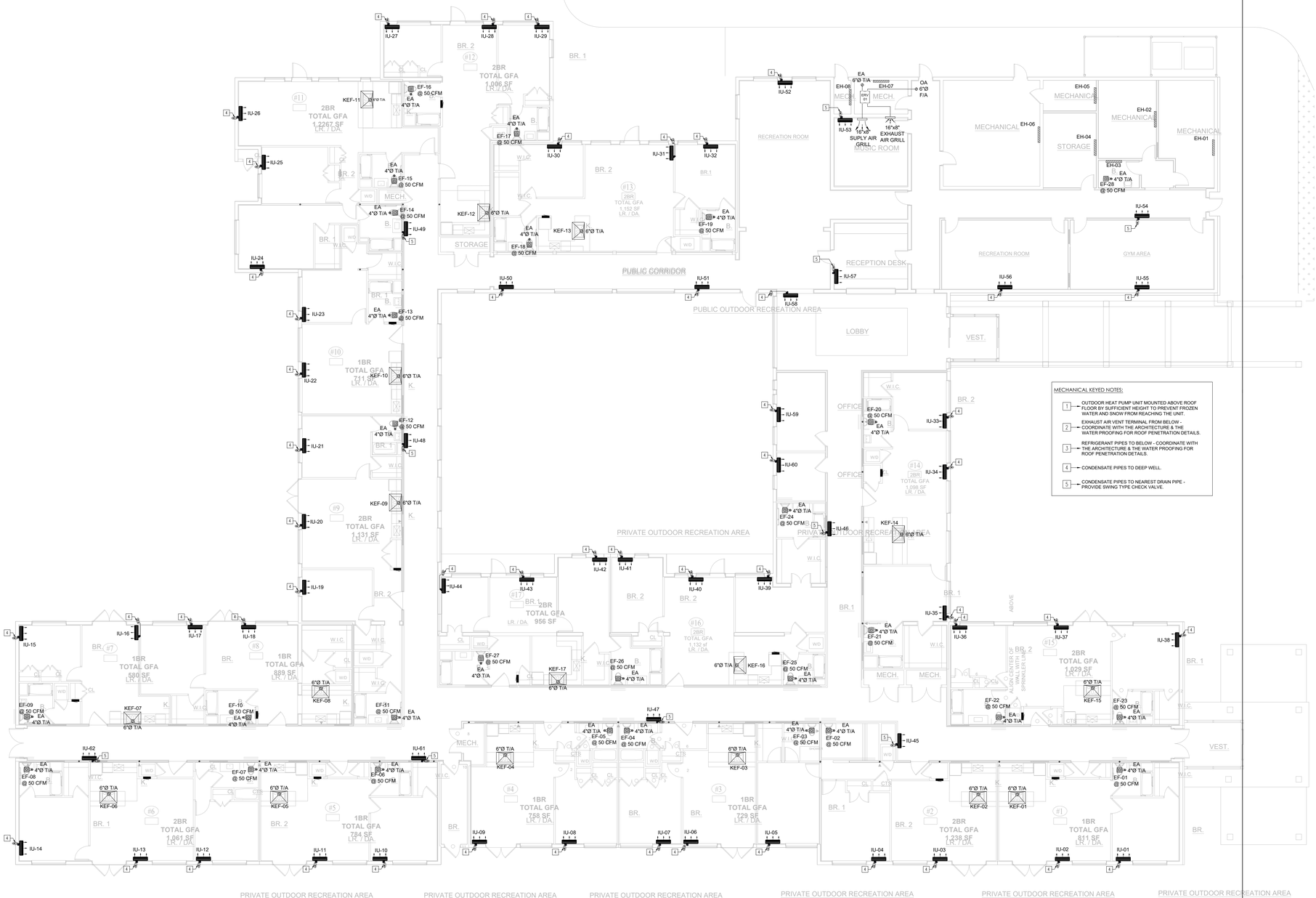
GDI ENGINEERING

GDI ENGINEERING
INNOVATING SOLUTIONS

Senior Living Rehabilitation

Multifamily

Greenwich , Connecticut



MECHANICAL KEYED NOTES:

1. OUTDOOR HEAT PUMP UNIT MOUNTED ABOVE ROOF FLOOR BY SUFFICIENT HEIGHT TO PREVENT FROZEN WATER AND SNOW FROM REACHING THE UNIT.
2. EXHAUST AIR VENT TERMINAL FROM BELOW - COORDINATE WITH THE ARCHITECTURE & THE WATER PROOFING FOR ROOF PENETRATION DETAILS.
3. REFRIGERANT PIPES TO BELOW - COORDINATE WITH THE ARCHITECTURE & THE WATER PROOFING FOR ROOF PENETRATION DETAILS.
4. CONDENSATE PIPES TO DEEP WELL.
5. CONDENSATE PIPES TO NEAREST DRAIN PIPE - PROVIDE SWING TYPE CHECK VALVE.

MECHANICAL FIRST FLOOR PLAN — SCALE 3/32"=1'-0" (1)

SENIOR HOUSING

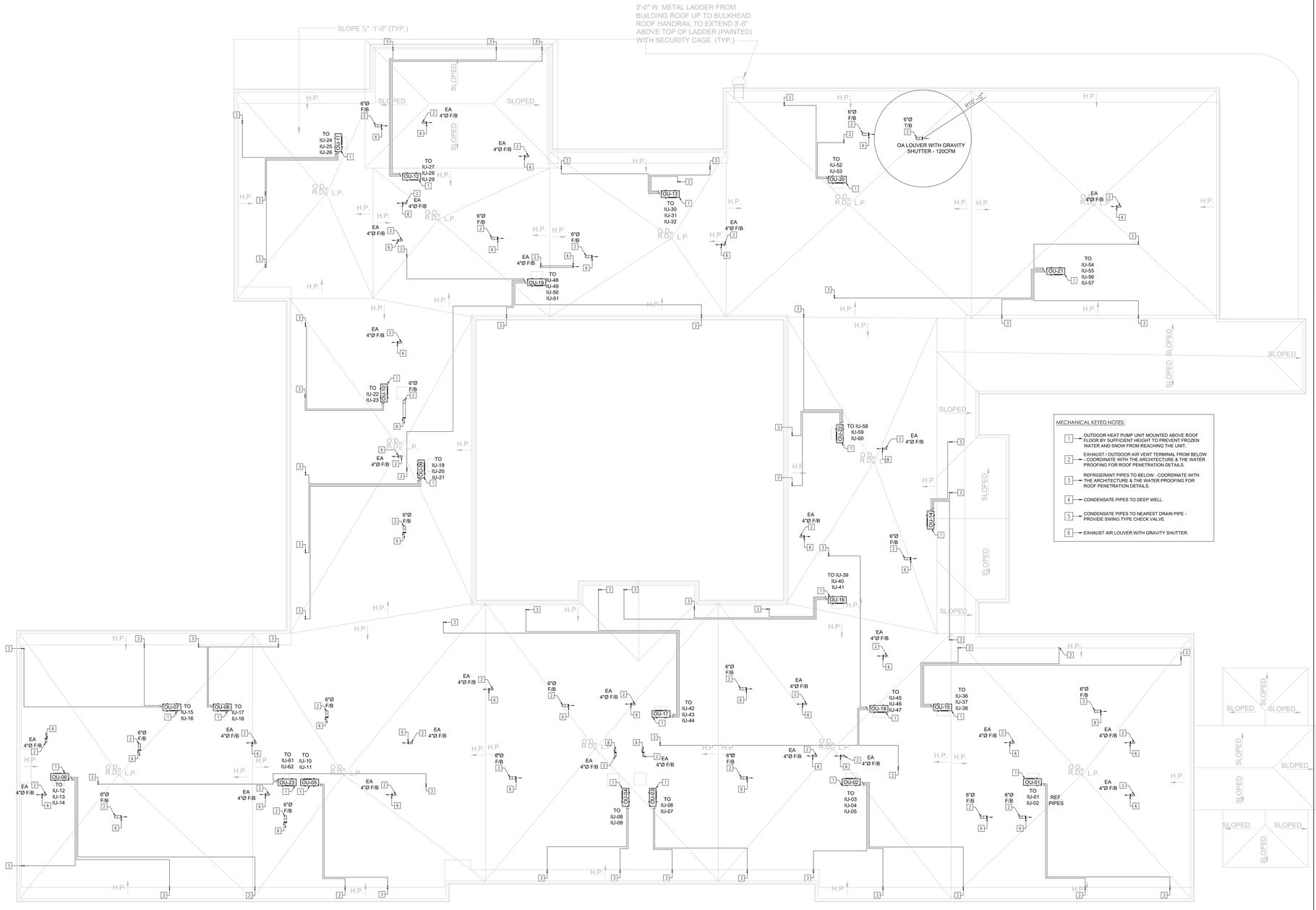
1188 KING STREET,
GREENWICH, CT 06831

FIRST FLOOR MECHANICAL LAYOUT

Drawn By: Z.H / M.F	Scale: 3/32"= 1'-0"
Date: 08.30.2023	PROJ.NO.:

M 2.00

SHEET NO. 2/6



MECHANICAL KEYED NOTES:

1. OUTDOOR HEAT PUMP UNIT MOUNTED ABOVE ROOF FLOOR BY SUFFICIENT HEIGHT TO PREVENT FROZEN WATER AND SNOW FROM REACHING THE UNIT.
2. EXHAUST / OUTDOOR AIR VENT TERMINAL FROM BELOW - COORDINATE WITH THE ARCHITECTURE & THE WATER PROOFING FOR ROOF PENETRATION DETAILS.
3. REFRIGERANT PIPES TO BELOW - COORDINATE WITH THE ARCHITECTURE & THE WATER PROOFING FOR ROOF PENETRATION DETAILS.
4. CONDENSATE PIPES TO DEEP WELL.
5. CONDENSATE PIPES TO NEAREST DRAIN PIPE - PROVIDE SWING TYPE CHECK VALVE.
6. EXHAUST AIR LOUVER WITH GRAVITY SHUTTER.

MECHANICAL ROOF PLAN — SCALE 3/32"=1'-0" — 2

SENIOR HOUSING

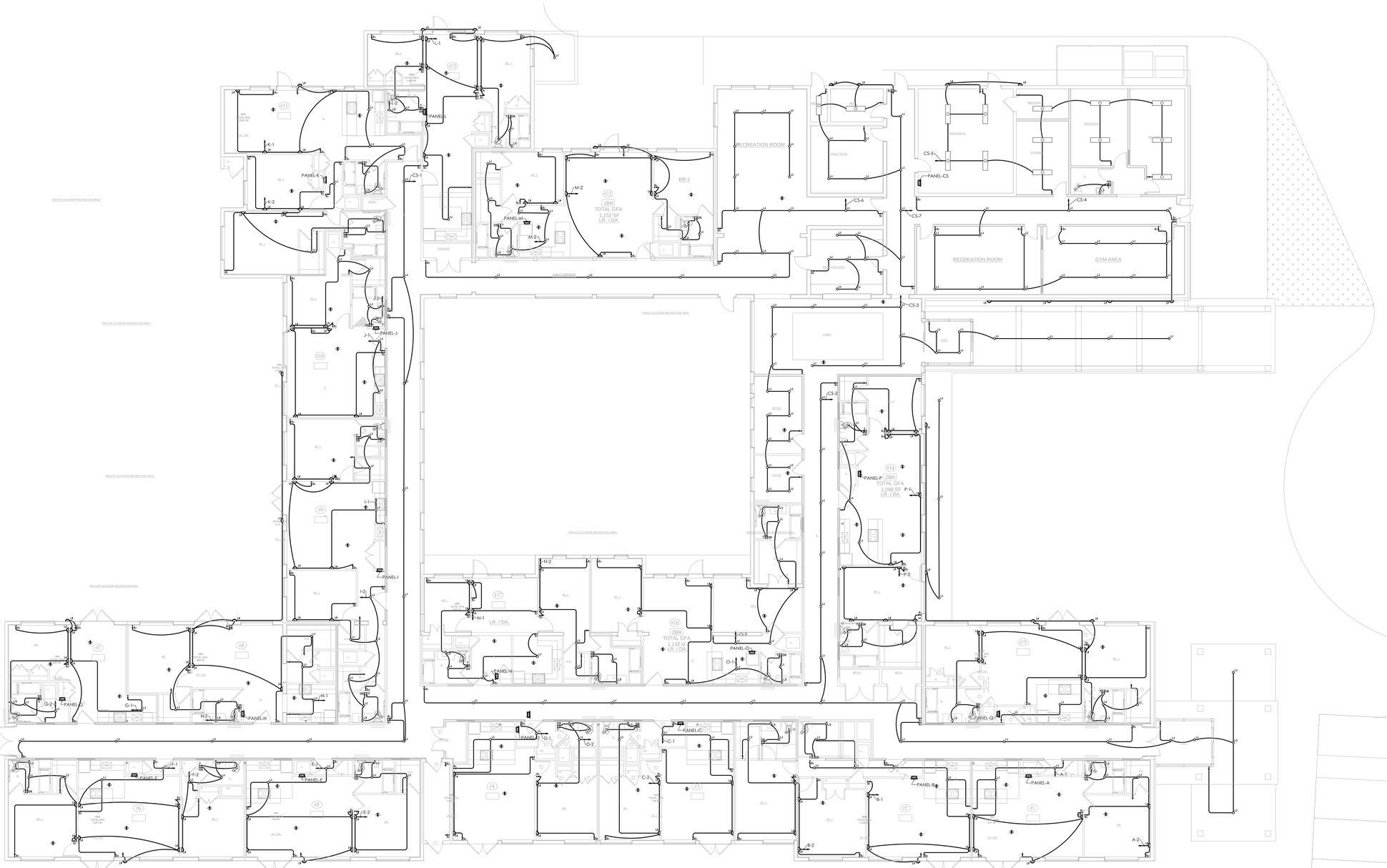
1188 KING STREET,
GREENWICH, CT 06831

ROOF MECHANICAL LAYOUT

Drawn By: Z.H / M.F	Scale: 1/8 "= 1'-0"
Date: 08.30.2023	PROJ.NO.:

M 2.01

SHEET NO. 3/6



ELECTRICAL LEGEND

- JUNCTION BOX FOR EXHAUST FANS
- OS — OCCUPANCY SENSOR
- ONE WAY LIGHTING SWITCH
- S3 — TWO WAYS LIGHTING SWITCH
- SELF CONTAINED SMOKE/CARBON MONOXIDE (120 W/BATTERY BACKUP) - CEILING MOUNTED
- SELF CONTAINED SMOKE DETECTOR/ANNUNCIATOR (120 W/BATTERY BACKUP) - CEILING MOUNTED SPECIFIED UL217

NOTE-GEN-CENLEFT

TAG	SYMBOL	DESCRIPTION	TYPE	W	V	MOUNT.	MANUF.	MODEL
L1		SURFACE MOUNTED LIGHT	LED	26W	120V	SURF.	ASTON FM48614	ASTON FM48614
L2		1'x4' FEET SURFACE MOUNTED LIGHT	LED	35.3W	120V	SURF.	LITHONIA	CSS L48 4000LM MVOLT 40K 80CR
L3		BATHROOM WALL SCONCE WAV LIGHTING VISTA	LED	15W	120V	WALL	WAC LIGHTING	*WS-40720*
L4		BATHROOM WALL SCONCE WAV LIGHTING VISTA	LED	15W	120V	WALL	WAC LIGHTING	*WS-40720*

SHEET NOTES:

1. PROVIDE HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING (OR WALL) FOR EXHAUST FAN

SENIOR HOUSING

1188 King Street, Greenwich, CT 06831

LIGHTING LAYOUT

Drawen By: A.B	Scale: 3/32" = 1'-0"
Date: 08.30.2023	PROJ.NO.:

E2.01

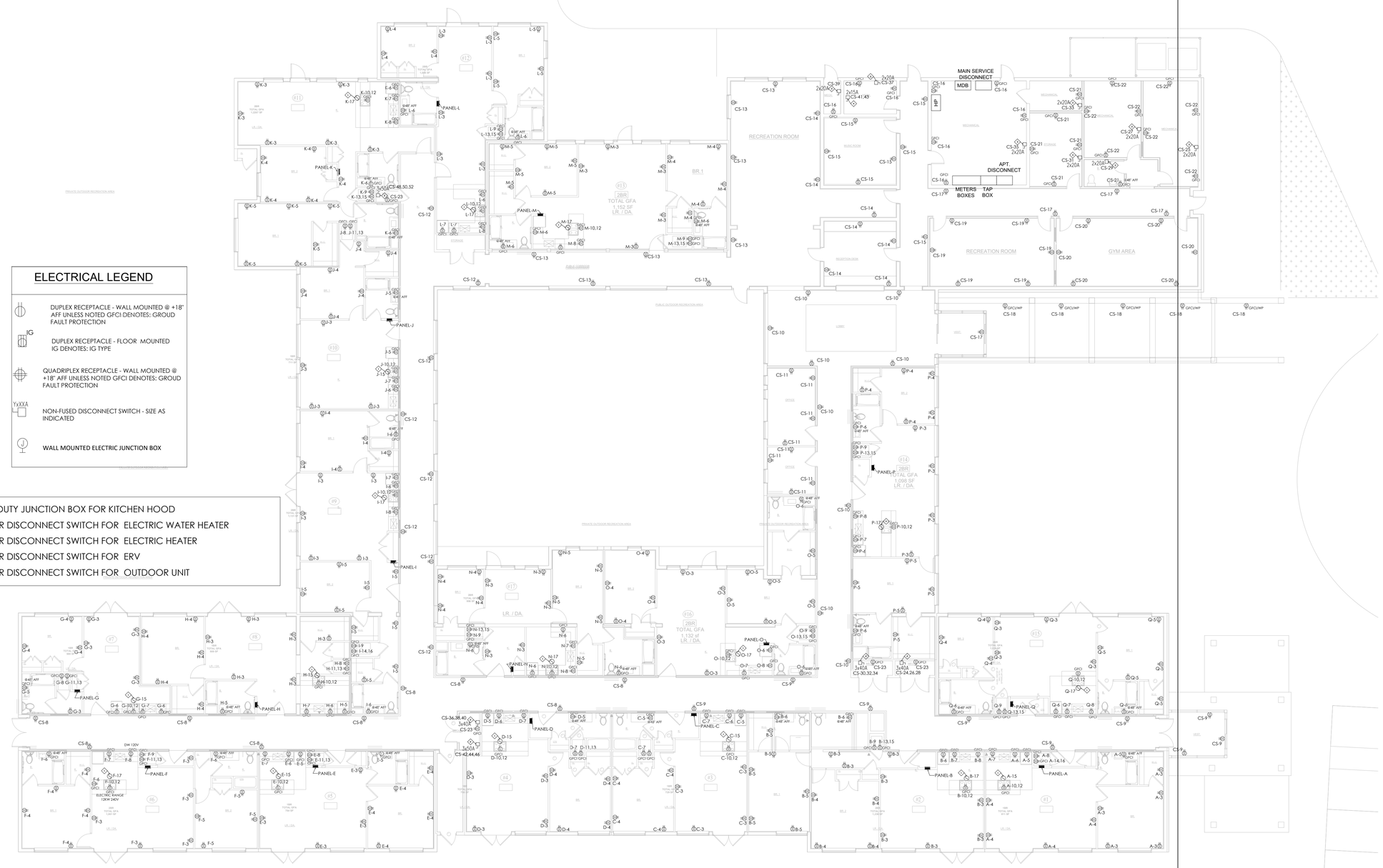
SHEET NO. 3/10

ELECTRICAL LEGEND

	DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
IG	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
J	WALL MOUNTED ELECTRIC JUNCTION BOX

SHEET NOTES:

1. PROVIDE HEAVY DUTY JUNCTION BOX FOR KITCHEN HOOD
2. PROVIDE NEMA 3R DISCONNECT SWITCH FOR ELECTRIC WATER HEATER
3. PROVIDE NEMA 3R DISCONNECT SWITCH FOR ELECTRIC HEATER
4. PROVIDE NEMA 3R DISCONNECT SWITCH FOR ERV
5. PROVIDE NEMA 3R DISCONNECT SWITCH FOR OUTDOOR UNIT



SENIOR HOUSING

1188 King Street, Greenwich, CT 06831

POWER LAYOUT

Drawen By: A.B	Scale: 3/32" = 1'-0"
Date: 08.30.2023	PROJ.NO.:

E3.01

SHEET NO. 4/10

PANEL H

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.25	1.25	0.25		0.31
R	Convenience Recept	2.34		0.36	1.98	2.34
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.66	2.70	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	11.10	11.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**30.14**		14.36	15.78	22.43

Total Demand Load (KVA)	22.43
Total Demand Current (A)	93.46
Min. Feeder Ampacity (A)	116.82

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-WIC	L	2X 14 AWG	- #14G	15A-1P	0.12	0.25		0.12	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM-WIC-BATHROOM	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	1.08		1.98	0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM	R	4
5	RECEPTACLES GFCI	R	2x 12 AWG	- #12G	20A-1P	0.36	1.36		1.00	20A-1P	2x 12 AWG	- #12G	FRIDGE	K	6
7	DISH WASHER	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.50	20A-1P	2x 12 AWG	- #12G	WASHER	K	8
9	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	DRYER	K	3x 10 AWG	- #12G	30A-2P	2.60		8.60	6.00					K	12
13		K				2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05		2.70	2.65					A	16
17	SPACE												SPACE		18
			(KVA)												

Total Connected Load: 14.36 15.78

PANEL I

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.43	1.25	0.43		0.54
R	Convenience Recept	3.78		1.98	1.80	3.78
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**31.77**		15.22	16.55	24.11

Total Demand Load (KVA)	24.11
Total Demand Current (A)	100.44
Min. Feeder Ampacity (A)	125.55

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-BEDROOM 1-WIC-BATHROOM	L	2X 14 AWG	- #14G	15A-1P	0.21	0.43		0.23	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 2-CORRIDOR-WIC-BATHROOM-WIC	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	0.90		1.80	0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 1-WIC	R	4
5	RECEPTACLES BEDROOM 2-CORRIDOR-WIC	R	2x 12 AWG	- #12G	20A-1P	1.44	1.98		0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 15.22 16.55

PANEL J

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.23	1.25	0.23		0.29
R	Convenience Recept	2.16		0.36	1.80	2.16
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.65	2.70	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	11.10	11.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**29.95**		14.35	15.80	22.24

Total Demand Load (KVA)	22.24
Total Demand Current (A)	92.65
Min. Feeder Ampacity (A)	115.82

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN	L	2X 14 AWG	- #14G	15A-1P	0.11	0.23		0.12	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM-WIC-BATHROOM	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	0.72		1.80	1.08	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM-WIC	R	4
5	RECEPTACLES GFCI	R	2x 12 AWG	- #12G	20A-1P	0.36	1.36		1.00	20A-1P	2x 12 AWG	- #12G	FRIDGE	K	6
7	DISH WASHER	K	2x 12 AWG	- #12G	20A-1P	1.00		2.50	1.50	20A-1P	2x 12 AWG	- #12G	WASHER	K	8
9	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.00	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	DRYER	K	3x 10 AWG	- #12G	30A-2P	2.60		8.60	6.00					K	12
13		K				2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05		2.70	2.65					A	16
17	SPACE												SPACE		18
			(KVA)												

Total Connected Load: 14.35 15.80

PANEL K

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.41	1.25	0.41		0.51
R	Convenience Recept	3.78		1.80	1.98	3.78
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**31.74**		15.01	16.73	24.07

Total Demand Load (KVA)	24.07
Total Demand Current (A)	100.31
Min. Feeder Ampacity (A)	122.39

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-CORRIDOR 1-BATHROOM 1	L	2X 14 AWG	- #14G	15A-1P	0.20	0.41		0.26	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 2-CORRIDOR 2-WIC-BATHROOM 2-BEDROOM 1	L	2
3	RECEPTACLES LIVING ROOM- CORRIDOR 1	R	2x 12 AWG	- #12G	20A-1P	1.08		1.98	0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 2-CORRIDOR 2	R	4
5	RECEPTACLES BEDROOM 1-WIC	R	2x 12 AWG	- #12G	20A-1P	1.08	1.80		0.72	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 15.01 16.73

PANEL L

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.31	1.25	0.31		0.39
R	Convenience Recept	2.88		1.26	1.62	2.88
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**30.74**		14.37	16.37	25.05

Total Demand Load (KVA)	23.05
Total Demand Current (A)	96.04
Min. Feeder Ampacity (A)	120.05

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-BEDROOM 1-BATHROOM 1	L	2X 14 AWG	- #14G	15A-1P	0.21	0.31		0.10	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 2-BATHROOM 2	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	1.08		1.62	0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 2	R	4
5	RECEPTACLES BEDROOM 1	R	2x 12 AWG	- #12G	20A-1P	0.72	1.26		0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 14.37 16.37

PANEL M

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.42	1.25	0.42		0.53
R	Convenience Recept	3.60		1.62	1.98	3.60
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**31.58**		14.85	16.73	23.91

Total Demand Load (KVA)	23.91
Total Demand Current (A)	99.64
Min. Feeder Ampacity (A)	124.55

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-BEDROOM 1-BATHROOM 1-WIC	L	2X 14 AWG	- #14G	15A-1P	0.20	0.42		0.23	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 2-KITCHEN- CORRIDOR-BATHROOM 2-WIC-WIC	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	1.08		1.98	0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 1	R	4
5	RECEPTACLES BEDROOM 2	R	2x 12 AWG	- #12G	20A-1P	1.08	1.62		0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 14.85 16.73

PANEL N

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.33	1.25	0.33		0.41
R	Convenience Recept	3.24		1.62	1.62	3.24
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.65	2.70	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**31.12**		14.75	16.37	23.43

Total Demand Load (KVA)	23.43
Total Demand Current (A)	97.63
Min. Feeder Ampacity (A)	122.04

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-BEDROOM 1-BATHROOM 1	L	2X 14 AWG	- #14G	15A-1P	0.18	0.33		0.15	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 2-WIC-BATHROOM-CORRIDOR	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	0.90		1.62	0.72	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 1	R	4
5	RECEPTACLES BEDROOM 2-WIC	R	2x 12 AWG	- #12G	20A-1P	0.90	1.62		0.72	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 14.75 16.37

PANEL O

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.34	1.25	0.34		0.43
R	Convenience Recept	3.06		1.26	1.80	3.06
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**30.96**		14.40	16.56	23.27

Total Demand Load (KVA)	23.27
Total Demand Current (A)	96.96
Min. Feeder Ampacity (A)	121.20

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-BEDROOM 2-BATHROOM 2	L	2X 14 AWG	- #14G	15A-1P	0.17	0.34		0.17	15A-1P	2x 14 AWG	- #14G	LIGHTING CORRIDOR-BEDROOM 1-BATHROOM 1-WIC	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	0.72		1.80	1.08	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 1-WIC	R	4
5	RECEPTACLES BEDROOM 2	R	2x 12 AWG	- #12G	20A-1P	0.72	1.26		0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 14.40 16.55

PANEL P

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.40	1.25	0.40		0.50
R	Convenience Recept	3.08		1.44	1.62	3.08
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.70	2.65	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	10.10	12.10	14.43
N	Noncontinuous		1.00			
			1.00			
	Total	**31.02**		14.64	16.37	23.36

Total Demand Load (KVA)	23.36
Total Demand Current (A)	97.27
Min. Feeder Ampacity (A)	121.59

