT**

TAG	PRTU-01
LOCATION	ROOF
MANUFACTURER	CARRIER OR EQUAL
MODEL	48HCDA05F0M5A2B0A0
COOLING STAGES / ID FAN STAGES	1 / 1
NOMINAL CAPACITY (TONS)	4.0
NET COOLING CAPACITY (MBH)	48.5
EER / SEER	13.0 / 15.6
SELECTED SUPPLY AIR FLOW (CFM)	1510
OUTDOOR AIR FLOW (CFM)	600
GAS HEAT	LOW
GAS INPUT - STAGE 1 / STAGE 2 (MBH)	50 / 72
HEAT OUTPUT - STAGE 1 / STAGE 2 (MBH)	41 / 56
TEMPERATURE RISE (°F)	25 - 55
THERMAL EFFICIENCY	82%
MCA	26
MOCP (A)	30
VOLTS / PH / Hz	208-230 / 3 / 60
SOUND RATING (dB)	78
BASE DIMENSIONS	74 3/8" x 46 5/8"
WEIGHT WITH ACCESSORIES (lb)	863

**NOTES:**

- RTU SHALL HAVE A FACTORY INSTALLED MOTORIZED ECONOMIZER WITH BAROMETRIC RELIEF DAMPER AND CO2 SENSOR IN THE RETURN DUCT TO ADJUST THE OA % AND TO ALLOW FREE COOLING.
- OUTDOOR COIL SHOULD HAVE FACTORY INSTALLED LOUVERED HAIL GUARD.
- PROVIDE REMOTE FILTER STATUS INDICATOR.
- PROVIDE GAS REGULATOR AS REQUIRED BY THE CODE AND THE MANUFACTURER.
- PROVIDE FACTORY SUPPLIED ROOF CURBS, VALIDATE THE ROOF CURB HEIGHT WITH THE OWNER PRIOR TO ORDER.
- PROVIDE SUPPLY AIR FACTORY INSTALLED SMOKE DETECTOR.

**SCHEDULE No. 2**  
**FAN SCHEDULE**

TAG	EF-01
LOCATION	RESTROOMS & STORAGE
SELECTED FLOW (CFM)	250
SELECTED PRESSURE DROP (IN. H2O)	0.15"
ELECTRICAL (V / PH / HZ)	115 / 1 / 60
FULL LOAD AMPS	1.0 A
MOTOR SPEED	1050 RPM
FAN TYPE	DIRECT DRIVE CABINET FAN
MANUFACTURER	GREENHECK OR EQUAL
MODEL	SQ-90
WEIGHT	49 lbs
DIMENSIONS HxWxL	18" x 18" x 17"

**NOTES:**

- PROVIDE UL LISTING.
- PROVIDE ENERGY STAR COMPLIANCE.
- INTERLOCK WITH OCCUPANCY SENSOR.
- PROVIDE MOTOR WITH THERMAL OVERLOADS.

**SCHEDULE No. 3**  
**AIR OUTLETS**

TAG	DESCRIPTION	MANUFACTURER	MODEL	SIZE	MOUNTING
S1	SUPPLY SQUARE DIFFUSER	TITUS OR EQUAL	TDC-AA	24" x 24"	CEILING WITH PLENUM BOX & ROUND INLET.
S2	SUPPLY SQUARE DIFFUSER	TITUS OR EQUAL	TDC-AA	8" x 8"	CEILING WITH PLENUM BOX & ROUND INLET.
S3	SUPPLY SQUARE DIFFUSER	TITUS OR EQUAL	-	2 SLOT 3/4" - 3'	CEILING WITH PLENUM BOX & ROUND INLET.
R1	RETURN SQUARE DIFFUSER	TITUS OR EQUAL	TDC-AA	24" x 24"	CEILING WITH PLENUM BOX & ROUND INLET.
E1	EXHAUST GRILL - 1/2" BAR SPACING - 0° BLADE DEFLECTION	TITUS OR EQUAL	55FS-NT	6" x 6"	CEILING WITH ROUND INLET.
D1	4" DRAINABLE BLADE EXHAUST AIR LOUVER	GREENHECK OR EQUAL	FDS-402-16x16	16" x 16"	DUCT MOUNTED.

**NOTES:**

- COORDINATE FINISH, COLOR, BORDER AND EXACT LOCATION WITH THE OWNER PRIOR TO ORDERING.
- PROVIDE OPPOSED BLADE DAMPER ACCESSIBLE THROUGH DIFFUSER FACE FOR GYP BD. CEILING INSTALLATIONS.
- PROVIDE DUCT TRANSITIONS AS REQUIRED.
- LOUVER SUB-MODEL TO BE SELECTED BASED ON THE CONNECTED DUCT WHETHER ROUND OR RECTANGULAR.
- S1 SHOULD HAVE LENGTH OF THROW, HORIZONTAL AND VERTICAL AIR DIRECTION ADJUSTMENTS BY MEANS OF ROTATING DRUM AND PIVOTED BLADES.
- R1 BLADES SHOULD BE PARALLEL TO THE SHORTER DIMENSION / HORIZONTAL BLADES.

**VENTILATION LOAD CALCULATION**  
IMC 2015 TABLE 403.3.1.1

ROOM N°	ROOM NAME	IMC OCCUPANCY CLASS	AREA Az (ft²)	Ra CFM/ft²	Az x Ra CFM	Pz Pers. / 1000ft²	Pers.	Rp CFM/Pers.	Rp x Pz CFM	Vbz CALC. CFM	CORRECTED CFM AFTER Ez=0.8	SOURCE OF OA	EXHAUST CFM	
101	ENTRY LOBBY	MAIN ENTRY LOBBIES	274	0.06	16	10	3	5	15	31	39	PRTU-1	-	
102	MAIN OFFICE	OFFICE SPACES	138	0.06	8	5	2	5	10	18	23		-	
103	STAFF OFFICE	OFFICE SPACES	348	0.06	21	5	3*	5	15	36	45		-	
104	BREAK ROOM	OFFICE SPACES	204	0.06	12	5	3*	5	15	27	34		100	
105	PHOTO ROOM	PHOTO STUDIOS	392	0.12	47	10	4	5	20	67	84		-	
106	STORAGE	STORAGE ROOMS	57	0.12	7	-	-	-	-	7	9		50	
111	MEZZANINE	STORAGE ROOMS	340	0.12	41	-	-	-	-	41	51		-	
<b>MINIMUM VENTILATION REQUIRED (CFM)</b>											227	285		

**NOTES:**

- WHERE \* IS MENTIONED, THE OCCUPANTS LOAD IN THE ARCHITECTURAL SET IS CONSIDERED AS IT IS HIGHER THAN THE Pz RATE.
- SYSTEM VENTILATION EFFICIENCY Ev IS 0.8 DUE TO THE SUPPLY AND RETURN AIR OUTLETS BEING LOCATED AT THE CEILING LEVEL. RESULTS AFTER Ev ARE INDICATED SHOWN UNDER CORRECTED CFM.
- TOILETS REQUIRE EXHAUST AIR AT A RATE OF 50CFM PER URINAL / WC.

**REVISIONS**

No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
1600 CORPORATE CENTRAL DR.  
SUITE 111  
MCKINNEY, TEXAS 75069

1600 CORPORATE DRIVE  
MCKINNEY, TEXAS 75069

**MECHANICAL  
SCHEDULES.**

Drawn By: Z.H      Scale: NTS  
Date: 05.18.2023      PROJ.NO.:

**M 2.01**

SHEET NO.



**Air System Sizing Summary for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**Air System Information**

Air System Name	PRU-01	Number of Zones	1
Equipment Class	PKG ROOF	Floor Area	1906.0 SF
Air System Type	SCZAV	Location	Dallas, Texas

**Sizing Calculation Information**

Calculation Months: Jan to Dec  
 Sizing Data: Calculated

**Central Cooling Coil Sizing Data**

Total coil load	4.1 Tons	Load occurs at	Aug 1600
Total coil load	48.0 MBH	CR Coil WB	59.4 F / 73.8 F
Sensible coil load	43.7 MBH	Entering CR WB	80.1 F / 84.5 F
Coil CFM at 1000	2137 CFM	Leaving CR WB	62.7 F / 65.5 F
Max stack CFM	2137 CFM	Coil ACP	58.6 F
Sum of stack zone CFM	628.0 CFM	System Factor	0.760
Sensible heat ratio	0.886	Resulting RH	50.0 %
CFM/Ton	244.0	Design supply temp.	55.0 F
BTU/hr-Ton	480.0	Zone T-stat Check	1 of 1 OK
Water flow @ 10.0 F rise	24.6	Max zone temperature deviation	0.0 F

**Central Heating Coil Sizing Data**

Max coil load	23.7 MBH	Load occurs at	Dec Htg
Coil CFM at Des Htg	2137 CFM	BTU/hr-Ton	19.0
Max coil CFM	2137 CFM	Ent. CR (Log DB)	62.4 F / 75.5 F
Water flow @ 20.0 F drop	N/A		

**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**Air System Sizing Summary for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**Air System Information**

Air System Name	PRU-01	Number of Zones	1
Equipment Class	PKG ROOF	Floor Area	1906.0 SF
Air System Type	SCZAV	Location	Dallas, Texas

**Sizing Calculation Information**

Calculation Months: Jan to Dec  
 Sizing Data: Calculated

**Zone Terminal Sizing Data**

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/HP	Reheat Coil Load (MBH)	Reheat Coil Water @ 25.0 F (GPM)	Zone Htg Unit Load (MBH)	Zone Htg Unit Water @ 25.0 F (GPM)	Mixing Box Fan Airflow (CFM)
Zone 1	2137	2137	1.12	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 (MBH)	Zone Heating Load (MBH)	Zone Floor Area (SF)
Zone 1	38.4	Aug 1700	14.6	1906.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load (MBH)	Air Flow (CFM)	Heating Load (MBH)	Floor Area (SF)	Space CFM/HP
Zone 1	1	38.4	Aug 1700	2137	14.6	1906.0	1.12

**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**Zone Sizing Summary for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**Air System Information**

Air System Name	PRU-01	Number of Zones	1
Equipment Class	PKG ROOF	Floor Area	1906.0 SF
Air System Type	SCZAV	Location	Dallas, Texas

**Sizing Calculation Information**

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Zone 1	2137	2137	1.12	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 (MBH)	Zone Heating Load (MBH)	Zone Floor Area (SF)
Zone 1	38.4	Aug 1700	14.6	1906.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load (MBH)	Air Flow (CFM)	Heating Load (MBH)	Floor Area (SF)	Space CFM/HP
Zone 1	1	38.4	Aug 1700	2137	14.6	1906.0	1.12

**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**Air System Design Load Summary for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**DESIGN COOLING**

Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	144 SF	2337
Wall Transmission	796 SF	922
Roof Transmission	1926 SF	3464
Window Transmission	144 SF	1220
Skylight Transmission	0 SF	0
Door Loads	0 SF	0
Floor Transmission	1906 SF	0
Partitions	2325 SF	10372
Ceiling	0 SF	0
Overhead Lighting	2000 W	6824
Task Lighting	0 W	0
Electric Equipment	1906 W	6500
People	15	3675
Infiltration	0	0
Miscellaneous	0	0
Safety Factor	8% (1.08)	2620
<b>Zone Total Zone Loads</b>	<b>38142</b>	<b>3321</b>
Zone Conditioning	34679	3321
Plenum Wall Load	0%	0
Plenum Roof Load	0%	0
Plenum Lighting Load	0%	0
Return Fan Load	1887 CFM	0
Ventilation Load	285 CFM	0
Supply Fan Load	2137 CFM	395
Space Fan Coil Fans	0	0
Duct Heat Gain Loss	0%	0
<b>Zone Total System Loads</b>	<b>43680</b>	<b>6681</b>
Central Cooling Coil	43680	6681
Central Heating Coil	0	29713
<b>Zone Total Conditioning</b>	<b>43680</b>	<b>6681</b>

**DESIGN HEATING**

Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	144 SF	2337
Wall Transmission	796 SF	922
Roof Transmission	1926 SF	3464
Window Transmission	144 SF	1220
Skylight Transmission	0 SF	0
Door Loads	0 SF	0
Floor Transmission	1906 SF	0
Partitions	2325 SF	10372
Ceiling	0 SF	0
Overhead Lighting	2000 W	6824
Task Lighting	0 W	0
Electric Equipment	1906 W	6500
People	15	3675
Infiltration	0	0
Miscellaneous	0	0
Safety Factor	8% (1.08)	2620
<b>Zone Total Zone Loads</b>	<b>38142</b>	<b>3321</b>
Zone Conditioning	34679	3321
Plenum Wall Load	0%	0
Plenum Roof Load	0%	0
Plenum Lighting Load	0%	0
Return Fan Load	1887 CFM	0
Ventilation Load	285 CFM	0
Supply Fan Load	2137 CFM	395
Space Fan Coil Fans	0	0
Duct Heat Gain Loss	0%	0
<b>Zone Total System Loads</b>	<b>43680</b>	<b>6681</b>
Central Cooling Coil	43680	6681
Central Heating Coil	0	29713
<b>Zone Total Conditioning</b>	<b>43680</b>	<b>6681</b>

**Key:**  
 Positive values are coil loads  
 Negative values are fan loads

**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**System Psychrometrics for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**August DESIGN COOLING DAY, 1600**

**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	59.4	0.01244	285	400	4700	1762
Vert - Return Mixing	Outlet	60.1	0.01129	2137	866	-	-
Central Cooling Coil	Outlet	60.7	0.01078	2137	866	43680	5085
Central Heating Coil	Outlet	60.7	0.01078	2137	866	-	-
Supply Fan	Outlet	60.9	0.01078	2137	866	395	-
Coil Supply Duct	Outlet	61.6	0.01078	2137	866	-	-
Zone Air	-	77.1	0.01111	2137	959	34679	3321
Zone Direct Exhaust	Outlet	77.1	0.01111	285	400	-	-
Return Plenum	Outlet	77.1	0.01111	1887	959	0	0

**TABLE 2: ZONE DATA**

Zone Name	Zone Sensible Load (BTU/hr)	Zone Total Load (BTU/hr)	Zone Cooling Temp (F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil Unit (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	38142	43680	77.1	2137	959	0	0

**Key:**  
 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 = 4746.6; At site altitude = 4645.1 (BTU/hr-CFM-F)  
 Site Altitude = 597.0 ft

**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**System Psychrometrics for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO

**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	0.00384	285	400	-15764	0
Vert - Return Mixing	Outlet	62.4	0.00941	2137	462	-	-
Central Cooling Coil	Outlet	62.4	0.00941	2137	462	0	0
Central Heating Coil	Outlet	75.0	0.00941	2137	462	29713	-
Supply Fan	Outlet	75.7	0.00941	2137	462	395	-
Coil Supply Duct	Outlet	75.4	0.00941	2137	462	-	-
Zone Air	Outlet	69.3	0.00941	2137	472	-13616	0
Zone Direct Exhaust	Outlet	69.3	0.00941	285	472	-	-
Return Plenum	Outlet	69.3	0.00941	1887	472	0	0

**TABLE 2: ZONE DATA**

Zone Name	Zone Sensible Load (BTU/hr)	Zone Total Load (BTU/hr)	Zone Heating Temp (F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil Unit (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	-14653	29713	75.0	2137	472	0	0

**Key:**  
 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 = 4746.6; At site altitude = 4645.1 (BTU/hr-CFM-F)  
 Site Altitude = 597.0 ft

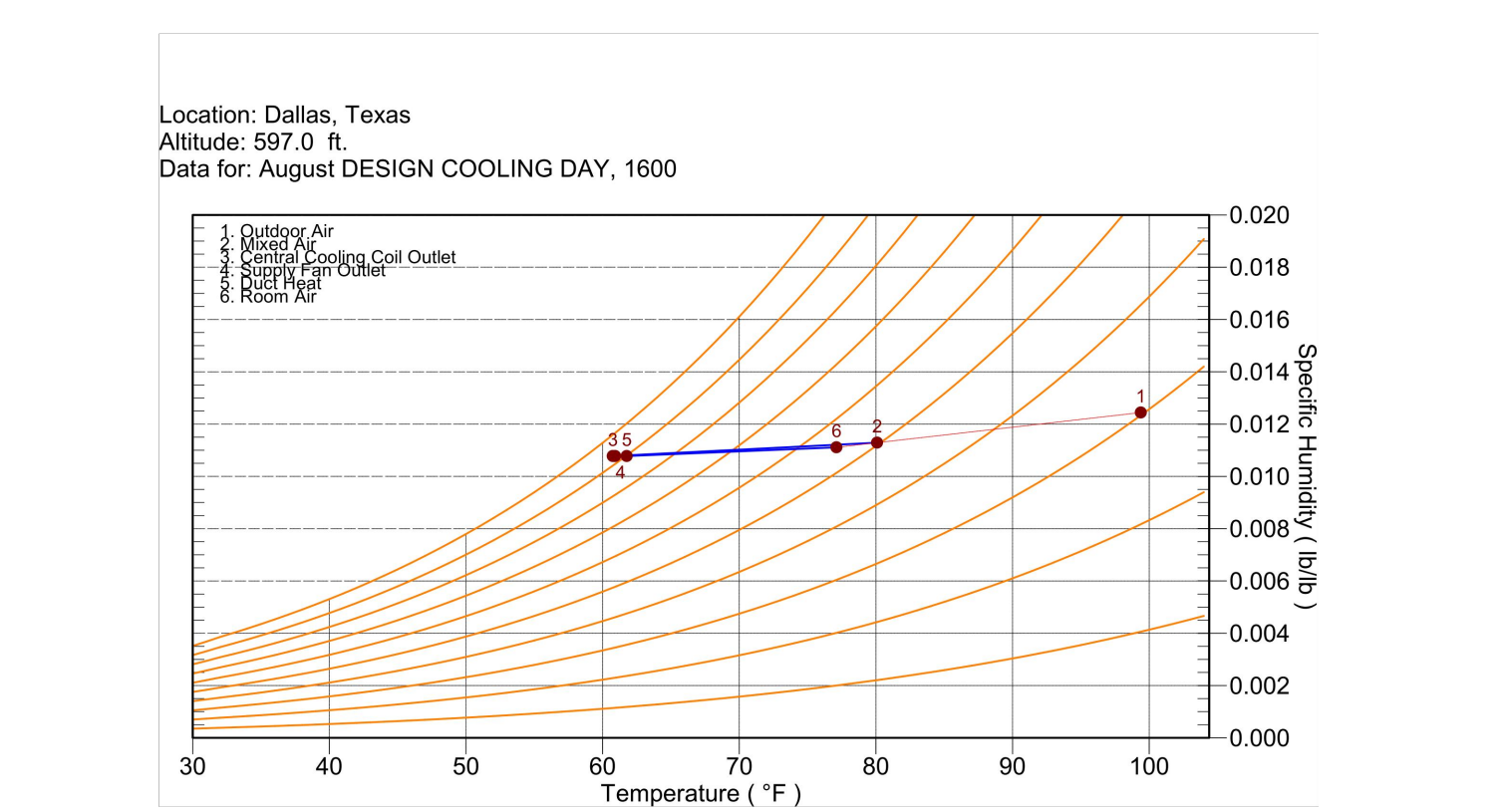
**Supply Fan Sizing Data**

Actual max CFM	2137 CFM	Fan motor BHP	0.15 BHP
Alternate CFM	2091 CFM	Fan motor kW	0.12 kW
Actual max CFM	1.12 CFM/HP	Fan static	0.30 in wg

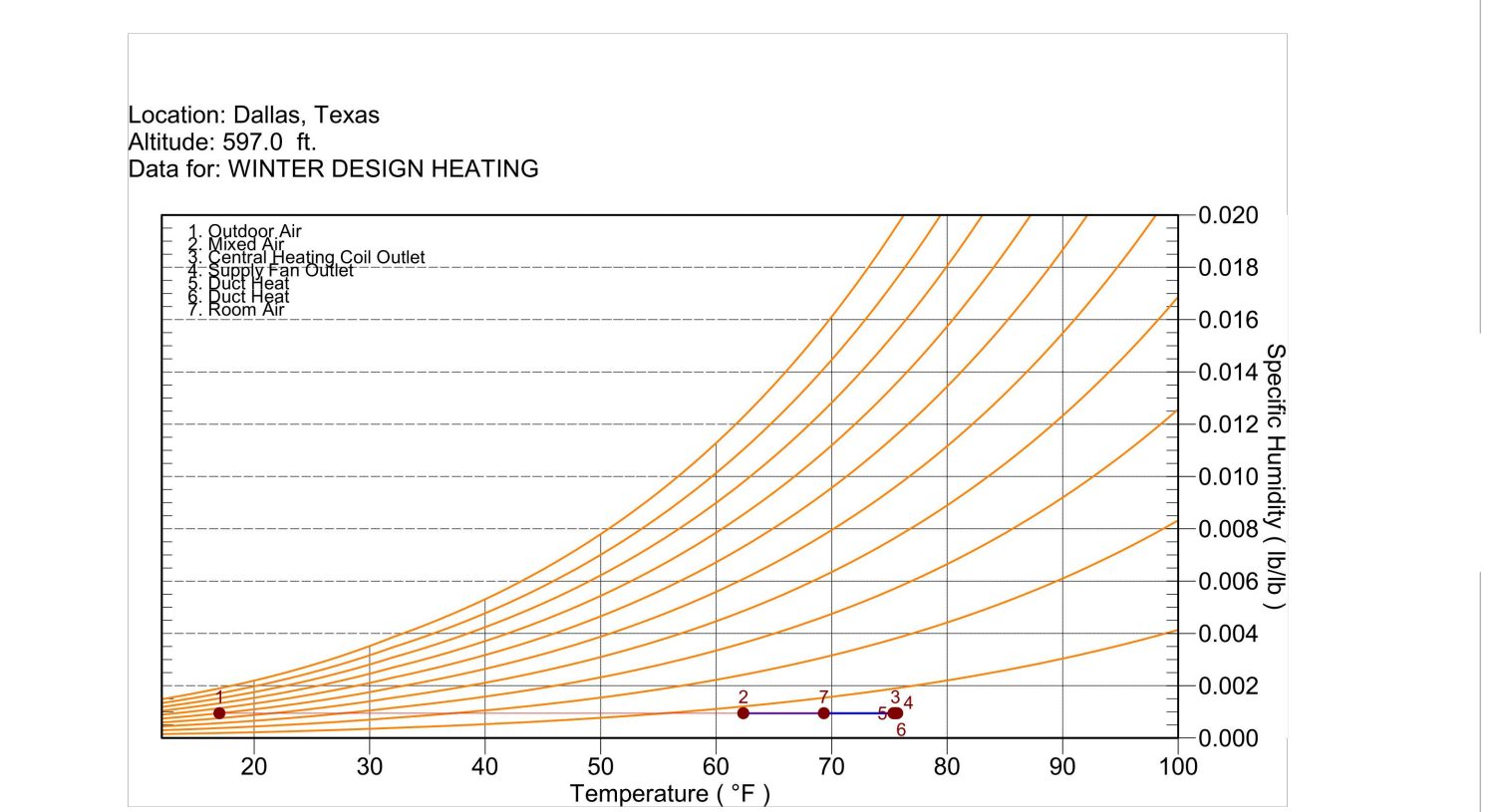
**Outdoor Ventilation Air Data**

Design w/flow CFM	285 CFM	CFM/person	19.00 CFM/person
CFM/HP	0.15 CFM/HP		

**System Psychrometrics for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO



**System Psychrometrics for PRU-01**  
 Project Name: 2.2.582 Birdie Bean  
 Prepared by: TLO



**REVISIONS**

No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
 1600 CORPORATE CENTRAL DR.  
 SUITE 111  
 MCKINNEY, TEXAS 75069

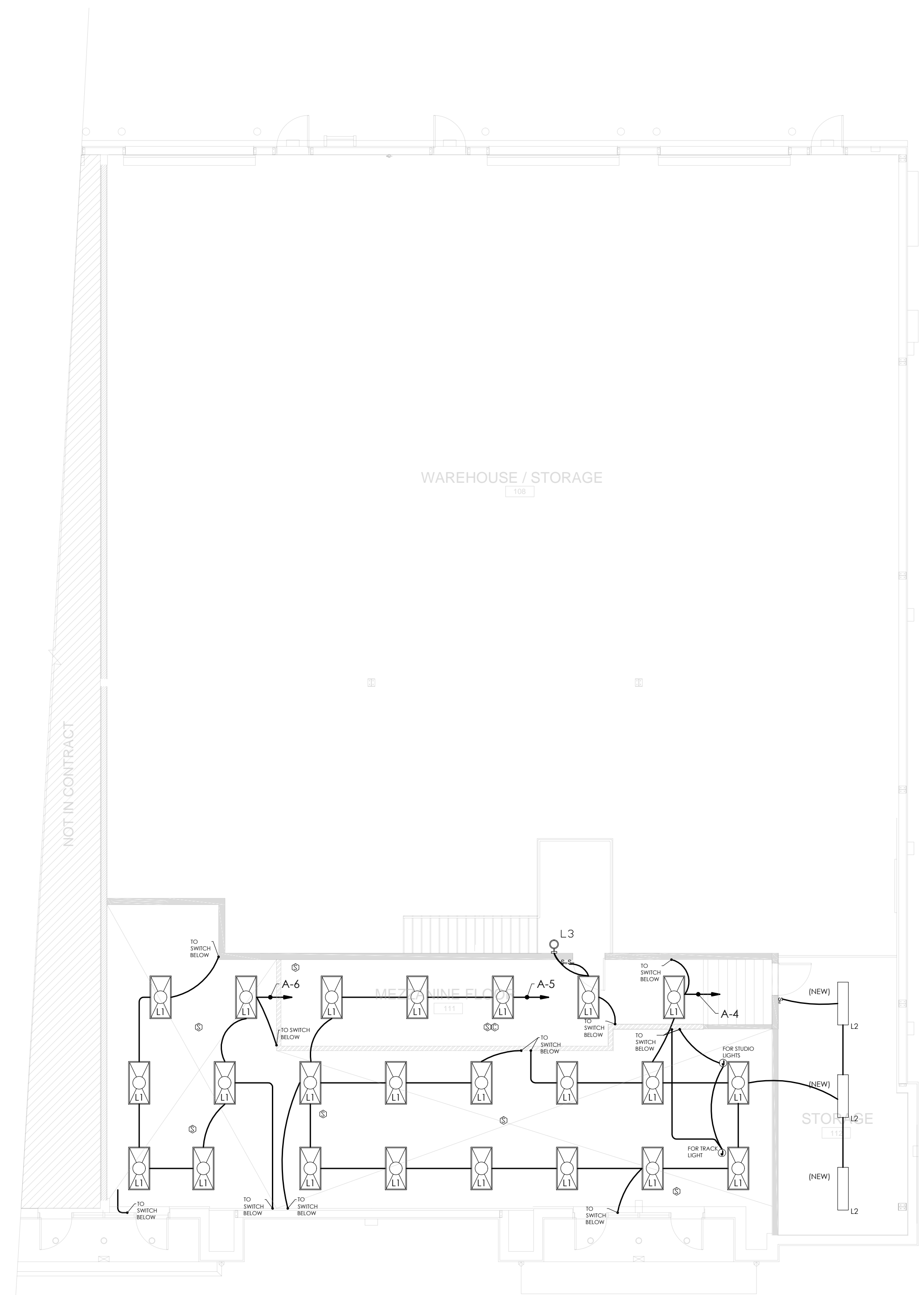
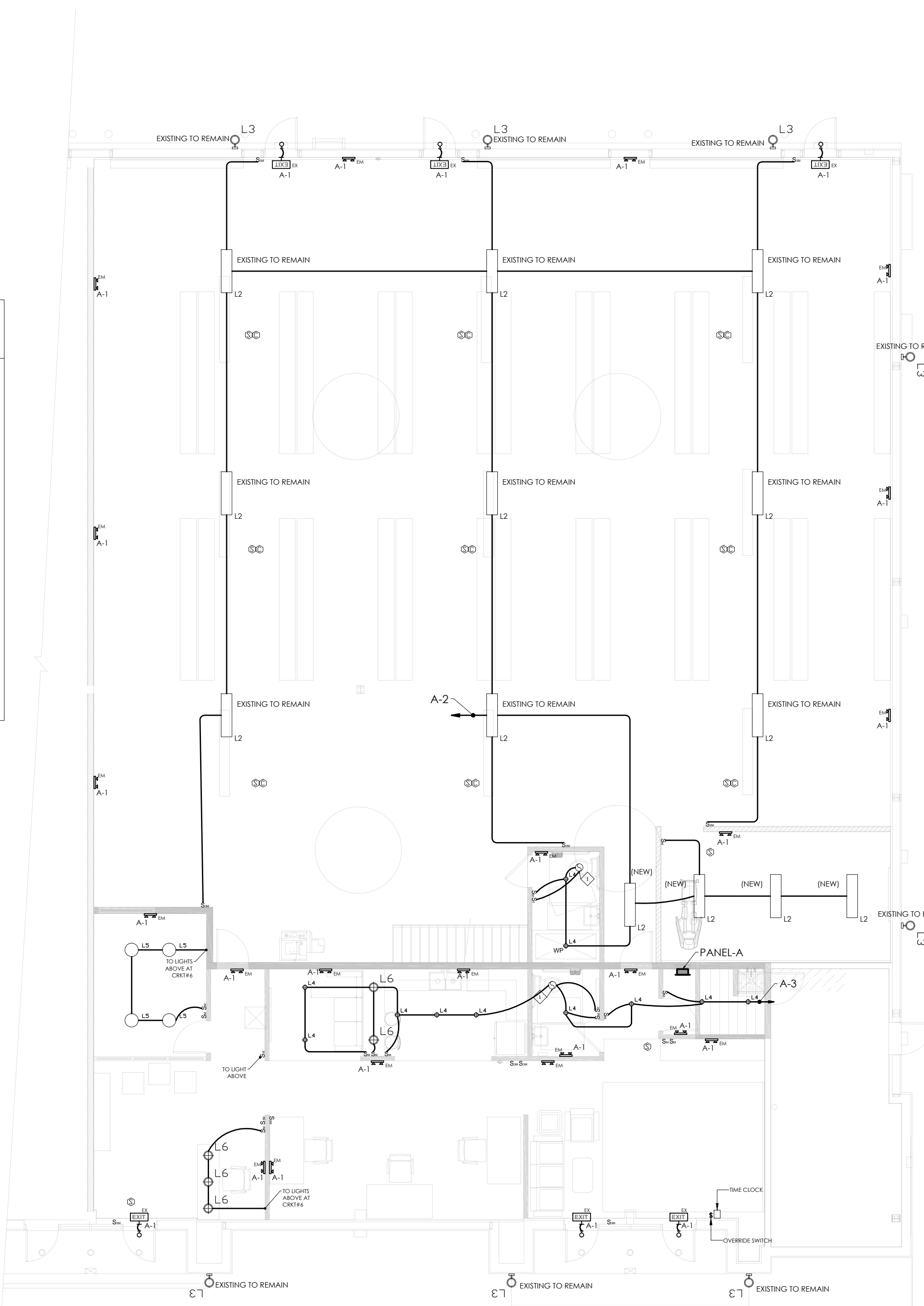
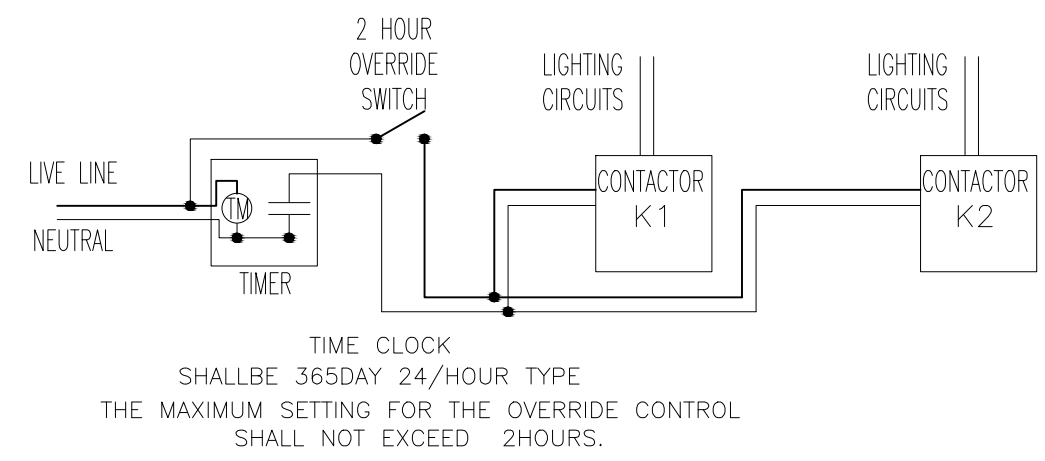
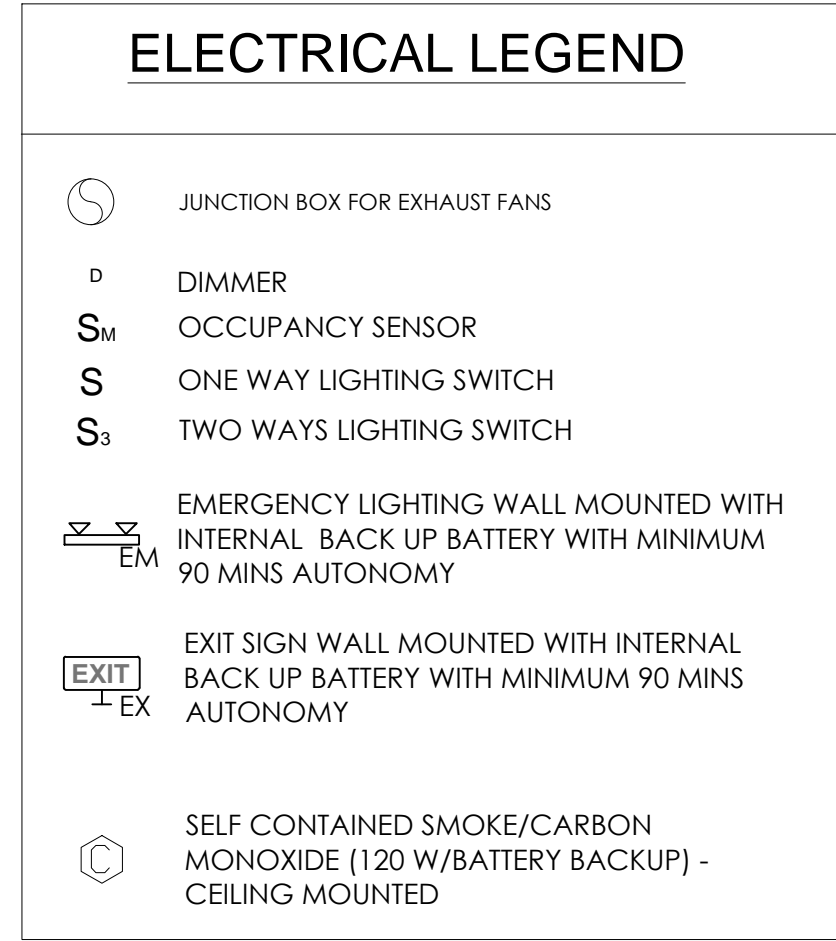
1600 CORPORATE DRIVE  
 MCKINNEY, TEXAS 75069