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING LIVING ROOM-KITCHEN-BEDROOM 2-BATHROOM 2-WIC	L	2X 14 AWG	- #14G	15A-1P	0.23	0.46		0.17	15A-1P	2x 14 AWG	- #14G	LIGHTING BEDROOM 1-BATHROOM 1-WIC	L	2
3	RECEPTACLES LIVING ROOM	R	2x 12 AWG	- #12G	20A-1P	0.72		1.62	0.90	20A-1P	2x 12 AWG	- #12G	RECEPTACLES BEDROOM 2-WIC	R	4
5	RECEPTACLES GFCI	R	2x 12 AWG	- #12G	20A-1P	0.90	1.44		0.54	20A-1P	2x 12 AWG	- #12G	RECEPTACLES GFCI	R	6
7	FRIDGE	K	2x 12 AWG	- #12G	20A-1P	1.00		2.00	1.00	20A-1P	2x 12 AWG	- #12G	DISHWASHER	K	8
9	WASHER	K	2x 12 AWG	- #12G	20A-1P	1.50	7.50		6.00	60A-2P	3x 4 AWG	- #10G	ELECTRIC RANGE	K	10
11	SMALL APPLIANCE	K	2x 12 AWG	- #12G	20A-1P	1.50		7.50	6.00					K	12
13	DRYER	K	3x 10 AWG	- #10G	30A-2P	2.60	5.25		2.65	25A-2P	3x 10 AWG	- #10G	ODU	A	14
15		K				2.60		5.25	2.65					A	16
17	KEF	A	2x 12 AWG	- #12G	20A-1P	0.05	0.05						SPACE		18
			(KVA)												

Total Connected Load: 14.64 16.37

PANEL Q

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-2P CB Bus Plug
CONDUCTOR SIZE	1/0 AWG - #3G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	1.527
FAULT CURRENT	
KAIC RATING	10
ENCLOSURE	TYPE 1

Location: -

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.22	1.25	0.22		0.27
R	Convenience Recept	1.98		0.36	1.62	1.98
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC	5.35	1.00	2.65	2.70	5.35
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	22.20	13.00	11.10	11.10

LOAD CALCULATIONS - J

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	711	x	3	=	2,133	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**25,833**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	25,833	-	10,000 va	=	15,833	
	2. Line 1	15,833	x	40%	=	6,333	
	3. Line 2	6,333	+	10,000 va	=	16,333	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	7200	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,333	va		
	Enter only the largers load from Step 5	+		7,200	va		
	Total Calculated Service or Feeder Load	=		23,533	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	23,533	va /	240	volts =	98	amps
	This calculation resulted in a calculated load of 98 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - K

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,267	x	3	=	3,801	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**27,501**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	27,501	-	10,000 va	=	17,501	
	2. Line 1	17,501	x	40%	=	7,000	
	3. Line 2	7,000	+	10,000 va	=	17,000	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			17,000	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		28,000	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	28,000	va /	240	volts =	117	amps
	This calculation resulted in a calculated load of 117 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - L

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,006	x	3	=	3,018	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**26,718**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	26,718	-	10,000 va	=	16,718	
	2. Line 1	16,718	x	40%	=	6,687	
	3. Line 2	6,687	+	10,000 va	=	16,687	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,687	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,687	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,687	va /	240	volts =	115	amps
	This calculation resulted in a calculated load of 115 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - M

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,152	x	3	=	3,456	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**27,156**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	27,156	-	10,000 va	=	17,156	
	2. Line 1	17,156	x	40%	=	6,862	
	3. Line 2	6,862	+	10,000 va	=	16,862	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,862	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,862	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,862	va /	240	volts =	116	amps
	This calculation resulted in a calculated load of 116 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - N

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	956	x	3	=	2,868	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**26,568**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	26,568	-	10,000 va	=	16,568	
	2. Line 1	16,568	x	40%	=	6,627	
	3. Line 2	6,627	+	10,000 va	=	16,627	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,627	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,627	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,627	va /	240	volts =	115	amps
	This calculation resulted in a calculated load of 115 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - O

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,132	x	3	=	3,396	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**27,096**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	27,096	-	10,000 va	=	17,096	
	2. Line 1	17,096	x	40%	=	6,838	
	3. Line 2	6,838	+	10,000 va	=	16,838	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,838	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,838	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,838	va /	240	volts =	116	amps
	This calculation resulted in a calculated load of 116 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - P

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,098	x	3	=	3,294	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**26,994**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	26,994	-	10,000 va	=	16,994	
	2. Line 1	16,994	x	40%	=	6,798	
	3. Line 2	6,798	+	10,000 va	=	16,798	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,798	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,798	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,798	va /	240	volts =	116	amps
	This calculation resulted in a calculated load of 116 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

LOAD CALCULATIONS - Q

Step	Directions						
	LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)						
1	Square footage	1,029	x	3	=	3,087	va
	SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)						
2	Number of circuits	2	x	1500	=	3,000	va
	APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)						
3	Coffee Machines & Hot Beverage	N/A	va				
	Refrigerators	1,000	va				
	Dishwasher	1,000	va				
	Grill	N/A	va				
	Washer	1,500	va				
	Dryer	5,200	va				
	Cooktop	12,000	va				
	Cold Rooms	N/A	va				
	Miscellaneous	N/A	va				
	TOTAL	**26,787**	**va**				
	TOTAL STEPS 1-3: 220.82(B)						
4	1. Total of Loads	26,787	-	10,000 va	=	16,787	
	2. Line 1	16,787	x	40%	=	6,715	
	3. Line 2	6,715	+	10,000 va	=	16,715	
	HEATING & AIR CONDITIONING LOADS: 220.82(C)						
5	A. Air-Conditioning Equipment	11000	va				
	B. Heat Pump without Suppl. Heating	N/A	va				
	C. Suppl. Heating for HP	N/A	va				
	D. Electrical Space Heating	N/A	va				
	E. Electric Thermal Storage	N/A	va				
	CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)						
6	Total of Line 3 from Step 4			16,715	va		
	Enter only the largers load from Step 5	+		11,000	va		
	Total Calculated Service or Feeder Load	=		27,715	va		
	CALCULATED SERVICE OR FEEDER SIZE						
7	Total Calculated Load	27,715	va /	240	volts =	115	amps
	This calculation resulted in a calculated load of 115 amps, the existing feeder is designed for 150 amps load thus the current feeder should be able to serve the Apartment.						

Multifamily Load Analysis - NEC 220.84

Apartment N°	Floor/s	Area (ft²)	Loads in VA - NEC 220.82								
			Lighting & Receptacles Load	Small Appliances Load	Dryer Circuit	Dishwasher Circuit	Washer Circuit	Range Circuit	Fridge	Air Conditioning Circuit - Cooling	Connected Load (VA)
Apt#A	First	811	2,433	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,533
Apt#B	First	1,238	3,714	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,614
Apt#C	First	729	2,187	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,287
Apt#D	First	758	2,274	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,374
Apt#E	First	784	2,352	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,452
Apt#F	First	1,061	3,183	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,083
Apt#G	First	580	1,740	3,000	5,200	1,200	1,500	12,000	1,000	7,200	32,840
Apt#H	First	889	2,667	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,767
Apt#I	First	1,131	3,393	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,293
Apt#J	First	711	2,133	3,000	5,200	1,200	1,500	12,000	1,000	7,200	33,233
Apt#K	First	1,267	3,801	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,701
Apt#L	First	1,006	3,018	3,000	5,200	1,200	1,500	12,000	1,000	11,000	37,918
Apt#M	First	1,152	3,456	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,356
Apt#N	First	956	2,868	3,000	5,200	1,200	1,500	12,000	1,000	11,000	37,768
Apt#O	First	1,132	3,396	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,296
Apt#P	First	1,098	3,294	3,000	5,200	1,200	1,500	12,000	1,000	11,000	38,194
Apt#Q	First	1,029	3,087	3,000	5,200	1,200	1,500	12,000	1,000	11,000	37,987
Total Connected Load (VA)											**615,696**
Demand Factor - NEC 220.84 / 16-17 Apt											**0.39**
Demand Load - Apartments (VA)											**240,121**
Demand Load - House Services (VA)											**154,880**
Demand Load - Total Building (VA)											**395,001**
Demand Load (Amps) @ 240V											**1,097**
Main Breaker Rating - NEC 240.6 (A)											**1200**
Number of Raceways											**3**
Demand Load (Amps) @ 208V per Service Conductor											**365.7**
Each Main Service Conductor - NEC 310.15 (B) (16)											**500 KCMIL**
CONDUIT SIZE											**3 SET OF 4" EMT CONDUIT**

SENIOR HOUSING

1188 King Street, Greenwich, CT 06831

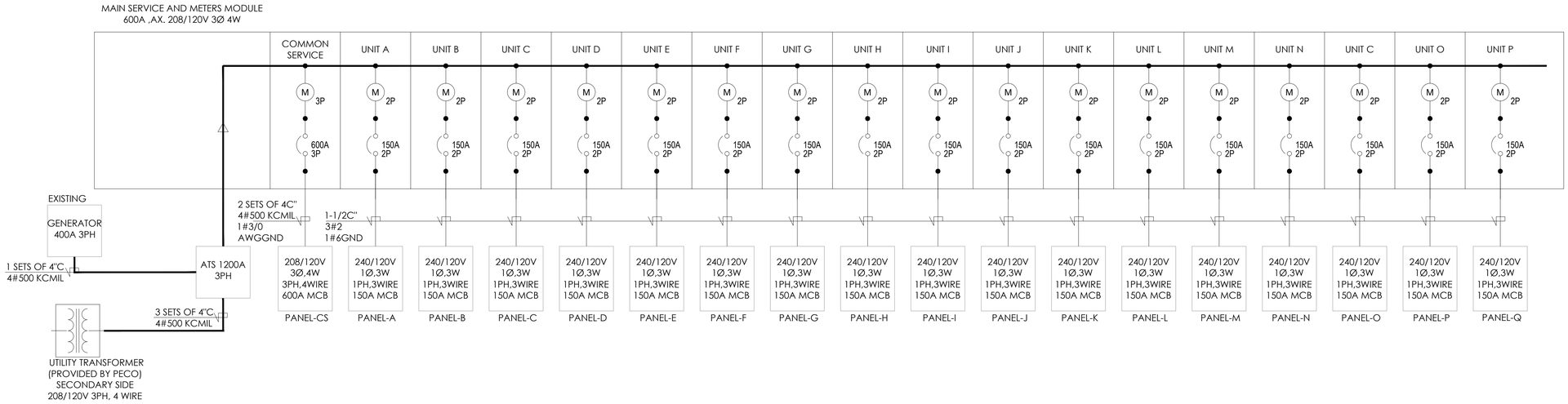
LOAD CALCULATIONS

Drawen By: A.B | Scale: NTS

Date: 08.30.2023 | PROJ.NO.:

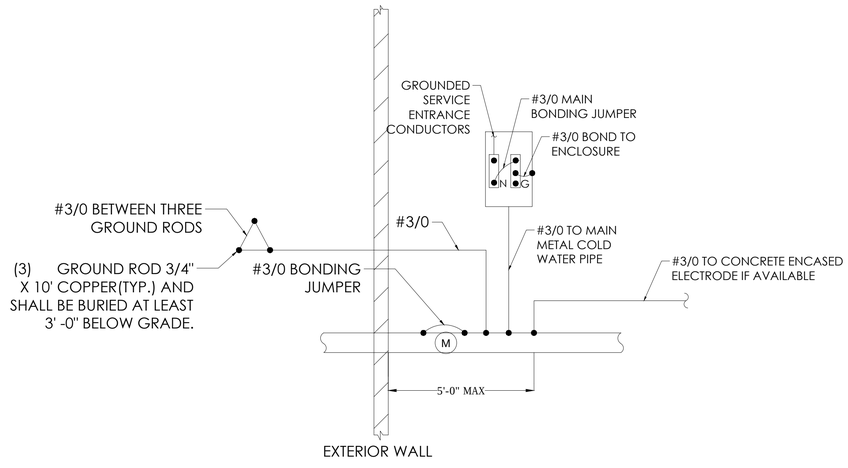
E4.04

SHEET NO. 9/10



ELECTRICAL SINGLE DIAGRAM NOTES:

1. E.C. SHALL ENSURE THE ELECTRIC SERVICE IS PROPERLY BONDED AND GROUNDED PER NEC ARTICLES 230 AND 250
2. CONDUCTORS SIZE ARE BASED ON COPPER CONDUCTORS. E.C. SHALL NOTIFY ENGINEER AND MAKE THE CHANGES IF E.C. USE ALUMINUM CONDUCTORS.
3. REFER TO DWG.2/E200 FOR GROUNDING AND BONDING DETAILS



ELECTRICAL GROUNDING AND BONDING NOTES:

1. E.C. SHALL ENSURE THE ELECTRIC SERVICE IS PROPERLY BONDED AND WALL GROUNDED PER NEC ARTICLES 230 AND 250.
2. CONDUCTORS SIZE ARE BASED ON COPPER CONDUCTORS.
3. BOUNDING JUMPER FOR WATER METER IS PERMITTED TO BE OMITTED IF NON-METALLIC WATER PIPE IS USED.

SENIOR HOUSING

1188 King Street, Greenwich, CT 06831

SINGLE LINE DIAGRAM & GROUNDING DETAILS

Drawen By: A.B	Scale: NTS
Date: 08.30.2023	PROJ.NO.:

E4.05

SHEET NO. 10/10

DRAINAGE KEYED NOTES:

1 → WASTE DROP AND 2" VENT RISE.

2 → 4" FLOOR CLEAN-OUT.

3 → 3" VENT STACK TO ABOVE - TERMINATE TO OUTDOORS AS PER IPC.

4 → 2" SHOWER DRAIN.

5 → WASHING MACHINE DRAIN - INDIRECT WASTE.

6 → DISHWASHER DRAIN - INDIRECT WASTE.

7 → CONNECT TO EXISTING SEWER LINE.