**HEAT LOAD CALCULATION.**

Drawn By: Z.H Scale: NTS  
 Date: 05.18.2023 PROJ.NO.:

**M 4.00**

SHEET NO.



Lighting Fixture Schedule:							Total (W)	1,745.88	
Symbol	Numt	Type	Make	Model	Wattage	Unit	Description	Quantity	Subtotal (W)
	L1	Lighting 4-ft x 2-ft C	Lithonia Lighting	LP T8 #A19 LENS 1/4 ELEC	33	W	Lighting 4-ft x 2-ft Cool White LED Panel Light similar to GTS GENERAL PURPOSE T8 TROFFER 2'x4' 4 LP T8 #A19 LENS 1/4 ELEC. 33WATT	23.00	759.00
	L2	Lighting 4-ft x 1ft C	EXISTING	EXISTING	30	W	Lighting 4-ft x 1-ft Cool White LED Panel Light - 30WATT - Suspended	16.00	480.00
	L3	Outdoor Wall Mounted Light	EXISTING	EXISTING	11.5	W	Outdoor Wall Mounted Light	8.00	92.00
	L4	CAN LIGHT FIXTURE	TBD	TBD	15	W	CEILING MOUNTED CAN LIGHT	11.00	165.00
	L5	16" PENDANT LIGHT	TBD	TBD	30	W	16" PENDANT LIGHT	4.00	120.00
	L6	PENDANT LIGHT	TBD	TBD	15	W	10" CORD HUNG DEEP BOWL PENDANT LIGHT FIXTURE	5.00	75.00
	EM	Emergency with Battery	Lithonia	EU2C M6	0.56	W	Wall mounted emergency light. Dual LED heads with test switch indicator. 120-277V/60Hz. 0.56W	23.00	12.88
	EX	Exit Sign with Outdoor EM Light	Lithonia	LHQM LED R M6	7	W	LED Exit/Unit Combo Red Letters, White. Equipped test switch and status indicator.120/277V, 60Hz. 4.3W	6.00	42.00

SHEET NOTES:  
 1. PROVIDE HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING (OR WALL) FOR EXHAUST FANS THAT TURNS ON WHEN THE TIMER SWITCH OF THIS FAN IS TURNED ON

REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023









BIRDIE BEAN  
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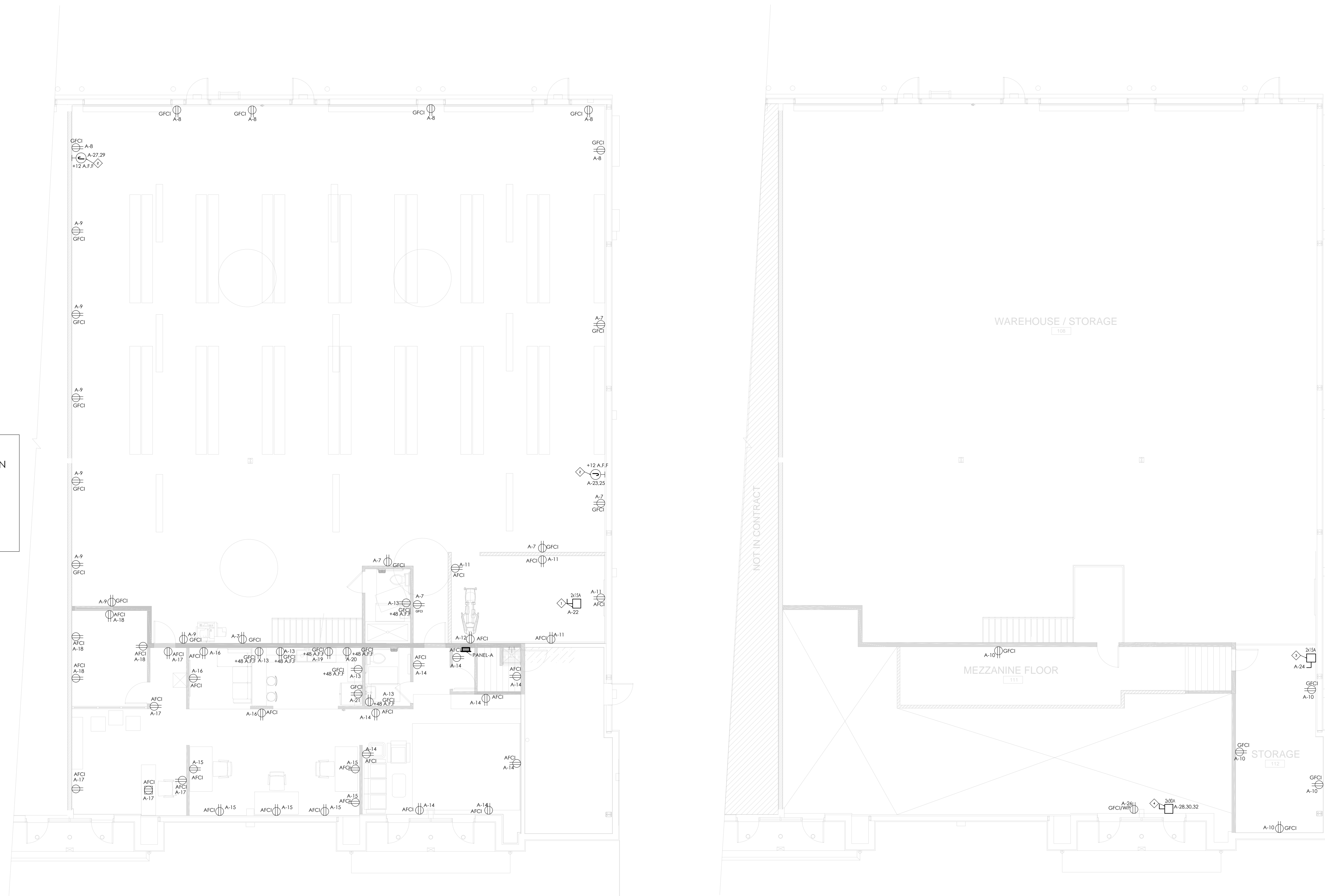
**LIGHTING LAYOUT**

Drawn By: A.B      Scale: 1/8" = 1'-0"  
 Date: 05.18.2023      PROJ.NO.:

**E2.01**  
 SHEET NO.

ELECTRICAL LEGEND	
	DUPLEX RECEPTACLE - WALL MOUNTED @ +18" A/F UNLESS NOTED GFCI DENOTES: GROUND FAULT PROTECTION
	DUPLEX RECEPTACLE - FLOOR MOUNTED IG DENOTES: IG TYPE
	QUADPLEX RECEPTACLE - WALL MOUNTED @ +18" A/F UNLESS NOTED GFCI DENOTES: GROUND FAULT PROTECTION
	NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED
	DAYLIGHT SENSOR TO CONTROL LUMINAIRES IN DAYLIGHT ZONE
	FLOOR DATA OUTLET WITH CAT5 CONNECTION
	WALL MOUNTED ELECTRIC JUNCTION BOX
	FLOOR MOUNTED ELECTRIC JUNCTION BOX

- SHEET NOTES:
- ◆—PROVIDE NEMA 3R DISCONNECT SWITCH FOR EXHAUST FAN
  - ◆—PROVIDE JUNCTION BOX FOR FUTURE DEHUMIDIFIER
  - ◆—PROVIDE NEMA 3R DISCONNECT SWITCH FOR GWH
  - ◆—PROVIDE NEMA 3R DISCONNECT SWITCH FOR PRTU



REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
 1600 CORPORATE CENTRAL DR.  
 SUITE 111  
 MCKINNEY, TEXAS 75069