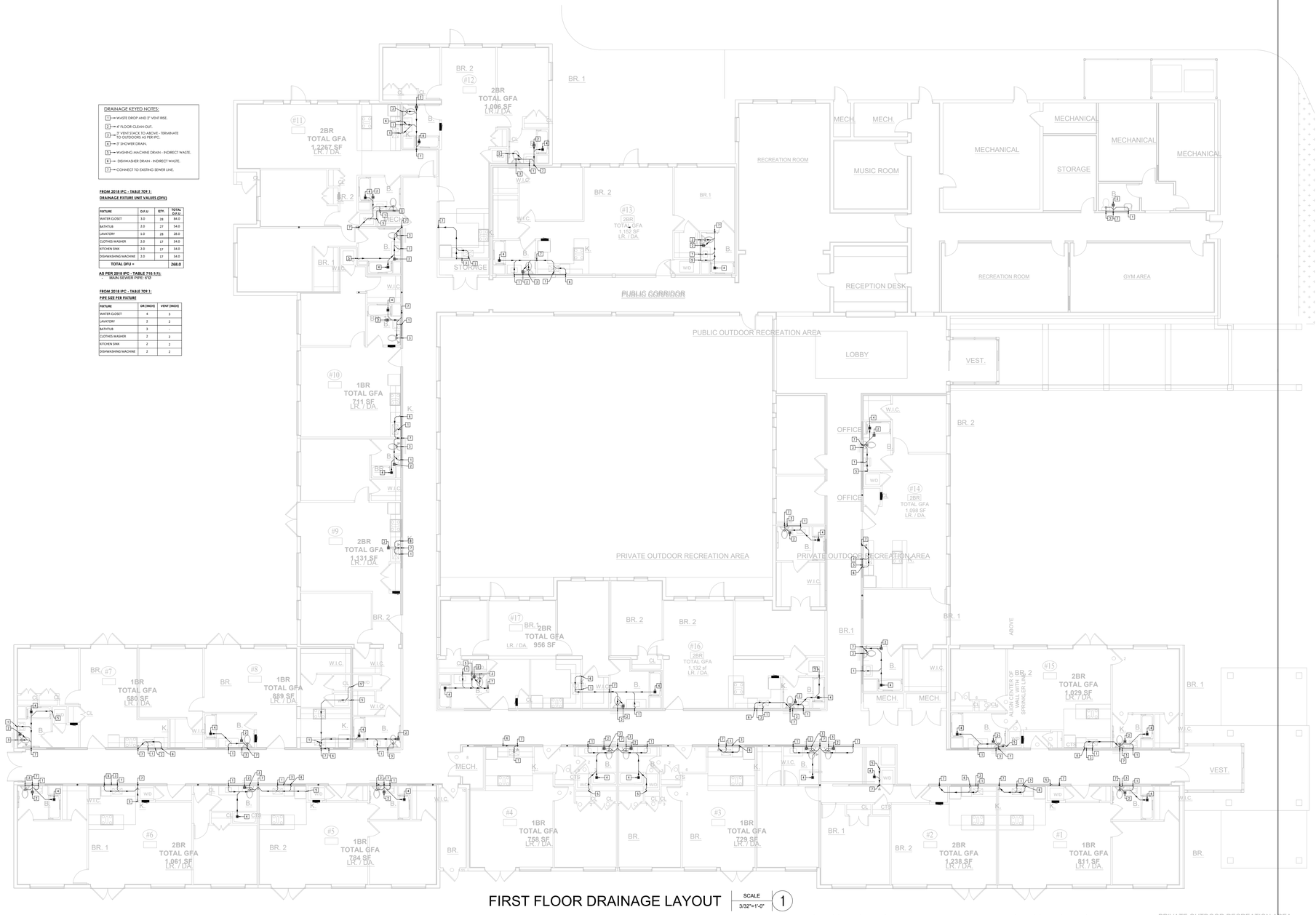
FROM 2018 IPC - TABLE 709.1:
DRAINAGE FIXTURE UNIT VALUES (DFU)

FIXTURE	D.F.U	QTY.	TOTAL D.F.U.
WATER CLOSET	3.0	28	84.0
BATHTUB	2.0	27	54.0
LAVATORY	1.0	28	28.0
CLOTHES WASHER	2.0	17	34.0
KITCHEN SINK	2.0	17	34.0
DISHWASHING MACHINE	2.0	17	34.0
TOTAL DFU =			**268.0**

AS PER 2018 IPC - TABLE 710.1(1):
MAIN SEWER PIPE: 6"Ø

FROM 2018 IPC - TABLE 709.1:
PIPE SIZE PER FIXTURE

FIXTURE	DR (INCH)	VENT (INCH)
WATER CLOSET	4	3
LAVATORY	2	2
BATHTUB	3	-
CLOTHES WASHER	2	2
KITCHEN SINK	2	2
DISHWASHING MACHINE	2	2



FIRST FLOOR DRAINAGE LAYOUT — SCALE 3/32"=1'-0" — 1

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DRAINAGE & WATER SUPPLY LAYOUTS

Drawn By: Z.H / M.F	Scale: 3/32 "= 1'-0"
Date: 08.30.2023	PROJ.NO.:

P2.00

SHEET NO. 2/5

WATER SUPPLY KEYED NOTES:

1 — HOCW & DHW DROP IN WALL TO FIXTURE TERMINAL.

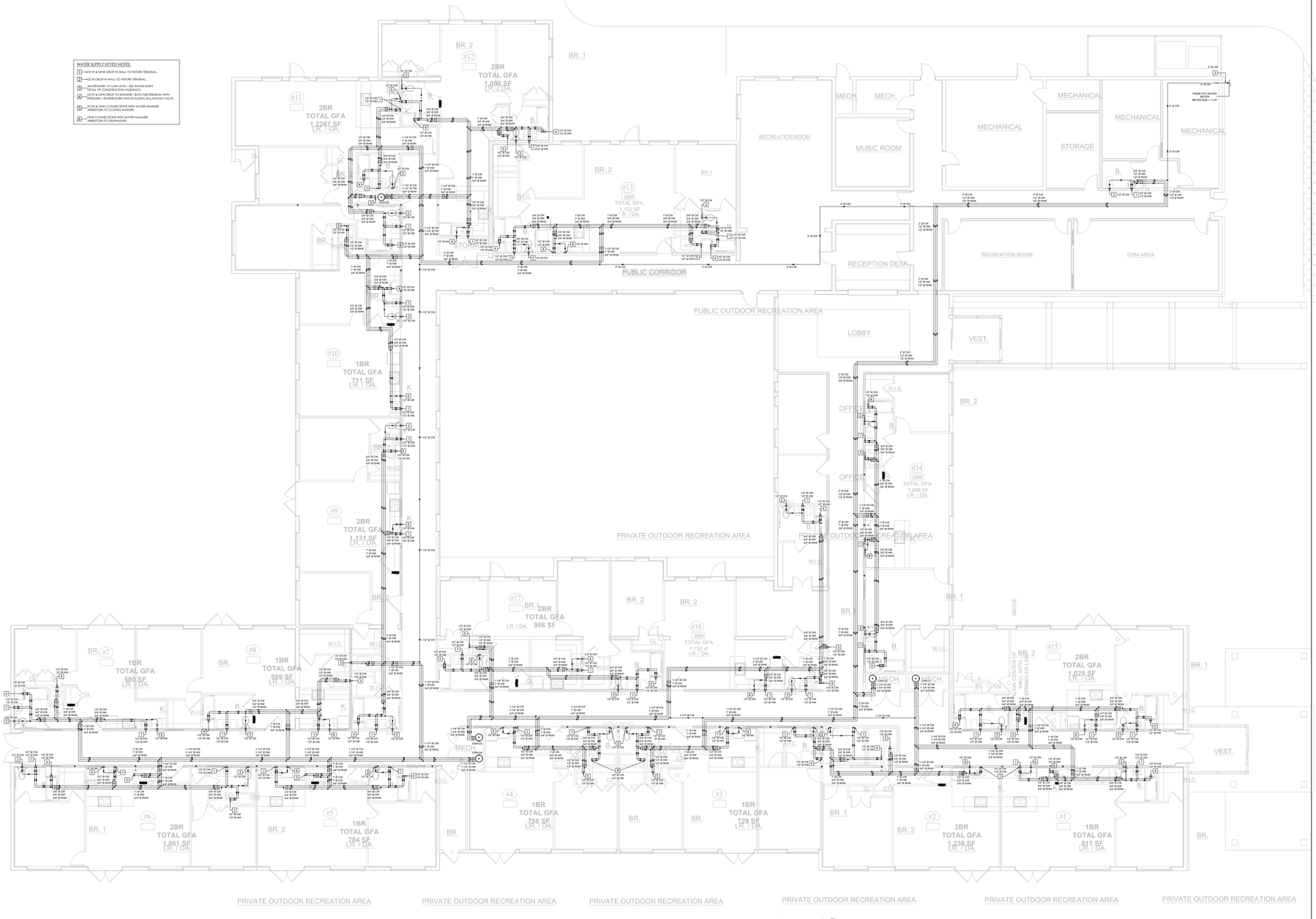
2 — HOCW DROP IN WALL TO FIXTURE TERMINAL.

3 — WATER ENTRY AT LOW LEVEL - SEE WATER ENTRY DETAIL OF CONSTRUCTION GUIDANCE.

4 — DCW & DHW DROP TO SHOWER / BATH-TUB TERMINAL WITH PRESSURE / TEMPERATURE ANTISCALDING BALANCING VALVE.

5 — DCW & DHW CONNECTIONS WITH WATER HAMMER ARRESTORS TO CLOTHES WASHER.

6 — DHW CONNECTIONS WITH WATER HAMMER ARRESTORS TO DISHWASHER.



FIRST FLOOR WATER SUPPLY LAYOUT — SCALE 3/32"=1'-0" — 2

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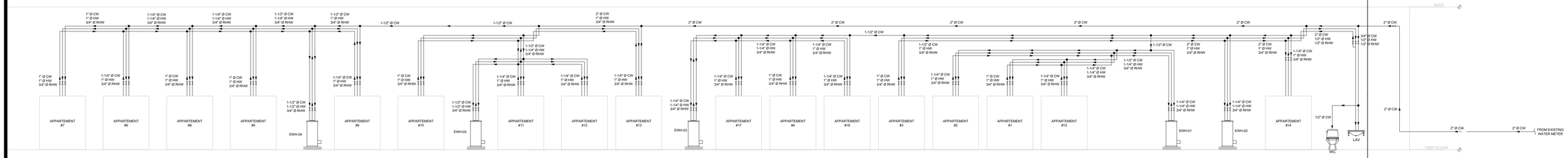
WATER SUPPLY LAYOUTS

Drawn By: Z.H / M.F	Scale: 3/32 "= 1'-0"
Date: 08.30.2023	PROJ.NO.:

P3.00

SHEET NO. 3/5



WATER SUPPLY RISER DIAGRAM - NTS

SCHEDULE No. 1
ELECTRIC WATER HEATER

TAG	EWH-01	EWH-02	EWH-03	EWH-04	EWH-05
MANUFACTURER	A.O SMITH	A.O SMITH	A.O SMITH	A.O SMITH	A.O SMITH
MODEL	DRE-52-13.5	DRE-52-9	DRE-52-13.5	DRE-80-18	DRE-80-15
TYPE	ELECTRIC - TANK	ELECTRIC - TANK	ELECTRIC - TANK	ELECTRIC - TANK	ELECTRIC - TANK
HEATER INPUT POWER (kW)	13.5	9	13.5	18	15
ELECTRICAL DATA	208V / 3Ø / 60 Hz	208V / 3Ø / 60 Hz	208V / 3Ø / 60 Hz	208V / 3Ø / 60 Hz	208V / 3Ø / 60 Hz
NUMBER OF ELEMENTS	3	3	3	3	3
NOMINAL TANK CAPACITY (GAL)	50	50	50	80	80
FIRST HOUR RATING (GPH)	96	77	96	138	126
HEATER RECOVERY @ 100°F RISE (GPH)	56	37	56	74	62
APPROXIMATE SHIPPING WEIGHT (LBS)	260	260	260	274	274
HEIGHT x DIAMETER	55.25" x 21.75"	55.25" x 21.75"	55.25" x 21.75"	59.5" x 25.5"	59.5" x 25.5"

NOTES:
1. HEATER SHALL HAVE CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE.
2. HEATER SHALL HAVE TWO ANODE RODS FOR PROTECTION.
3. HEATER SHALL MEET OR EXCEED THE THERMAL EFFICIENCY AND/OR STANDBY LOSS REQUIREMENTS OF THE US DOE AND CURRENT EDITION OF ASHRAE/IESNA 90.1.
4. HEATER SHALL HAVE FACTORY SUPPLIED INSULATION BLANKET.
5. PROVIDE EXPANSION TANK AS PER KEYED NOTES.
6. PROVIDE BASE PAN AS PER INSTALLATION DETAILS.
7. TANK SHOULD BE INTERNALLY GLASS LINED.
8. PROVIDE UL LISTED FIELD PHASE CONVERSION KIT FOR POWER SUPPLY.

FROM 2018 IPC - TABLE E 103.3 (2):
WATER SUPPLY FIXTURE UNITS LOADS:

FIXTURE	OCCUPANCY	W.S.F.U	QTY.	TOTAL W.S.F.U
BATHROOM GROUP	PRIVATE	3.6	27	97.2
WC + LAVATORY	PRIVATE	2.7	1	2.7
KITCHEN SINK	PRIVATE	1.4	17	23.8
DISHWASHING MACHINE	PRIVATE	1.4	17	23.8
CLOTHES WASHER	PRIVATE	1.4	17	23.8
			TOTAL =	171.3 W.F.U
			EQUIVALENT FLOW =	60.0 GPM
			SELECT Ø2" MAIN FEEDER PIPE	

SENIOR HOUSING
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WATER SUPPLY RISER DIAGRAMS & SCHEDULES.