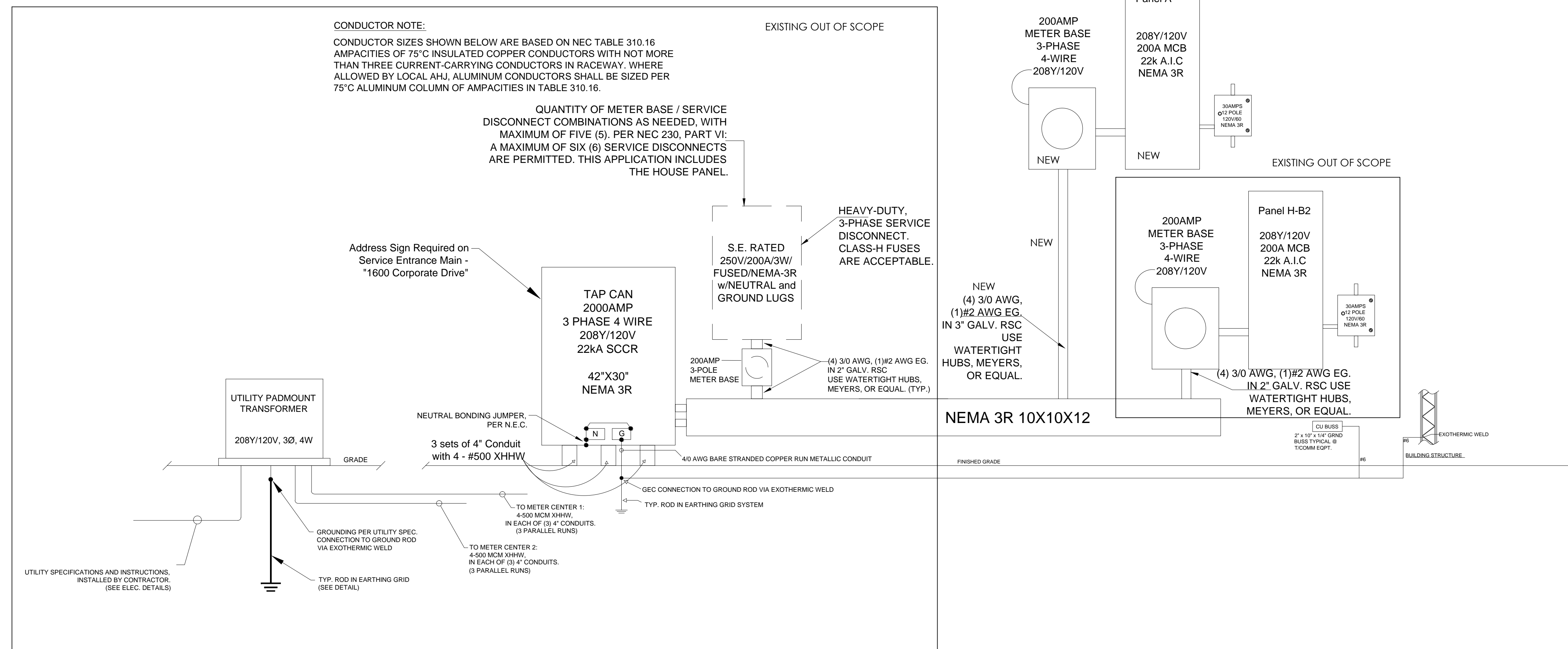
1600 CORPORATE DRIVE  
 MCKINNEY, TEXAS 75069

**POWER LAYOUT**

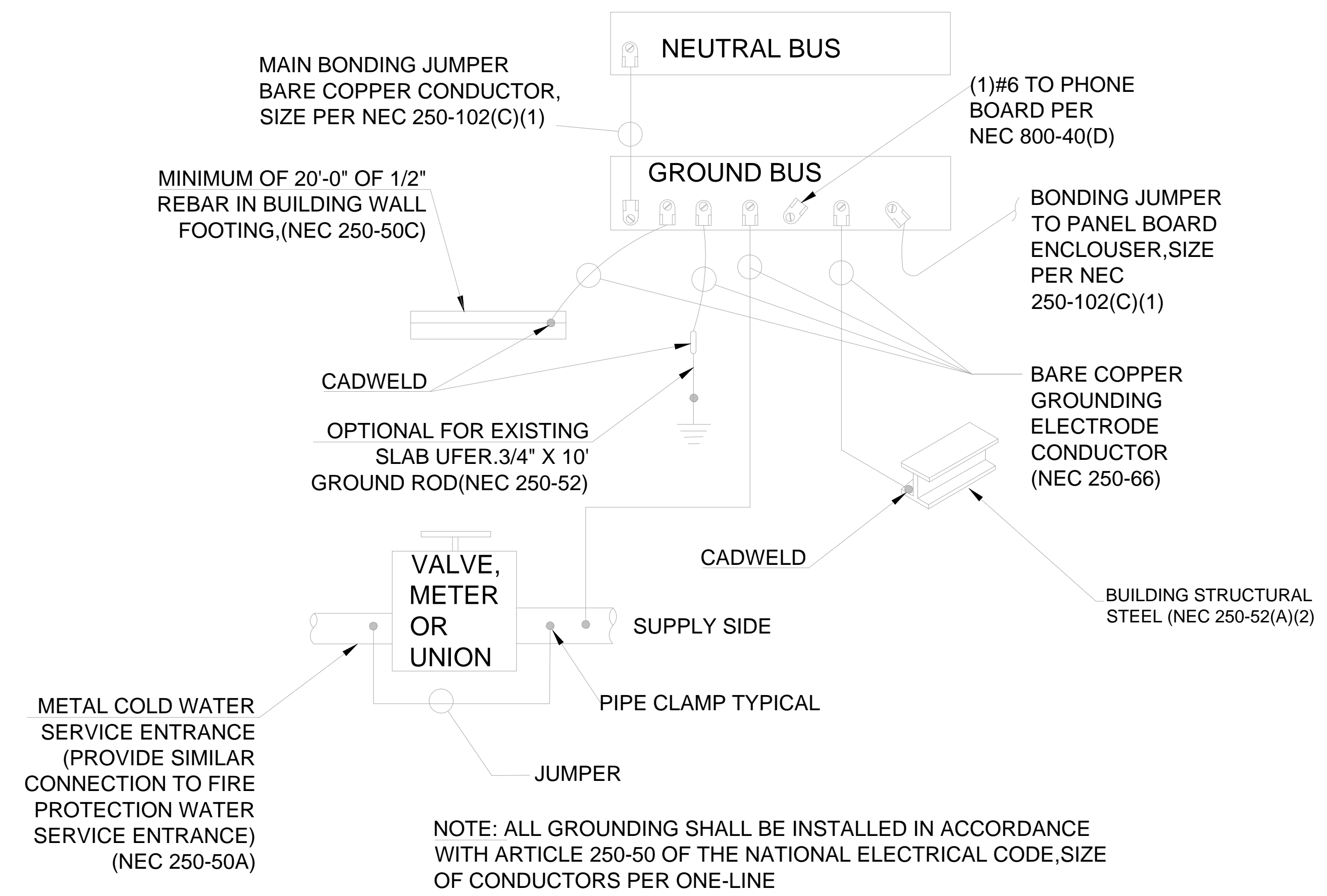
Drawn By: A.B      Scale: 1/8" = 1'-0"  
 Date: 05.18.2023      PROJ. NO.:

**E3.01**  
 SHEET NO.





**1 SINGLE LINE DIAGRAM**  
 E-5.0 SCALE NTS



**2 GROUNDING DETAIL**  
 E-5.0 SCALE NTS

REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023

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**SINGLE LINE DIAGRAM & GROUNDING DETAILS**

Drawn By: A.B Scale: NTS  
 Date: 05.18.2023 PROJ. NO.:

**E4.01**  
 SHEET NO.

Location: STORAGE			CONNECTED LOAD			DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B	C	
L Lighting	2.01	1.25	0.65	0.63	0.73	2.51
R Convenience Recept	11.12		4.50	3.78	2.84	10.56
H Heating (Space)	0.40	1.25			0.40	0.50
C Cooling		1.00				
A HVAC	17.76	1.00	5.28	5.40	7.08	17.76
P Process		1.00				
O Other Continuous		1.25				
K Kitchen	3.50	1.00	2.00	1.50		3.50
N Noncontinuous		1.00				
M Motor		1.00				
Total	<b>34.79</b>		12.43	11.31	11.05	34.83

Total Demand Load (KVA)	34.83
Total Demand Current (A)	96.67
Min. Feeder Ampacity (A)	120.84

PANEL A	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	200
SYSTEM TYPE	NORMAL
FEEDER PROT	200A-3P C/B Bus Plug
CONDUCTOR SIZE	3/0 AWG - #2G CU
CONDUCTOR/PHASE	1
MAINS	200A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	75
FEEDER V. DROP (%)	0.960
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 1

DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1 LIGHTING EMERGENCY	L	2x 14 AWG - #14G		15A-1P	0.30	0.65			0.35	15A-1P	2x 14 AWG - #14G		LIGHTING EXISTING WAREHOUSE - GYM - BATHROOM	L 2	
3 LIGHTING BREAK ROOM - BATHROOM - STORGE	L	2x 14 AWG - #14G		15A-1P	0.30		0.63		0.33	15A-1P	2x 14 AWG - #14G		LIGHTING PHOTOROOMS - STORAGE	L 4	
5 LIGHTING MEZZANINE CORRIDOR - STAFF OFFICE	L	2x 14 AWG - #14G		15A-1P	0.40			0.73	0.33	15A-1P	2x 14 AWG - #14G		LIGHTING ENT. LOBBY - MAIN OFFICE	L 6	
7 RECEPTACLES WAREHOUSE	R	2x 12 AWG - #12G		20A-1P	1.08	2.16			1.08	20A-1P	2x 12 AWG - #12G		RECEPTACLES WAREHOUSE	R 8	
9 RECEPTACLES WAREHOUSE	R	2x 12 AWG - #12G		20A-1P	1.26		1.98		0.72	20A-1P	2x 12 AWG - #12G		RECEPTACLES STORAGE	R 10	
11 RECEPTACLES GYM	R	2x 12 AWG - #12G		20A-1P	0.72			1.22	0.50	20A-1P	2x 12 AWG - #12G		RECEPTACLE GYM MACHINE	R 12	
13 RECEPTACLES BATHROOMS - KITCHEN	R	2x 12 AWG - #12G		20A-1P	0.90	2.16			1.26	20A-1P	2x 12 AWG - #12G		RECEPTACLES PHOTOROOM - STORAGE	R 14	
15 RECEPTACLES STAFF OFFICE	R	2x 12 AWG - #12G		20A-1P	1.26		1.80		0.54	20A-1P	2x 12 AWG - #12G		RECEPTACLES COUCH	R 16	
17 RECEPTACLES ENT. LOBBY	R	2x 12 AWG - #12G		20A-1P	0.90			1.62	0.72	20A-1P	2x 12 AWG - #12G		RECEPTACLES MAIN OFFICE	R 18	
19 DISHWASHER	K	2x 12 AWG - #12G		20A-1P	1.00	2.00			1.00	20A-1P	2x 12 AWG - #12G		MICROWAVE	K 20	
21 FRIDGE	K	2x 12 AWG - #12G		20A-1P	1.50		1.62		0.12	15A-1P	2x 14 AWG - #14G		EF-01	A 22	
23 PROVISION FOR DEHUMIDIFIER	A	3x 12 AWG - #12G		20A-2P	1.80			2.20	0.40	15A-1P	2x 14 AWG - #14G		GWH	H 24	
25	A				1.80	1.98		0.18	20A-1P	2x 12 AWG - #12G	RECEPTACLES ON ROOF	R 26			
27 PROVISION FOR DEHUMIDIFIER	A	3x 12 AWG - #12G		20A-2P	1.80		5.28		3.48	30A-3P	4x 10 AWG - #10G		PRTU-01	A 28	
29	A				1.80		5.28	3.48	A 30						
31 SPACE						3.48			3.48					A 32	
33 SPACE														A 34	
35 SPACE														A 36	
					(KVA)										
					Total Connected Load			12.43	11.31	11.05					

REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023

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MCKINNEY, TEXAS 75069

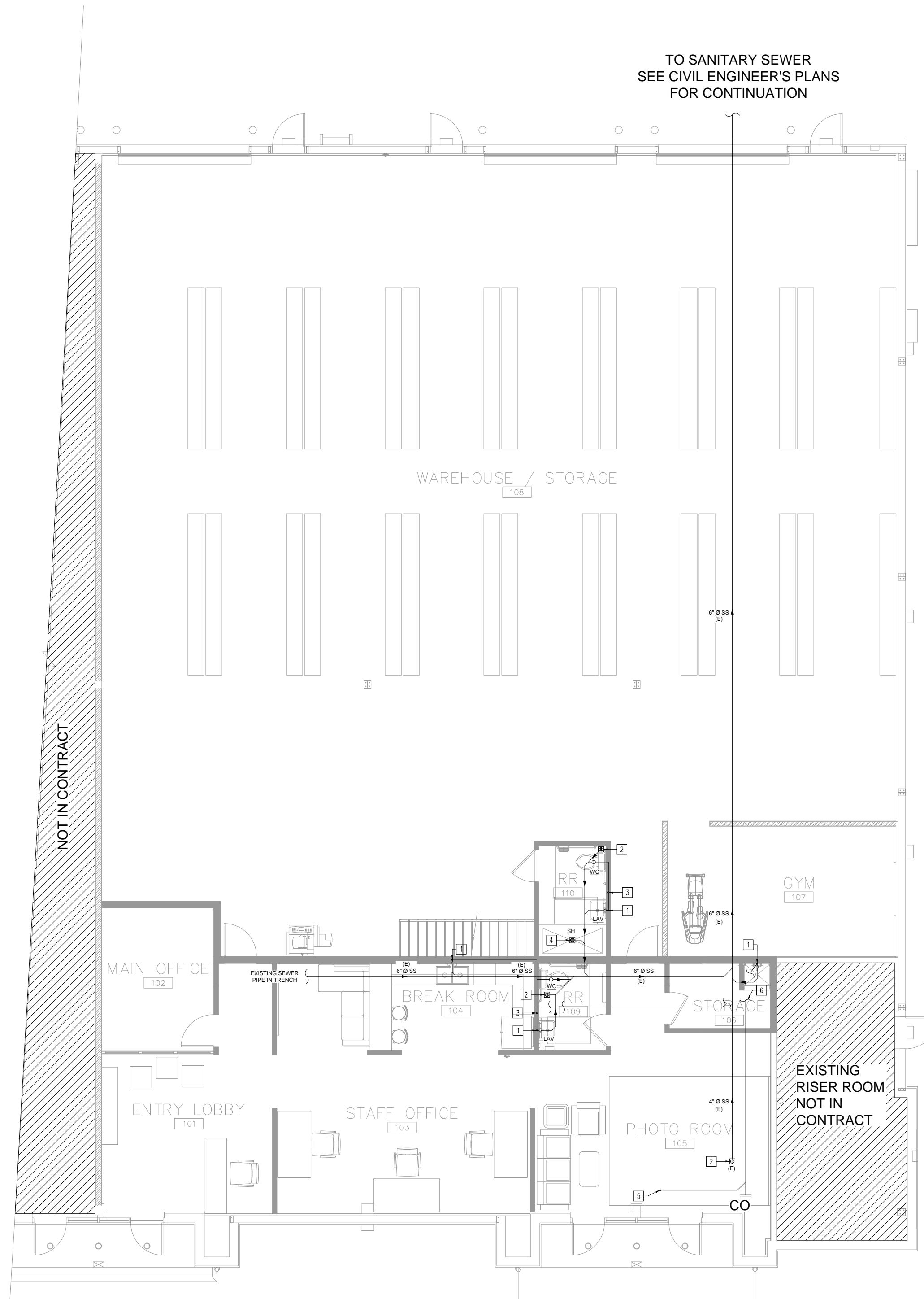
**PANEL BOARDS  
SCHEDULES**

Drawn By: A.B      Scale: NTS  
Date: 05.18.2023      PROJ. NO.:

E4.02

SHEET NO.





FIRST FLOOR DRAINAGE LAYOUT

SCALE 1/8"=1'-0" 1

**DRAINAGE KEYED NOTES:**

- 1 - WASTE DROP AND 2" VENT RISE.
- 2 - FLOOR CLEAN-OUT.
- 3 - 3" VENT STACK TO ABOVE - TERMINATE TO OUTDOORS AS PER IPC.
- 4 - 3" SHOWER DRAIN.
- 5 - CONDENSATE PIPE DROP FROM ROOFTOP UNIT AT ROOF LEVEL - PROVIDE TRAPPED INDIRECT WASTE CONNECTION.
- 6 - CONDENSATE PIPE DROP TO MOP SINK - PROVIDE CLEAN-OUT AT THE TOP OF VERTICAL PIPE.

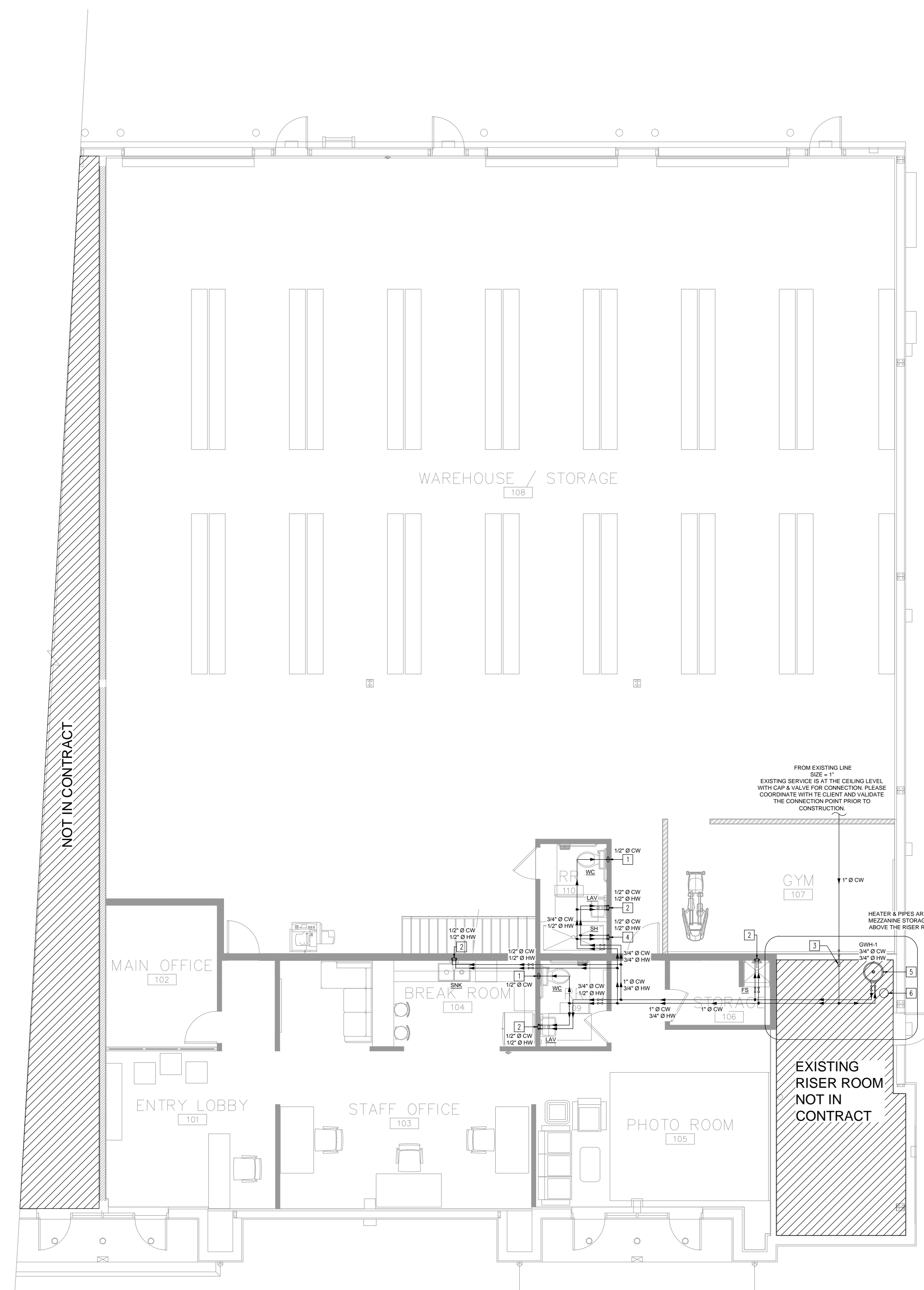
**FROM 2021 IPC - TABLE 709.1: DRAINAGE FIXTURE UNIT VALUES (DFU)**

FIXTURE	D.F.U.	QTY.	TOTAL D.F.U.
WATER CLOSET	3.0	2	6.0
LABATORY	1.0	2	2.0
SINK	2.0	2	4.0
SHOWER HEAD	3.0	1	3.0
<b>TOTAL DFU =</b>			<b>15.0</b>

AS PER 2021 IPC - TABLE 710.1(1): MAIN SEWER PIPE: 4"Ø

**FROM 2021 IPC - TABLE 709.1: PIPE SIZE PER FIXTURE**

FIXTURE	DR (INCH)	VENT (INCH)
WATER CLOSET	4	3
LABATORY	2	2
SHOWER HEAD	3	2



FIRST FLOOR WATER SUPPLY LAYOUT

SCALE 1/8"=1'-0" 2

**WATER SUPPLY KEYED NOTES:**

- 1 - DCM DROP IN WALL TO FUTURE TERMINAL.
- 2 - DCM & DHW DROP IN WALL TO FUTURE TERMINAL WITH THERMOSTATIC MIXING VALVE.
- 3 - PROVIDE MANUAL ISOLATION VALVE & BACKFLOW PREVENTER.
- 4 - DCM & DHW WITH TEMPERATURE / PRESSURE AND SCALING BALANCING VALVE.
- 5 - DOMESTIC GAS WATER HEATER - TANK TYPE TO BE HEATED AT THE MEZZANINE ABOVE THE RISER ROOM. PROVIDE BASE SUPPORT AND A DRAIN PAN.
- 6 - PROVIDE 4.5 GALLONS EXPANSION TANK - WATTS T-15 OR EQUAL.