Drawn By: Z.H / M.F | Scale: NTS
Date: 08.30.2023 | PROJ.NO.:

P4.00

SHEET NO. 4/5

FIRE PROTECTION NOTES:

1. FIRE PROTECTION SUPPLY PIPE: ROUTE THE BUILDING FIRE MAIN TO THE WATER MAIN AND CONNECT TO THE SUPPLY LINE AT THE APPROPRIATE TIME AND LOCATION.
2. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF WATER MAIN PRIOR TO START OF CONSTRUCTION.
3. WORK INCLUDES BUT IS NOT LIMITED TO: INSTALLING A COMPLETE WET SYSTEM DESIGNED THROUGHOUT THE BUILDING .
4. RELATED WORK SPECIFIED ELSEWHERE: WIRING OF FLOW ALARM SWITCHES AND TAMPER SWITCHES AND CONNECTION OF SWITCHES TO BUILDING ALARM SYSTEM ARE SPECIFIED IN ELECTRICAL DOCUMENTS.
5. SPRINKLER DESIGN REQUIREMENTS: (FOR LIGHT HAZARD):
6. THE CONTRACTOR SHALL COMPLETE SETS OF SUBMITTALS AS PER ABILENE'S FIRE MARSHAL REQUIREMENTS INCLUDING SHOP DRAWINGS AND HYDRAULIC CALCULATIONS TO THE FIRE MARSHAL FOR REVIEW, PRIOR TO ORDERING MATERIAL AND/OR CUTTING PIPE. CONTRACTOR SHALL NOT CUT ANY PIPING UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND ACCEPTED. THE CONTRACTOR SHALL SHOW IN DASHED LINES THE LOCATION OF ALL DUCTWORK, LIGHTS AND DIFFUSERS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SPRINKLER PIPING AND HEADS LOCATIONS WITH OTHER TRADES. CONTRACTOR SHALL RELOCATE SPRINKLER PIPING AND HEADS AS NECESSARY IN ORDER TO AVOID CONFLICT WITH DUCTWORK, LIGHTS AND STRUCTURE.
8. PROVIDE AUXILIARY DRAINS AT LOW POINTS IN SYSTEM AND FOR TRAPPED SECTIONS AS REQUIRED BY NFPA-13. LOCATE AUXILIARY DRAINS IN MECHANICAL CLOSETS OR OTHER LOCATIONS OUT OF SIGHT.
9. THE CONTRACTOR SHALL PERFORM A FLOW TEST PRIOR TO COMMENCING DESIGN AND SHALL PROVIDE TEST INFORMATION TO THE ARCHITECT FOR APPROVAL. SPRINKLER SYSTEM DESIGN SHALL BE BASED UPON THE CONTRACTOR'S FLOW TEST.
10. INSPECTION FEES: OBTAIN AND PAY FOR PERMITS, LICENSES AND INSPECTION FEES AS MAY BE REQUIRED FOR PERFORMANCE AND APPROVAL OF THE WORK PERFORMED UNDER THIS SECTION OF THE SPECIFICATIONS.
11. COMPLY WITH ALL REQUIREMENTS OF NFPA 13R AND THE STATE FIRE MARSHALL AND LOCAL CODES.
12. MATERIALS: MATERIALS SPECIFIED BY MANUFACTURER'S NAME SHALL BE USED UNLESS PRIOR APPROVAL OF A SUBSTITUTE IS GIVEN BY ADDENDA.
13. ALL MATERIALS USED IN THE FIRE PROTECTION SYSTEM SHOULD BE SUBMITTED FOR THE ARCHITECT'S APPROVAL PRIOR TO PURCHASING THE MATERIAL.
14. SUBMITTALS SHOULD COMPLY TO THE FIRE MARSHAL'S REQUIREMENTS AS DESCRIBED BELOW:
    - 14.1. FIRE PROTECTION/FIRE DETECTION PLANS SHALL BE CLEAR AND LEGIBLE AND ALL SHEETS SHALL BE IN A COMMON AND APPROPRIATE SCALE. A MINIMUM OF THREE (3) SETS OF PLANS (1) BEING IN DIGITAL FORMAT, AND MINIMUM OF ONE (1) SET OF SPECIFICATIONS/CUT SHEETS SHALL BE SUBMITTED. PLANS SHALL CONTAIN SUFFICIENT DETAIL TO ENABLE THE PLAN REVIEWER TO ACCOMPLISH A COMPLETE REVIEW.
    - 14.2. PLANS SHALL BE STAMPED BY A STATE OF TEXAS LICENSED RESPONSIBLE MANAGING EMPLOYEE (RME) OR A STATE OF TEXAS LICENSED PROFESSIONAL ENGINEER. AT LEAST ONE SET SUBMITTED FOR REVIEW SHALL BEAR AN ORIGINAL STAMP.
    - 14.3. SUBMIT DRAWINGS AND FIRE DEPARTMENT PERMIT APPLICATION TO THE FIRE PREVENTION DIVISION FOR REVIEW.
    - 14.4. ALL SUBMITTALS SHALL BE REVIEWED AND A FIRE PERMIT ISSUED PRIOR TO START OF ANY WORK.
    - 14.5. FIRE PERMIT AND FIRE DEPARTMENT STAMPED DRAWINGS SHALL BE AT JOB SITE DURING ALL WORK RELATED TO THE FIRE LINE.
    - 14.6. FIRE PROTECTION CONTRACTORS LICENSED FOR SUCH WORK BY THE STATE OF TEXAS SHALL PERFORM ALL FIRE PROTECTION/FIRE DETECTION WORK.
15. SPRINKLER HEADS SHALL BE REFERRED TO ON DRAWINGS, SUBMITTALS AND OTHER DOCUMENTATION, BY THE SPRINKLER IDENTIFICATION OR MODEL NUMBER AS SPECIFICALLY PUBLISHED IN THE APPROPRIATE AGENCY LISTING OR APPROVAL. TRADE NAMES OR OTHER ABBREVIATED DESIGNATIONS SHALL NOT BE ALLOWED.
16. TESTING PIPE SYSTEMS: TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE ARCHITECT OR HIS DESIGNATED REPRESENTATIVE. EQUIPMENT, MATERIALS, AND INSTRUMENTS FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER. AUTOMATIC SPRINKLER PIPING: THE AUTOMATIC SPRINKLER SYSTEMS SHALL BE HYDROSTATICALLY TESTED IN THEIR ENTIRETY OR IN ZONES DEFINED BY SHUT-OFF VALVES. THE PIPING SHALL BE TESTED AT A PRESSURE OF 200 PSIG , MEASURED AT THE LOW POINT IN THE SYSTEM OR ZONE, AND SHALL BE PROVED TIGHT AT THIS PRESSURE FOR A PERIOD OF NOT LESS THAN TWO HOURS. LEAKS DETECTED SHALL BE REPAIRED BY TIGHTENING, REWELDING JOINTS, OR REPLACING DAMAGED PIPE OR FITTINGS. CAULKING OF JOINTS WILL NOT BE PERMITTED.
17. DRY PIPE AIR TEST: ALL DRY PIPE PIPING SHALL BE TESTED AT 40 PSIG AND ALLOWED TO STAND FOR 24 HOURS. ALL LEAKS WHICH ALLOW A LOSS OF PRESSURE OVER 1½ PSI SHALL BE REPAIRED. COMPRESSED AIR SYSTEM: ALL PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF 150 PSIG FOR A PERIOD OF NOT LESS THAN 2 HOURS. NO LOSS IN PRESSURE WILL BE PERMITTED. LEAKS DETECTED SHALL BE REPAIRED BY TIGHTENING OR REPLACING PIPE AND FITTINGS. CAULKING OF JOINTS WILL NOT BE PERMITTED.
18. OPERATION AND MAINTENANCE INSTRUCTIONS: OPERATING AND MAINTENANCE INSTRUCTIONS, PRINTED AND BOUND IN HARD COVER THREE RING LOOSE LEAF NOTEBOOKS, SHALL BE PROVIDED FOR EACH ITEM OF EQUIPMENT LISTED BELOW; 5 SEPARATE COPIES SHALL BE PROVIDED (TO BE CONFIRMED WITH THE FIRE MARSHAL & THE ARCHITECT). EACH NOTEBOOK SHALL BE PROVIDED WITHIN AN IDENTIFYING LABEL UNDER A CLEAR PLASTIC COVER SHIELD ON THE FRONT COVER WHICH SHALL IDENTIFY THE PROJECT, ENGINEER, CONTRACTOR AND DATE. NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET NO. 25 PHOTO COPIES ARE NOT ACCEPTABLE. COPIES OF ALL APPROVED SUBMITTAL DATA (LISTED ABOVE UNDER SUBMITTALS). AS-BUILT COPIES OF DESIGN DRAWINGS AND HYDRAULIC CALCULATIONS.
19. SEISMIC REQUIREMENTS (ONLY WHERE APPLICABLE): PROVIDE SEISMIC PROTECTION FOR THE SPRINKLER SYSTEM. DESIGN AND INSTALL SEISMIC PROTECTION IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 SECTION TITLED "PROTECTION OF PIPING AGAINST DAMAGE WHERE SUBJECT TO EARTHQUAKES." SEISMIC REQUIREMENTS MAY BE WAIVED BY THE AUTHORITY HAVING JURISDICTION. PROVIDE WRITTEN DOCUMENTATION OF WAIVER.
21. SPRINKLER AND STANDPIPE: JOINTS: MECHANICAL GROOVED JOINT COUPLINGS SHALL BE LISTEFOR USE IN FIRE PROTECTION SYSTEMS.
22. GROOVED END FITTINGS: FITTINGS SHALL BE DUCTILE IRON (ASTM A536); FORGED STEEL (ASTM A234); OR FABRICATED FROM CARBON STEEL PIPE (ASTM A53); WITH PRE-GROOVED ENDS FOR USE WITH MECHANICAL COUPLINGS OF THE SAME MANUFACTURER.
23. MECHANICAL COUPLINGS: COUPLING HOUSINGS SHALL BE DUCTILE IRON (ASTM A536). BOLTS AND NUTS SHALL BE CARBON STEEL TRACK-TYPE (ASTM A183), MINIMUM TENSILE 110,000 PSI. GASKETS SHALL BE GRADE “E” EPDM, FOR WATER SERVICES FROM -30 TO +230EF. AT JOINTS ALLOWING CONTROLLED MOVEMENT, EXPANSION, CONTRACTION OF DEFLECTION, FLEXIBLE COUPLINGS WITH SHALL BE USED. AT ALL JOINTS NOT REQUIRING FLEXIBILITY, A RIGID COUPLING SHALL BE USED.
    - 23.1. RIGID TYPE: COUPLING HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS SHALL BE USED TO PROVIDE SYSTEM RIGIDITY AND SUPPORT AND HANGING IN ACCORDANCE WITH NFPA 13D.
    - 23.2. FLEXIBLE TYPE: USE IN LOCATIONS WHERE VIBRATION ATTENUATION AND STRESS RELIEF ARE REQUIRED.
24. FLANGE ADAPTER: FLAT FACE, FOR DIRECT CONNECTION TO ANSI CLASS 125 OR 150 FLANGED COMPONENTS UNDERGROUND PIPE: STANDARD WEIGHT DUCTILE IRON PIPE WITH MECHANICAL "BOLTED TYPE" JOINTS.
25. PROVIDE TIE RODS AND THRUST BLOCKS AT EACH CHANGE OF DIRECTION OF THE UNDERGROUND FIRE SERVICE PIPING. INSTALL TIE RODS AND THRUST BLOCKS IN ACCORDANCE WITH NFPA-24 REQUIREMENTS. FIRE DEPARTMENT VALVES: VALVES:
26. VALVES OF THE SAME TYPE SHALL HAVE THE NAME OR TRADEMARK OF THE MANUFACTURERS AND THE WORKING PRESSURE STAMPED OR CAST ON THE VALVE BODY.
27. ALL VALVES INSTALLED IN HORIZONTAL LINES SHALL BE INSTALLED WITH THE STEMS HORIZONTAL OR ABOVE. VALVE HANDWHEELS SHALL BE ORIENTED, WHEN INSTALLED, TO PROVIDE MAXIMUM ACCESSIBILITY FOR OPERATION.
28. ALL VALVES REQUIRING PACKING SHALL BE DESIGNED AND CONSTRUCTED SUCH THAT THEY CAN BE REPACKED UNDER PRESSURE.
29. VALVE HANDWHEELS SHALL BE MALLEABLE IRON.
30. FIRE DEPARTMENT VALVES: FIRE DEPARTMENT ANGLE VALVES SHALL BE 2½" SIZE PRESSURE REDUCING TYPE COMPLETE WITH CAP AND CHAIN. VALVES SHALL HAVE POLISHED BRASS FINISH AND SHALL BE ELKHART UP-25, POTTER-ROEMER 4085 OR EQUIVALENT BY NIBCO OR SIERRA.
31. SPRINKLER HEADS:
    - 31.1. SPRINKLER HEADS SHALL BE GLASS-BULB TYPE. BODY SHALL BE DIE CAST BRASS, WITH HEX-SHAPED WRENCH BOSS CAST INTO THE BODY TO FACILITATE INSTALLATION AND REDUCE THE RISK OF DAMAGE DURING INSTALLATION.
    - 31.2. SPRINKLER HEAD TYPES SHALL BE COORDINATED WITH THE ARCHITECT.
    - 31.3. UPRIGHT SPRINKLER HEADS SHALL BE ½ INCH SPRAY TYPE WITH BRONZE FINISH.SPRINKLERS SHALL BE VIKING OR CERTIFIED SPRINKLER, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER.
    - 31.4. PENDENT SPRINKLER HEADS UNLESS OTHERWISE INDICATED PENDENT SPRINKLER HEADS SHALL BE QUICK RESPONSE ½ INCH SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON PLATE. SPRINKLERS SHALL BE VIKING OR CERTIFIED SPRINKLER, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER.
    - 31.5. SIDEWALL SPRINKLER HEADS FOR DWELLINGS SHALL BE STANDARD RESPONSE ½ SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON. SPRINKLERS SHALL BE VIKING OR CERTIFIED SPRINKLER, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER.
    - 31.6. CONCEALED PENDENT SPRINKLER HEADS SHALL BE ½ INCH SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON AND CEILING PLAT. SPRINKLERS SHALL BE VIKING OR CERTIFIED SPRINKLER, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER.
32. HANGERS: SUPPORTS FOR VERTICAL LINES PASSING THROUGH FLOOR SHALL BE RISER CLAMP TYPE, FEE & MASON FIG. NO. 241, CARPENTER AND PATTERSON NO. 126 OR EQUIVALENT BY B-LINE, ANVIL OR ERICO. GENERAL: UNLESS SPECIFICALLY STATED OTHERWISE, THE FIRE PROTECTION SYSTEM SHALL CONFORM TO ALL OTHER SECTIONS OF THIS SPECIFICATION WHICH APPLY TO PIPE INSTALLATION, ACCESSORIES AND CONTROLS. ALL THREADED HOSE OUTLETS SHALL COMPLY WITH THE LOCAL FIRE DEPARTMENT REQUIREMENTS.
33. ALL SHOP DRAWINGS SUBMITTED ON ITEMS REQUIRING UNDERWRITERS' LISTING SHALL BEAR EVIDENCE OF UNDERWRITERS' APPROVAL.
34. ALL EXPOSED FIRE SYSTEM PIPING INCLUDING VALVE ROOM PIPING SHALL BE CLEANED OF RUST, GREASE AND SCALED AND SHALL BE PROVIDED WITH A FIELD APPLIED PRIME COAT AND TWO COATS OF AN OIL BASED ENAMEL PAINT. COLOR SHALL BE RED OR AS DIRECTED BY ARCHITECT.
35. THE CONTRACTOR SHALL PERFORM ALL TESTS OF FIRE PROTECTION SYSTEMS AS REQUIRED BY GOVERNING CODES AND LOCAL AUTHORITIES AT NO ADDITIONAL COST TO THE OWNER. TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE OWNERS REPRESENTATIVE. INSTALLATION: COORDINATE SPRINKLER INSTALLATION WITH BUILDING STRUCTURE AND OTHER TRADES. ROUTE [DRY PIPE] [ALARM] VALVE DRAINS TO [OUTSIDE BUILDING] [FLOOR DRAIN] AND TERMINATE 9" AFG.
36. VERIFY LOCATIONS OF LIGHTS AND DIFFUSERS PRIOR TO INSTALLING SPRINKLER HEADS AND PIPING.
37. SPRINKLER HEADS SHALL BE INSTALLED ON CENTERLINE WITH LIGHTS, DIFFUSERS AND DOORS, IN LIVING UNITS.
38. CEILING THE SPRINKLER HEADS SHALL BE INSTALLED IN THE CENTER OF 2' X 2' TILES AND IN THE CENTER OF THE ½ TILE IN 2' X 4' TILES.
39. CONTRACTOR SHALL PURGE AIR FROM ALL WET PIPE SPRINKLER SYSTEM PIPING PRIOR TO FINAL SYSTEM COMPLETION.
40. INSTALL A SPARE SPRINKLER CABINET NEAR THE SPRINKLER RISER. PROVIDE NUMBER OF SPARE SPRINKLERS AS REQUIRED BY NFPA-13R, WITH AT LEAST ONE SPARE FOR EACH TYPE OF HEAD INSTALLED.

INSTRUCTION TO BIDDERS:

1. AUTOMATIC SPRINKLER SYSTEM INSTALLATION PROCEDURES.
2. ABOVEGROUND PIPING SHALL BE EXPOSED DURING PRESSURE TESTS.
3. UNDERGROUND PIPING JOINTS AND THRUST BLOCKS SHALL BE EXPOSED DURING PRESSURE TESTS.
4. CONTACT FIRE PREVENTION AT LEAST 24 HOURS IN ADVANCE TO WITNESS PRESSURE TESTS AND INSPECT INSTALLATION.
5. SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH ABILENE FIRE CODE, NFPA AND
6. STATE OF TEXAS RULES AND REGULATIONS.
7. SPRINKLER SYSTEM HYDRAULIC DESIGN REQUIRED PRESSURE SHALL INCLUDE A MINIMUM SAFETY FACTOR OF 5 PSI.
8. THE PROPONENT, PRIOR TO DESIGN OF THE SPRINKLER SYSTEM, SHALL CONDUCT A WATER FLOW TEST. FIRE PREVENTION
9. SHALL WITNESS THE TEST. ONLY DATA FROM A TEST WITNESSED BY FIRE PREVENTION SHALL BE ACCEPTABLE.
10. PLANS SHALL BE STAMPED BY A STATE OF TEXAS LICENSED RESPONSIBLE MANAGING EMPLOYEE (RME) OR A
11. STATE OF TEXAS LICENSED PROFESSIONAL ENGINEER. AT LEAST ONE SET SUBMITTED FOR REVIEW SHALL BEAR AN
12. ORIGINAL STAMP.
13. SUBMIT DRAWINGS, HYDRAULIC CALCULATIONS AND FIRE DEPARTMENT PERMIT APPLICATION TO THE FIRE PREVENTION
14. DIVISION FOR REVIEW.
15. ALL SUBMITTALS SHALL BE REVIEWED AND A FIRE PERMIT ISSUED PRIOR TO START OF ANY WORK ON SPRINKLER SYSTEM,
16. INCLUDING UNDERGROUND PIPING FROM CITY MAIN.
17. FIRE PERMIT AND FIRE DEPARTMENT STAMPED DRAWINGS SHALL BE AT JOB SITE DURING ALL WORK RELATED TO
18. SPRINKLER SYSTEM.
19. FIRE PROTECTION CONTRACTORS LICENSED FOR SUCH WORK BY THE STATE OF TEXAS SHALL PERFORM ALL SPRINKLER
20. SYSTEM WORK, INCLUDING UNDERGROUND PIPING FROM CITY MAIN.

FIRE PROTECTION LIST OF DRAWINGS (LoD):

SENIOR HOUSING

1188 KING STREET,
GREENWICH, CT 06831

FIRE PROTECTION NOTES

Drawn By: M.J	Scale: NTS
Date: 03.04.2024	PROJ.NO.:

F-1.01

SHEET NO. 1 OF 6

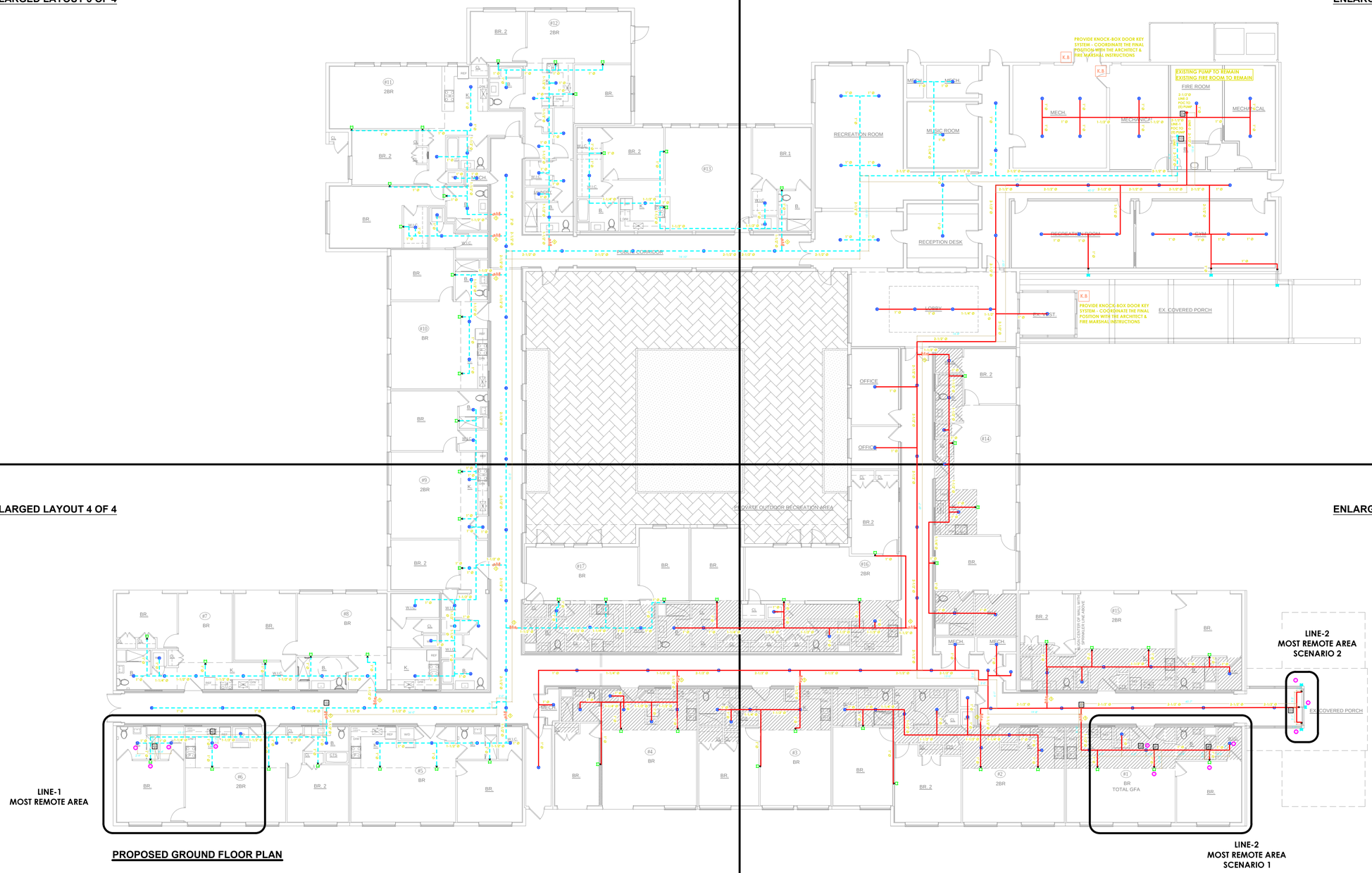
REFER TO MECHANICAL PLANS FOR THE HEATED SPACES

ENLARGED LAYOUT 3 OF 4

ENLARGED LAYOUT 1 OF 4

ENLARGED LAYOUT 4 OF 4

ENLARGED LAYOUT 2 OF 4



PROPOSED GROUND FLOOR PLAN

REFER TO MECHANICAL PLANS FOR THE HEATED SPACES

REFER TO MECHANICAL PLANS FOR THE HEATED SPACES

SENIOR HOUSING

1188 KING STREET,
GREENWICH, CT 06831

GROUND FLOOR FIRE SPRINKLER LAYOUT

Drawn By: M.J	Scale: 3/32" = 1'-0"
Date: 03.04.2024	PROJ.NO.:

F-2.01

SHEET NO. 3 OF 6

LINE 2 - SCENARIO 1
HYDRAULIC CALCS

General Project Data Report

General Data

Project Title:	1188 KING STREET, GREENWICH, CT 06831	Project File Name:	Line 2 - Scenario 1.fiw
Designed By:		Date:	March 07, 2024
Code Reference:		Approving Agency:	
Client Name:		Phone:	
Address:		City, State Zip Code:	
Company Name:		Representative:	
Company Address:		City And State:	
Phone:			
Building Name:		Building Owner:	
Contact at Building:		Phone at Building:	
Address Of Building:		City, State Zip Code:	

Project Data

Description Of Hazard:	Light Hazard	Sprinkler System Type:	Wet
Design Area Of Water Application:	852 ft²	Maximum Area Per Sprinkler:	213 ft²
Default Sprinkler K-Factor:	4.90 K	Default Pipe Material:	SCHED 40 WET STEEL
Inside Hose Stream Allowance:	0.00 gpm	Outside Hose Stream Allowance:	0.00 gpm
In Rack Sprinkler Allowance:	0.00 gpm		

Sprinkler Specifications

Make:		Model:	
Size:	1/2	Temperature Rating:	162 F

Water Supply Test Data

Source Of Information:			
Test Hydrant ID:		Date Of Test:	
Hydrant Elevation:	0 ft	Static Pressure:	0.00 psi
Test Flow Rate:	491.10 gpm	Test Residual Pressure:	80.00 psi
Calculated System Flow Rate:	77.63 gpm	Calculated Inflow Residual Pressure:	49.09 psi

Calculation Project Data

Calculation Mode:	Demand		
HMD Minimum Residual Pressure:	7.00 psi	Minimum Desired Flow Density:	0.07 gpm/ft²
Number Of Active Nodes:	12		
Number Of Active Pipes:	11	Number Of Inactive Pipes:	0
Number Of Active Sprinklers:	4	Number Of Inactive Sprinklers:	0

Fire Sprinkler Input Data

Node Input Data

Node No.	Node Description / Branch Description	Area Group / Branch Dia. (in)	Sprinkler KFactor (K) / Branch Len. (ft)	Pressure Estimate (psi) / Branch Stnd Fittings	Node Elev (ft) / Branch Non-Stnd Fittings (ft)	Non-Sprinkler Flow (gpm) / Branch Sprk KFactor (K)
1	Sprinkler	----	4.90	9.26	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
2	Sprinkler	----	5.80	9.50	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
3	Sprinkler	----	5.80	15.86	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
4	Sprinkler	----	4.90	19.69	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
200	No Discharge	----	N/A	10.24	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
201	No Discharge	----	N/A	17.39	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
202	No Discharge	----	N/A	20.60	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
203	No Discharge	----	N/A	32.72	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
204	No Discharge	----	N/A	47.08	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
300	No Discharge	----	N/A	48.09	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
301	No Discharge	----	N/A	49.09	9.00	0.00
	----	0.000	0.0	----	0.0	0.00
302	No Discharge	----	N/A	49.09	9.00	0.00
	----	0.000	0.0	----	0.0	0.00