**FROM 2021 IPC - TABLE 103.3(2): WATER SUPPLY FIXTURE UNITS (LOADS)**

FIXTURE	OCCUPANCY	W.S.F.U.	QTY.	TOTAL W.S.F.U.
SINK	PRIVATE	1.4	1	1.4
LABATORY	PRIVATE	0.7	2	1.4
WC FLUSHMETER TANK	PRIVATE	2.0	2	4.0
SHOWER HEAD	PRIVATE	3.0	1	3.0
MOP SINK	PRIVATE	1.4	1	1.4
<b>TOTAL - 9.6 WFU</b>				

EQUIVALENT FLOW (IPC TABLE E103.3(3))= 34.5 GPM  
Ø3" MAIN CW PIPE WILL OPERATE AT AROUND 5 FT/S

**SCHEDULE NO. 1: GAS WATER HEATER**

TAG	GWH-01
LOCATION	MEZZANINE
SERVES	RESTROOMS & BR. RM. SINK
MANUFACTURER	A.O SMITH
MODEL	GCR-30R
TYPE	GAS - TANK
NATURAL GAS INPUT (BTU/H)	30,000
FIRST HOUR RATING (GPH)	62
RECOVERY 90°F RISE (GPH)	31
UEF	0.6
NOMINAL TANK CAPACITY (GAL)	30
RATED STORAGE VOLUME (GAL)	29
APPROXIMATE SHIPPING WEIGHT (LBS)	132
HEIGHT x DIAMETER	60.5" x 18"

**NOTES:**

1. HEATER SHALL HAVE CSA CERTIFIED AND ADME RATED TRP RELIEF VALVE.
2. HEATER SHALL HAVE ANODE ROD FOR PROTECTION.
3. HEATER SHALL MEET OR EXCEED THE THERMAL EFFICIENCY AND/OR STANDSTILL LOSS REQUIREMENTS OF THE US DOE AND CURRENT EDITION OF ASHRAE 90.1.
4. HEATER SHALL HAVE FACTORY SUPPLIED INSULATION BLANKET.
5. FOR DETAIL REQUIREMENTS, SEE MECHANICAL SHEETS.
6. PROVIDE EXPANSION TANK AS PER KEYED NOTES.

**REVISIONS**

No.	Description	Date
1	PERMIT SET	05.18.2023

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1600 CORPORATE CENTRAL DR.  
SUITE 111  
MCKINNEY, TEXAS 75069

1600 CORPORATE DRIVE  
MCKINNEY, TEXAS 75069

DRAINAGE & WATER  
SUPPLY LAYOUTS

Drawn By: Z.H Scale: 1/8"=1'-0"  
Date: 05.18.2023 PROJ. NO.:

**P2.00**  
SHEET NO.

- GAS KEYED NOTES:**
1. RISER PIPE FROM CEILING LEVEL TO ABOVE ROOF. PROVIDE WATER STOP CEILING PENETRATION AS PER APPLICABLE CODES. COORDINATE WITH THE ARCHITECT. ROOFING CONTRACTOR AND OWNER FOR EXECUTION DETAIL AND FINAL POSITION OF THIS PENETRATION.
  2. GAS CONNECTION TO PACKAGED ROOFTOP UNIT. PROVIDE DIRT LEG, ISOLATION VALVE, AND GAS REGULATOR.
  3. PIPE DROP FROM BUILDING CEILING LEVEL TO MEZZANINE FLOOR LEVEL.
  4. GAS CONNECTION TO GAS WATER HEATER. PROVIDE DIRT LEG, ISOLATION VALVE, AND GAS REGULATOR.
  5. GAS WATER HEATER COMBUSTION AIR IS PROVIDED FROM THE LARGE BUILDING VOLUME AS THE MEZZANINE IS OPEN TO THE COURTS AREA. VENT TO OUTDOORS IS SHOWN IN THE MECHANICAL LAYOUT.

- GAS PIPES MATERIAL:**
1. UNDERGROUND GAS PIPES IN PE PLADIC.
  2. ABOVE GROUND GAS PIPES IN SCH40E 40 STEEL.
  3. TERMINATION TO APPLIANCES / EQUIPMENT IN CORRUGATED STAINLESS STEEL PIPES.
  4. PROVIDE GROUNING / BONDING AS REQUIRED BY THE CODE.
  5. PIPING MATERIAL MUST COMPLY TO THE CHES SPECIFIED IN CODE / SEE CODE CHECK IN PREVIOUS SHEET FOR DETAILS.

**IFSC 2021 - 416.1 INTERVAL OF SUPPORT**  
 PIPING SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING THE SPACING SPECIFIED IN TABLE 416.1. SPACING OF SUPPORTS FOR CSST SHALL BE IN ACCORDANCE WITH THE CSST MANUFACTURER'S INSTRUCTIONS.

**TABLE 416.1 / SUPPORT OF PIPING**

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

**PIPE WORK REQUIREMENT - IFSC 2021:**

**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.

**401.8 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.

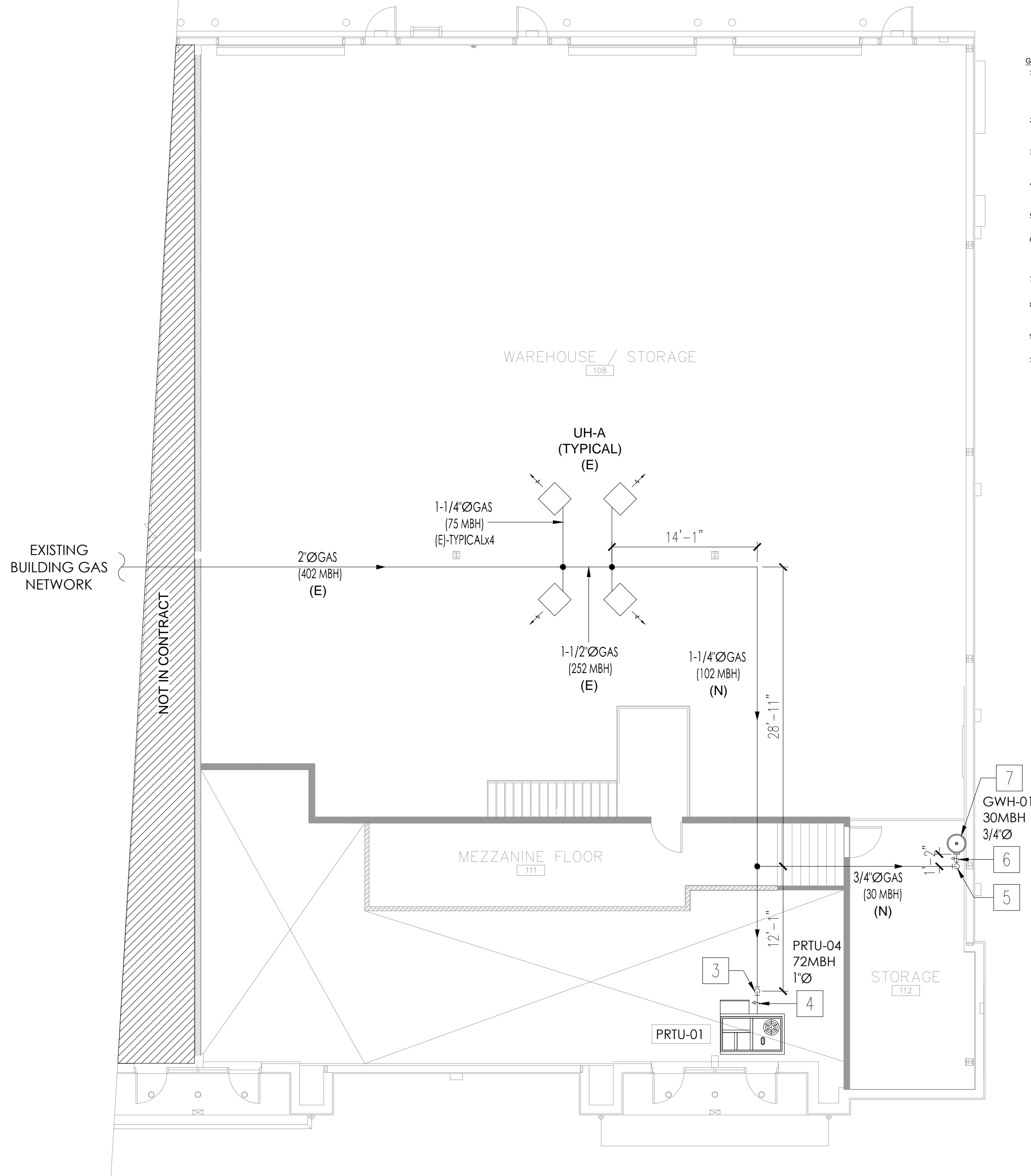
**401.7 PIPING METER IDENTIFICATION**  
 PIPING FROM MULTIPLE METER INSTALLATIONS SHALL BE MARKED WITH AN APPROVED PERMANENT IDENTIFICATION BY THE INSTALLER SO THAT THE PIPING SYSTEM SUPPLIED BY EACH METER IS READILY IDENTIFIABLE.

**401.9 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.

**GENERAL NOTES:**

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL BLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL GAS PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
8. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT 1/8" PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
9. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
10. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.



**REVISIONS**

No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
 1600 CORPORATE CENTRAL DR.  
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 MCKINNEY, TEXAS 75069

1600 CORPORATE DRIVE  
 MCKINNEY, TEXAS 75069

**GAS SUPPLY LAYOUT**

Drawn By: Z.H      Scale: 1/8" = 1'-0"  
 Date: 05.18.2023      PROJ. NO.:

**P3.00**  
 SHEET NO.

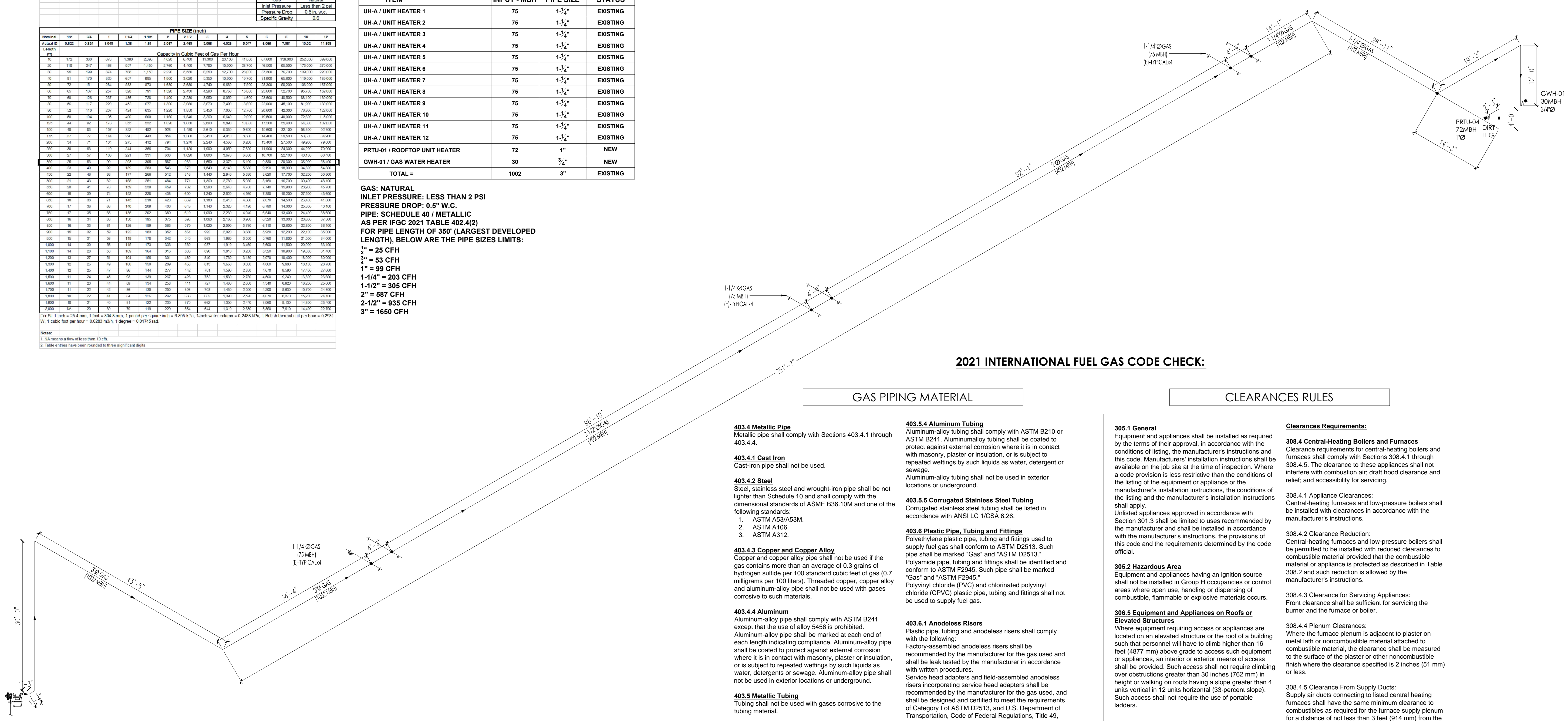


IFGC 2021 - TABLE 402.4(2)														
SCHEDULE 40 METALLIC PIPE														
Gas														
Inlet Pressure: Less than 2 psi														
Pressure Drop: 0.5 in. w.c.														
Specific Gravity: 0.6														
Nominal Pipe Size (in.)	PIPE SIZE (in.)													
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	
Actual ID (in.)	0.842	0.875	1.040	1.315	1.610	2.047	2.469	3.000	4.026	5.047	6.062	7.981	10.022	11.883
Capacity in Cubic Feet of Gas Per Hour (cfh)	172	260	426	676	1,000	1,500	2,200	3,000	4,100	5,500	7,300	9,700	12,800	16,000

ITEM	INPUT - MBH	PIPE SIZE	STATUS
UH-A / UNIT HEATER 1	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 2	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 3	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 4	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 5	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 6	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 7	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 8	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 9	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 10	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 11	75	1-1/4"	EXISTING
UH-A / UNIT HEATER 12	75	1-1/4"	EXISTING
PRTU-01 / ROOFTOP UNIT HEATER	72	1"	NEW
GWH-01 / GAS WATER HEATER	30	3/4"	NEW
<b>TOTAL =</b>	<b>1002</b>	<b>3"</b>	<b>EXISTING</b>

**GAS: NATURAL**  
**INLET PRESSURE: LESS THAN 2 PSI**  
**PRESSURE DROP: 0.5" W.C.**  
**PIPE: SCHEDULE 40 / METALLIC**  
**AS PER IFGC 2021 TABLE 402.4(2)**  
**FOR PIPE LENGTH OF 350' (LARGEST DEVELOPED LENGTH), BELOW ARE THE PIPE SIZES LISTED:**

3/4" = 25 CFH  
 1" = 33 CFH  
 1-1/4" = 203 CFH  
 1-1/2" = 305 CFH  
 2" = 587 CFH  
 2-1/2" = 935 CFH  
 3" = 1650 CFH



**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. Aluminum-alloy 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.

**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.

**305.6 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.

REVISIONS		
No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
 1600 CORPORATE CENTRAL DR.  
 SUITE 111  
 MCKINNEY, TEXAS 75069

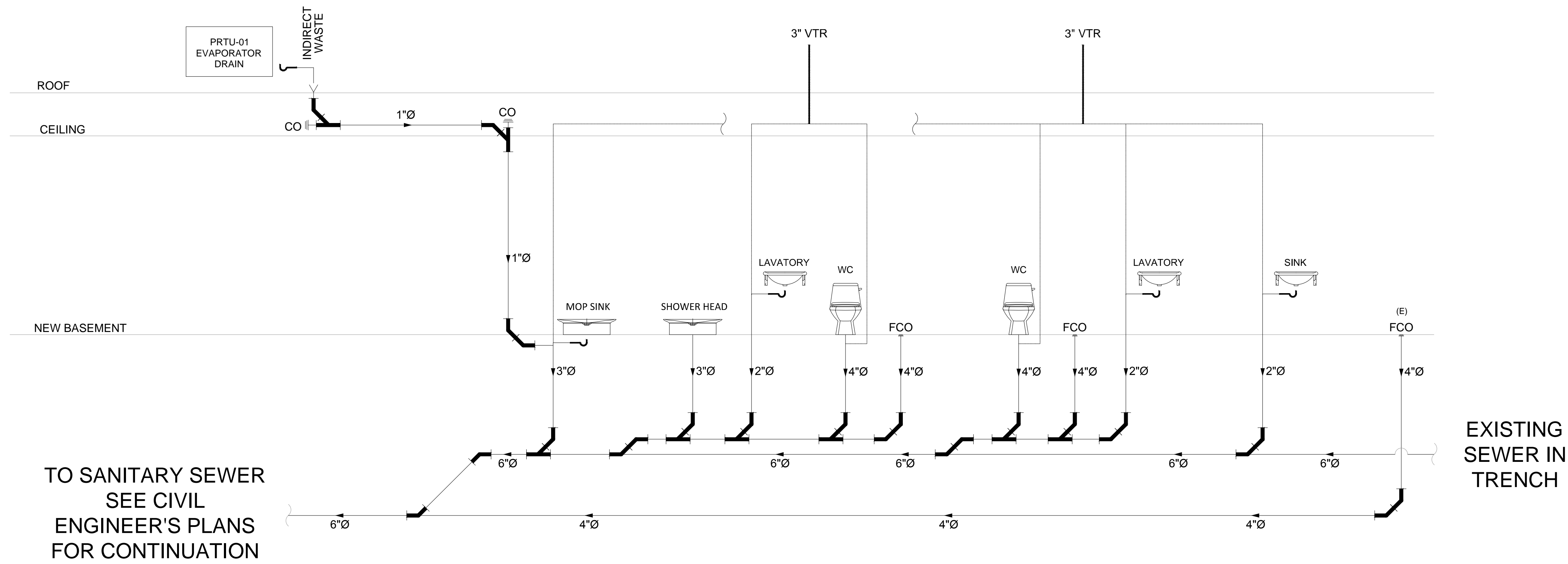
1600 CORPORATE DRIVE  
 MCKINNEY, TEXAS 75069

**GAS ISOMETRIC VIEW & SIZING NOTES.**

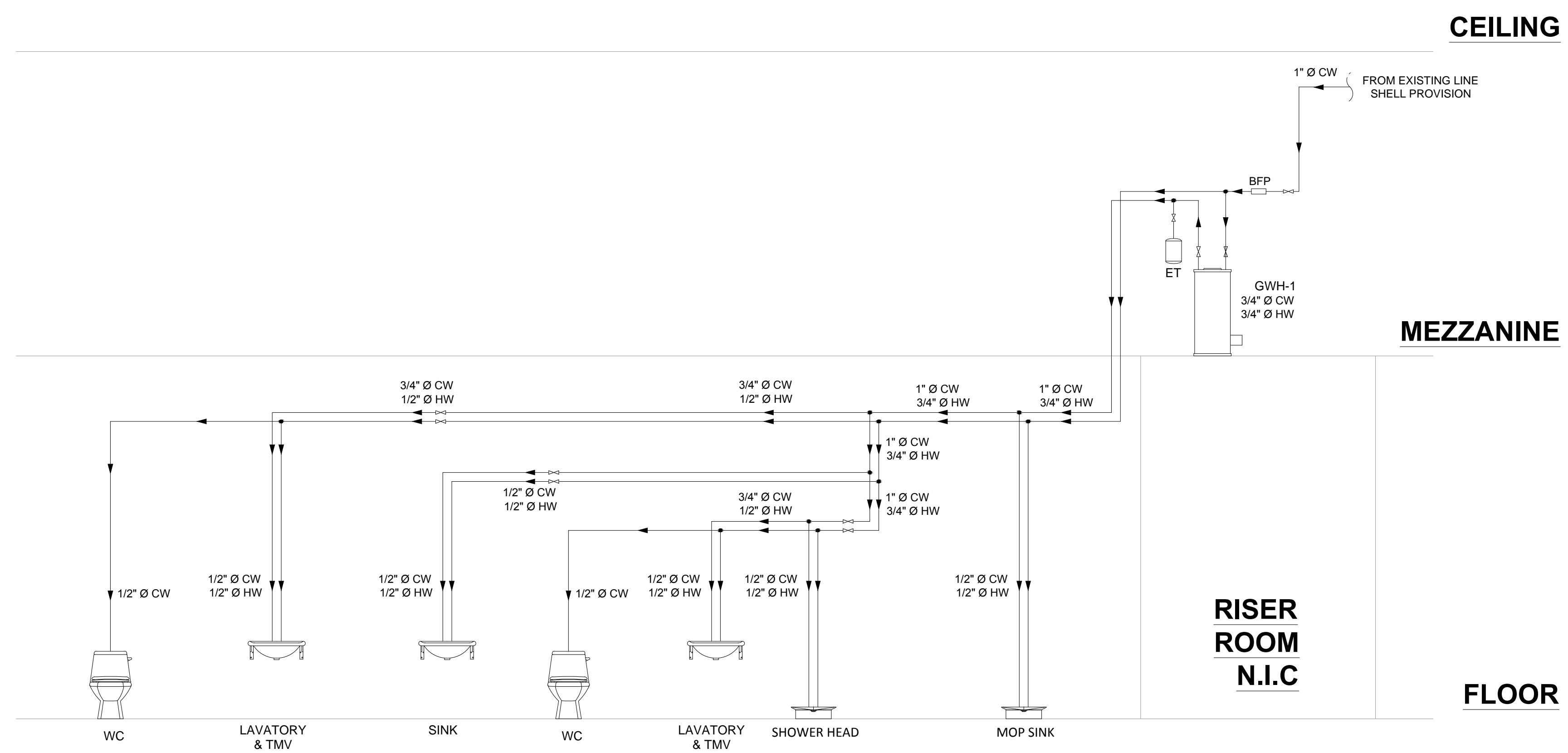
Drawn By: Z.H Scale: NTS  
 Date: 05.18.2023 PROJ.NO.:

**P4.00**

SHEET NO.



**DRAINAGE RISER DIAGRAM - NTS**



**WATER SUPPLY RISER DIAGRAM - NTS**

REVISIONS

No.	Description	Date
1	PERMIT SET	05.18.2023

BIRDIE BEAN  
1600 CORPORATE CENTRAL DR.  
SUITE 111  
MCKINNEY, TEXAS 75069

1600 CORPORATE DRIVE  
MCKINNEY, TEXAS 75069

PLUMBING RISER  
DIAGRAMS

Drawn By: Z.H Scale: NTS  
Date: 05.18.2023 PROJ.NO.:

**P5.00**  
SHEET NO.