Fire Sprinkler Input Data

Pipe Input Data

Beg. Node	End. Node	Pipe Description	Nominal Diameter (inch)	Type Group	Fitting Data	Nominal Length (feet)	Fitting Length (feet)	Total Length (feet)	CFactor (gpm/inch-psi)
1	200	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
2	200	SCHED 40 WET STEEL	1.000	0	T	2.00	5.00	7.00	120
3	201	SCHED 40 WET STEEL	1.000	0	T	4.00	5.00	9.00	120
4	202	SCHED 40 WET STEEL	1.000	0	T	1.00	5.00	6.00	120
200	201	SCHED 40 WET STEEL	1.000	0	2T	12.00	10.00	22.00	120
201	202	SCHED 40 WET STEEL	1.250	0	2T	2.00	12.00	14.00	120
202	203	SCHED 40 WET STEEL	1.500	0	E4T	25.00	36.00	61.00	120
203	204	SCHED 40 WET STEEL	2.500	0	5E25T	250.00	330.00	580.00	120
204	300	Alarm Check Valve	1.000	Loss					
300	301	Backflo Prev	1.000	Loss					
301	302	SCHED 40 WET STEEL	6.000	0		1.00	0.00	1.00	120

Fire Sprinkler Output Data

Overall Node Groupings Output Data

Pipe Segment Beg. Node	Pipe Segment End. Node	Pipe Type Group	Pipe Flow Rate (gpm)	Sprinkler Flow At Beg. Node (gpm)	Non-Sprinkler Flow Out (+) (gpm)	Non-Sprinkler Flow In (-) (gpm)	Beg. Node Residual Pressure (psi)	Imbalance Flow At Beg. Node (gpm)
1	200	0	-14.91	14.91	0.00	0.00	9.26	
2	200	0	-17.88	17.88	0.00	0.00	9.50	0.00000
3	201	0	-23.10	23.10	0.00	0.00	15.86	0.00000
4	202	0	-21.74	21.74	0.00	0.00	19.69	0.00000
200	1	0	14.91	0.00	0.00	0.00	10.24	0.00000
200	2	0	17.88					
200	201	0	-32.79					
201	3	0	23.10	0.00	0.00	0.00	17.39	0.00000
201	200	0	32.79					
201	202	0	-55.89					
202	4	0	21.74	0.00	0.00	0.00	20.60	0.00000
202	201	0	55.89					
202	203	0	-77.63					
203	202	0	77.63	0.00	0.00	0.00	32.72	0.00000
203	204	0	-77.63					
204	203	0	77.63	0.00	0.00	0.00	47.08	0.00000
204	300	0	-77.63					
300	204	0	77.63	0.00	0.00	0.00	48.09	0.00000
300	301	0	-77.63					
301	300	0	77.63	0.00	0.00	0.00	49.09	0.00000
301	302	0	-77.63					
302	301	0	77.63	0.00	0.00	-77.63	49.09	

Fire Sprinkler Output Data

Overall Pipe Output Data

Beg. End. Node	Nodal KFactor (K)	Elevation (feet)	Spk/Hose Discharge (gpm)	Residual Pressure (psi)	Nom. Dia. Inside Dia. C-Value	q (gpm) Q (gpm) Velocity (fps)	F. L./ft (psi/ft) Fittings Type-Grp	Pipe-Len. Fit-Len. Tot-Len. (ft)	PF-(psi) PE-(psi) PT-(psi)
1	4.90	9.00	14.91	9.26	1.00	14.91	0.07561	6.00	0.983
200	0.00	9.00	0.00	10.24	1.049	14.91	ET	7.00	0.000
	SCHED 40 WET STEEL				120	5.54	0	13.00	0.983
2	5.80	9.00	17.88	9.50	1.00	17.88	0.10579	2.00	0.741
200	0.00	9.00	0.00	10.24	1.049	17.88	T	5.00	0.000
	SCHED 40 WET STEEL				120	6.64	0	7.00	0.741
3	5.80	9.00	23.10	15.86	1.00	23.10	0.16994	4.00	1.529
201	0.00	9.00	0.00	17.39	1.049	23.10	T	5.00	0.000
	SCHED 40 WET STEEL				120	8.57	0	9.00	1.529
200	0.00	9.00	0.00	10.24	1.00	0.00	0.32491	12.00	7.148
201	0.00	9.00	0.00	17.39	1.049	32.79	2T	10.00	0.000
	SCHED 40 WET STEEL				120	12.17	0	22.00	7.148
4	4.90	9.00	21.74	19.69	1.00	21.74	0.15193	1.00	0.912
202	0.00	9.00	0.00	20.60	1.049	21.74	T	5.00	0.000
	SCHED 40 WET STEEL				120	8.07	0	6.00	0.912
201	0.00	9.00	0.00	17.39	1.25	0.00	0.22919	2.00	3.209
202	0.00	9.00	0.00	20.60	1.380	55.89	2T	12.00	0.000
	SCHED 40 WET STEEL				120	11.99	0	14.00	3.209
202	0.00	9.00	0.00	20.60	1.50	0.00	0.19870	25.00	12.121
203	0.00	9.00	0.00	32.72	1.610	77.63	E4T	36.00	0.000
	SCHED 40 WET STEEL				120	12.23	0	61.00	12.121
203	0.00	9.00	0.00	32.72	2.50	0.00	0.02477	250.00	14.365
204	0.00	9.00	0.00	47.08	2.469	77.63	5E25T	330.00	0.000
	SCHED 40 WET STEEL				120	5.20	0	580.00	14.365
204	ACV	9.00		47.08		77.63			
300	1.00 psi	9.00		48.09					
300	Backflo Prev	9.00		48.09		77.63			
301	1.00 psi	9.00		49.09					
301	0.00	9.00	0.00	49.09	6.00	0.00	0.00031	1.00	0.000
302	0.00	9.00	0.00	49.09	6.065	77.63	-----	0.00	0.000
	SCHED 40 WET STEEL				120	0.86	0	1.00	0.000

Fire Sprinkler Output Data

Overall Sprinkler Output Data

Flowing Sprinkler Node No.	Area Group Code	Sprinkler KFactor (K)	Sprinkler Elevation (feet)	Residual Pressure (psi)	Flowing Area (ft²)	Flowing Density (gpm/ft²)	Sprinkler Discharge (gpm)
1		4.90	9.00	9.26	213.00	0.070	14.91
Sub Totals For Non-Group					213.00	0.070	14.91
2		5.80	9.00	9.50	213.00	0.084	17.88
Sub Totals For Non-Group					213.00	0.084	17.88
3		5.80	9.00	15.86	213.00	0.108	23.10
Sub Totals For Non-Group					213.00	0.108	23.10
4		4.90	9.00	19.69	213.00	0.102	21.74
Sub Totals For Non-Group					213.00	0.102	21.74
Totals For All Groups					852.00	0.091	77.63

Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	1
HMD Actual Residual Pressure:	9.26 psi
HMD Actual GPM:	14.91 gpm

Sprinkler Summary

Sprinkler System Type:	Wet
Specified Area Of Application:	852.00 ft²
Minimum Desired Density:	0.070 gpm/ft²
Application Average Density:	0.091 gpm/ft²
Application Average Area Per Sprinkler:	213.00 ft²
Sprinkler Flow:	77.63 gpm
Average Sprinkler Flow:	19.41 gpm

Flow Velocity And Imbalance Summary

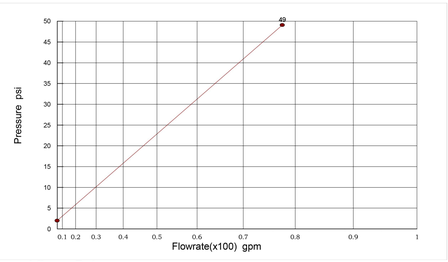
Maximum Flow Velocity (In Pipe 202 - 203)	12.23 ft/sec
Maximum Velocity Pressure (In Pipe 202 - 203)	1.01 psi
Allowable Maximum Nodal Pressure Imbalance:	0.0000 psi
Actual Maximum Nodal Pressure Imbalance:	0.0000 psi
Actual Average Nodal Pressure Imbalance:	0.0000 psi
Actual Maximum Nodal Flow Imbalance:	0.0000 gpm
Actual Average Nodal Flow Imbalance:	0.0000 gpm

Overall Network Summary

Number Of Unique Pipe Sections:	11
Number Of Flowing Sprinklers:	4
Pipe System Water Volume:	67.60 gal
Sprinkler Flow:	77.63 gpm
Non-Sprinkler Flow:	0.00 gpm
Minimum Required Residual Pressure At System Inflow Node:	49.09 psi
Demand Flow At System Inflow Node:	77.63 gpm

Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Demand Curve Data

Calculated Residual Pressure: 49.09 psi
Calculated Flow Rate: 77.63 gpm
Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: 2.00 psi

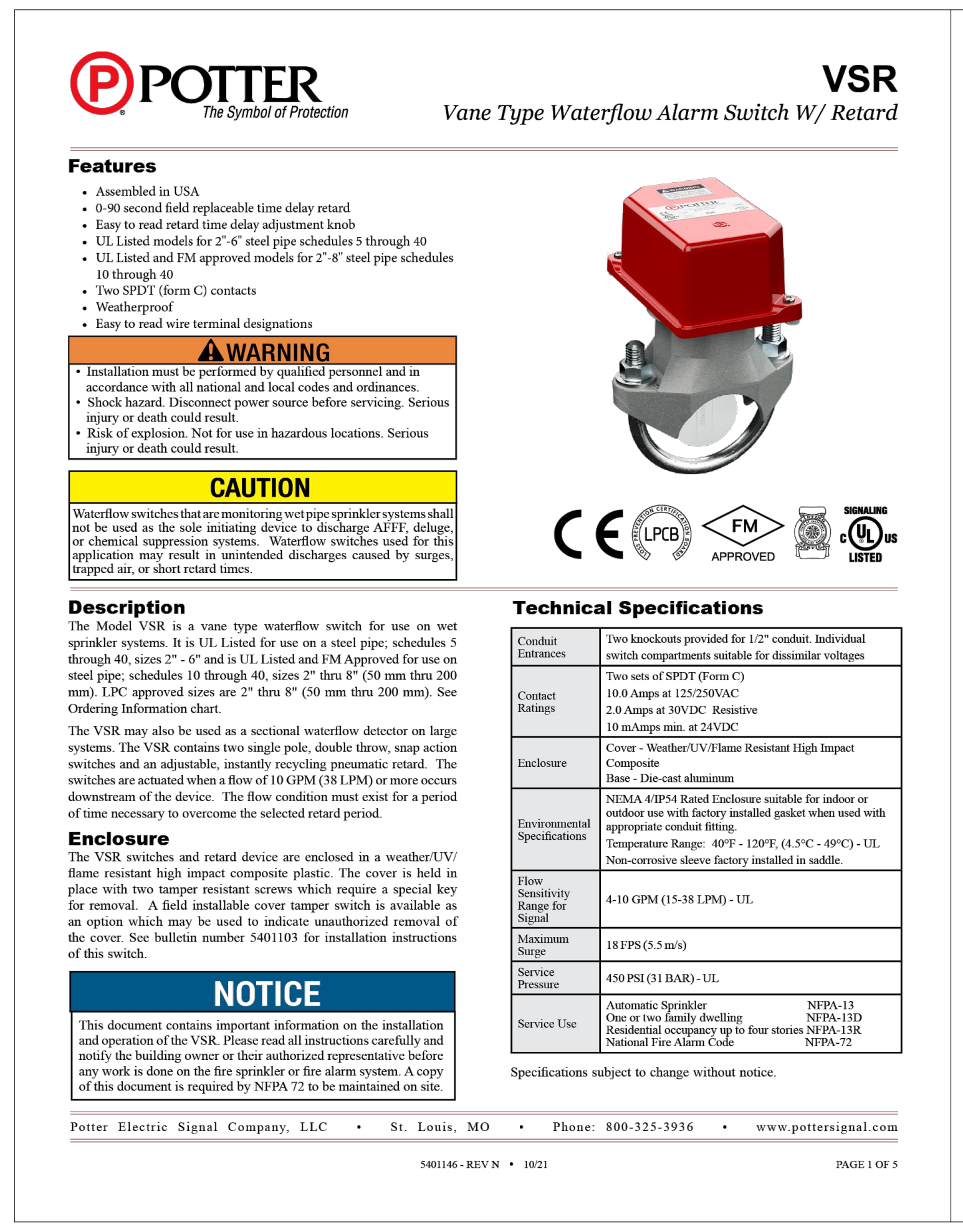
SENIOR HOUSING
1188 KING STREET,
GREENWICH, CT 06831

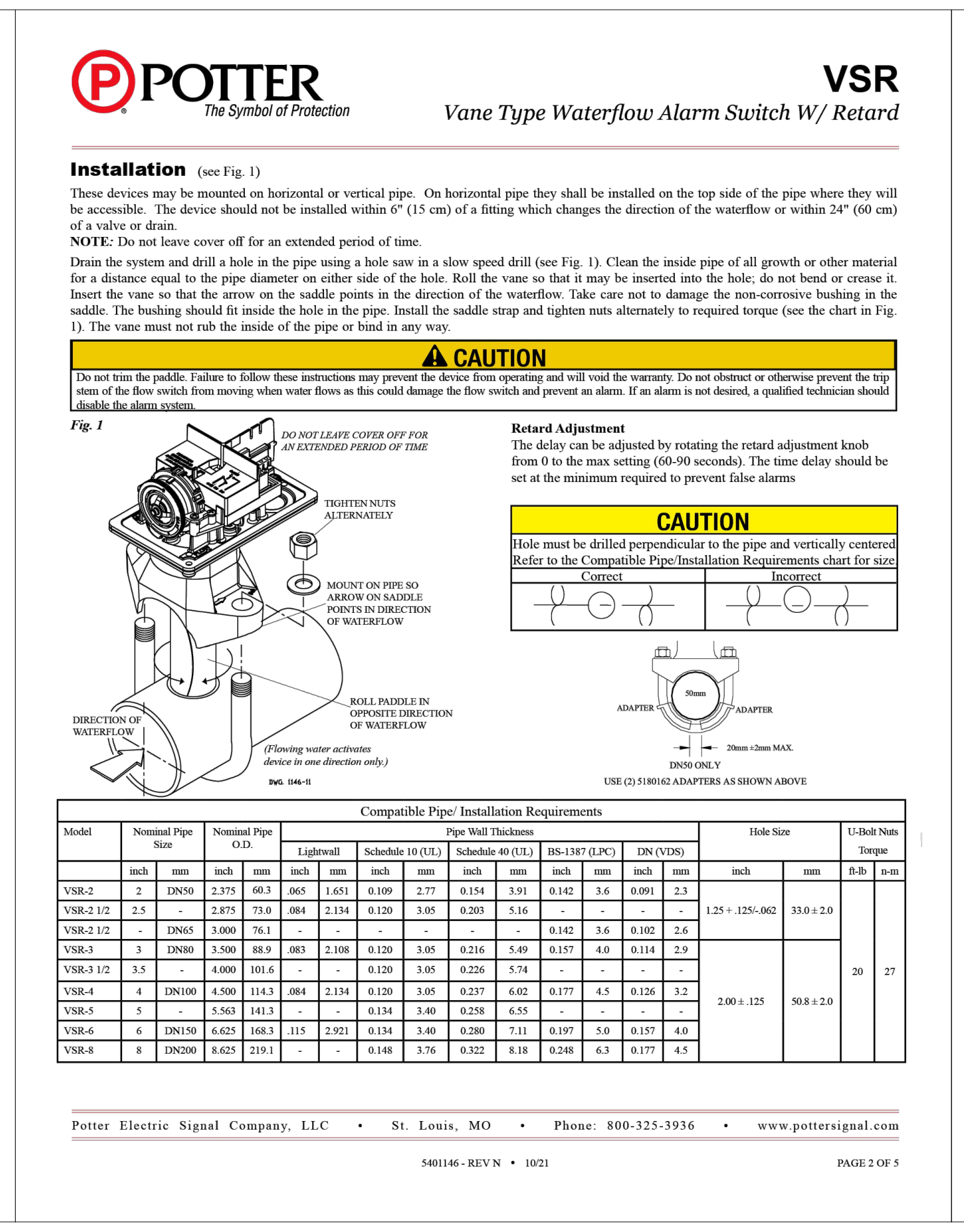
LINE 2 - SCENARIO 1
FIRE HYDRAULIC
CALCS
SHEET # 2 OF 3

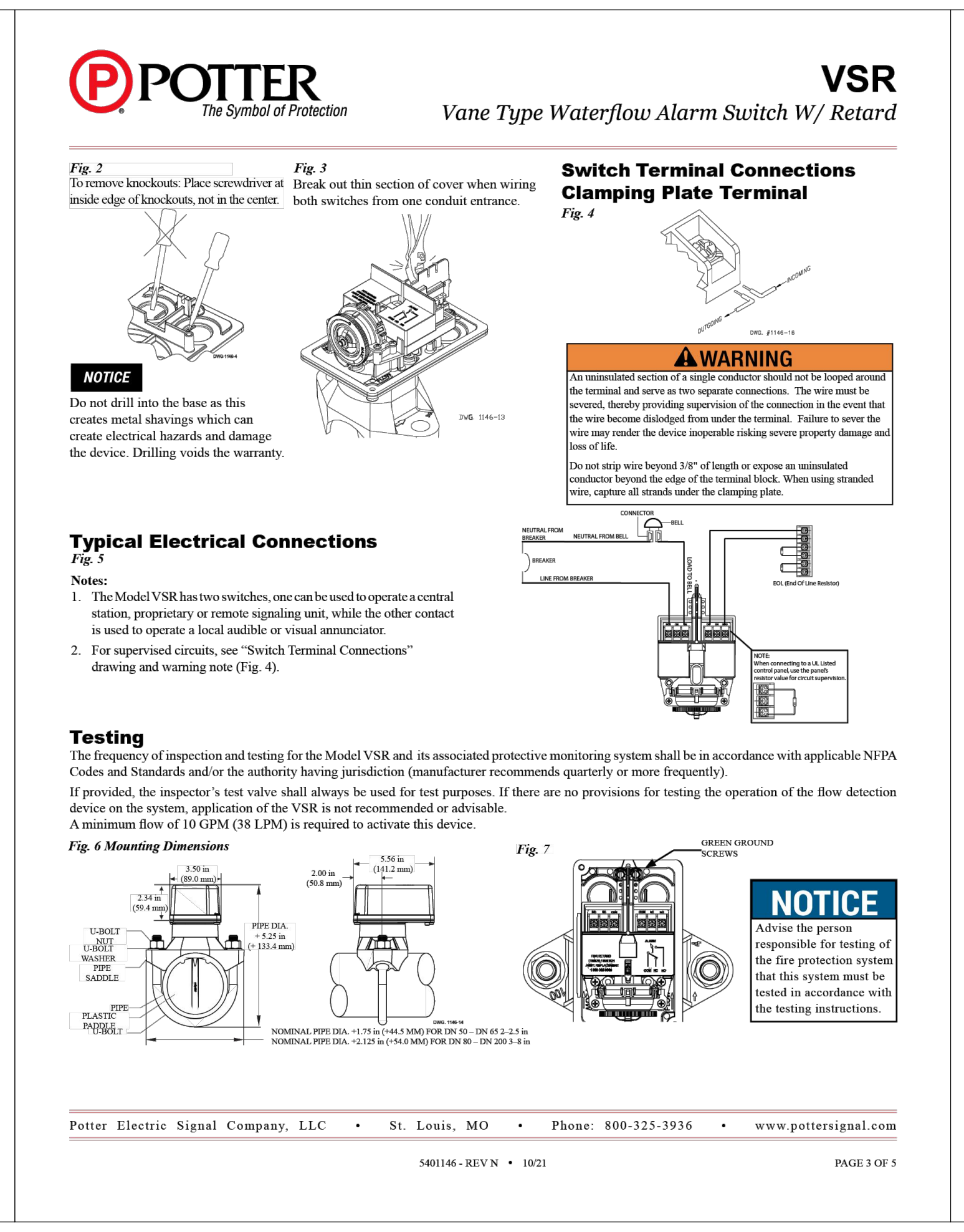
Drawn By: M.J	Scale: NTS
Date: 03.04.2024	PROJ.NO.:

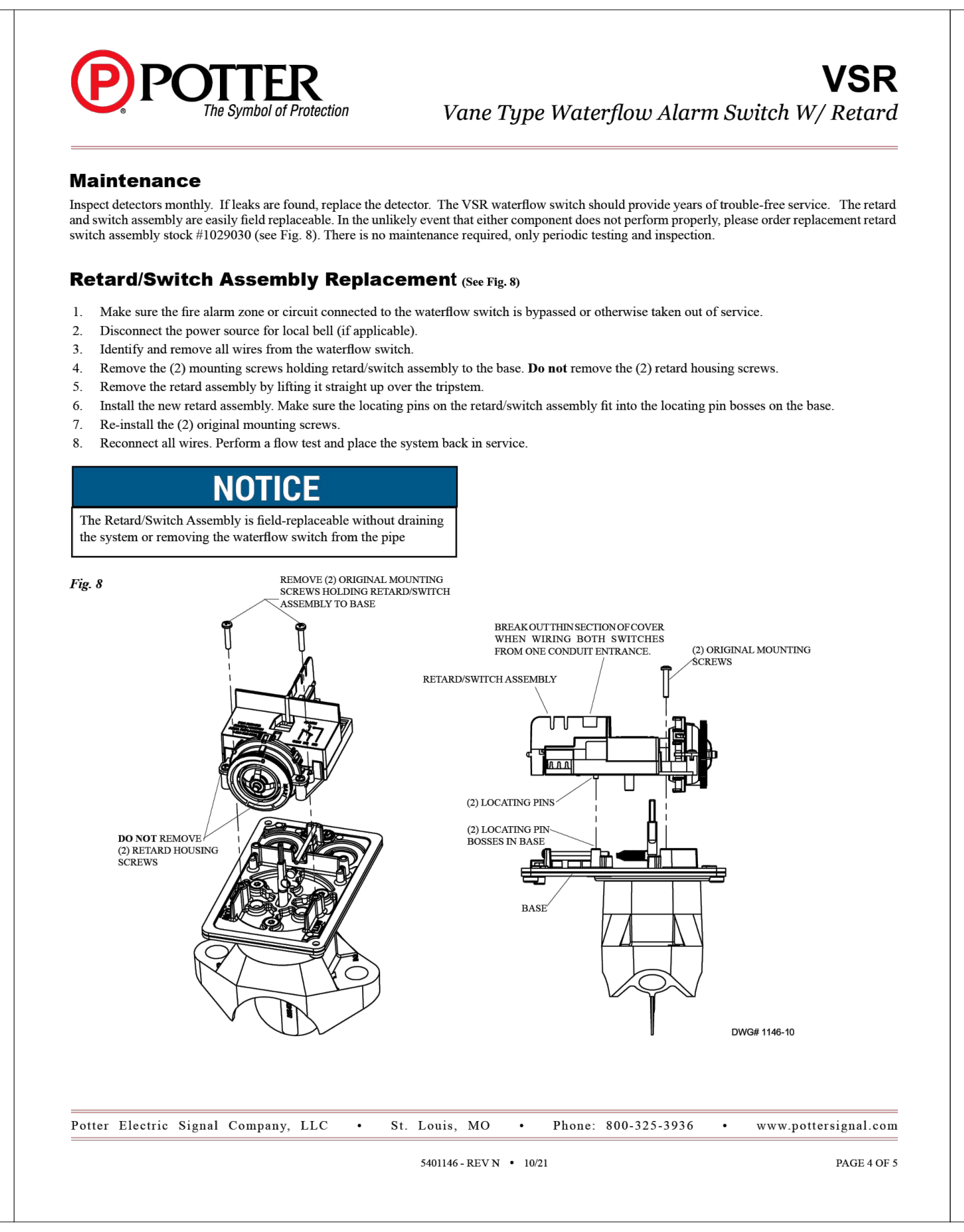
F-4.02

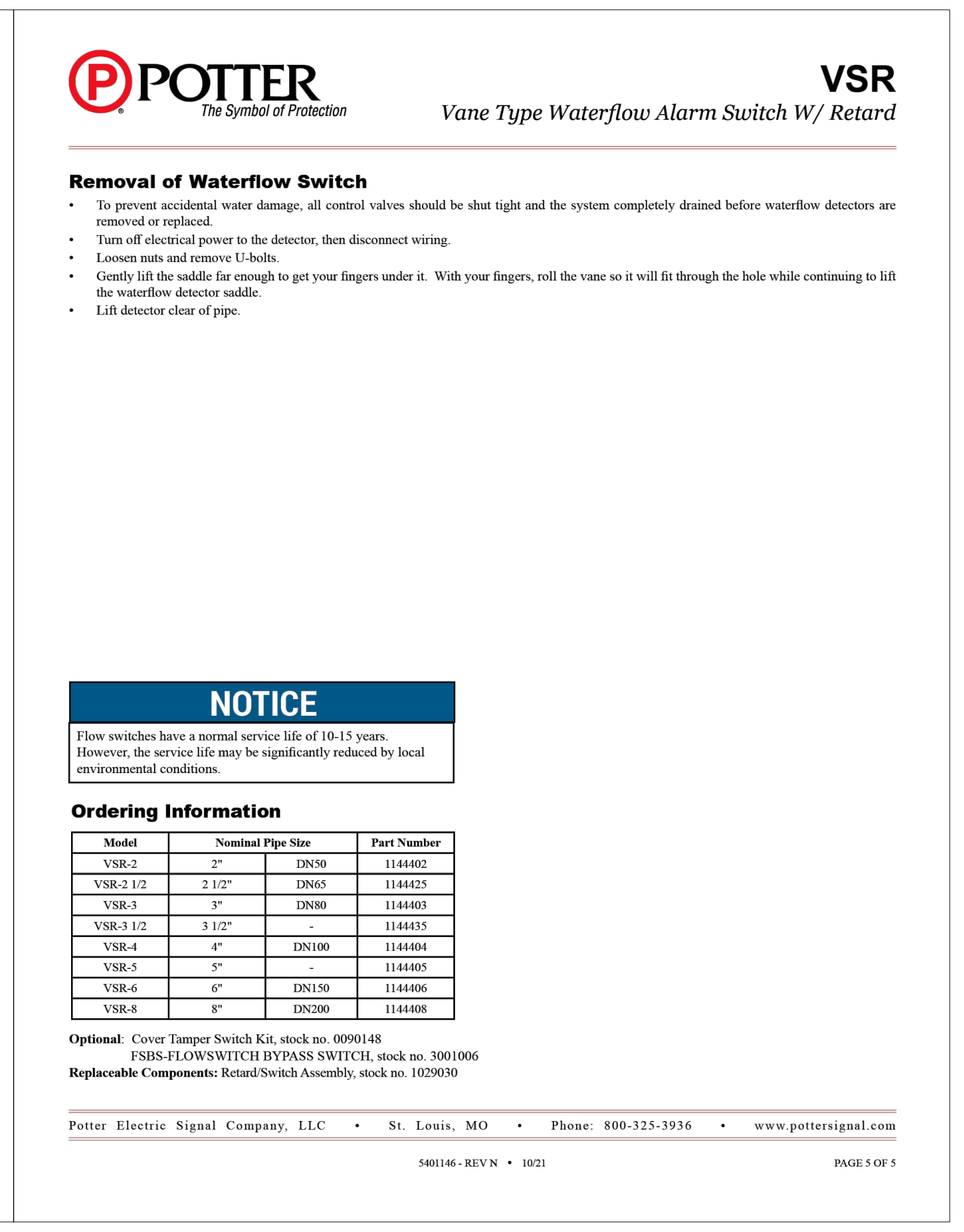
SHEET NO. 6 OF 6

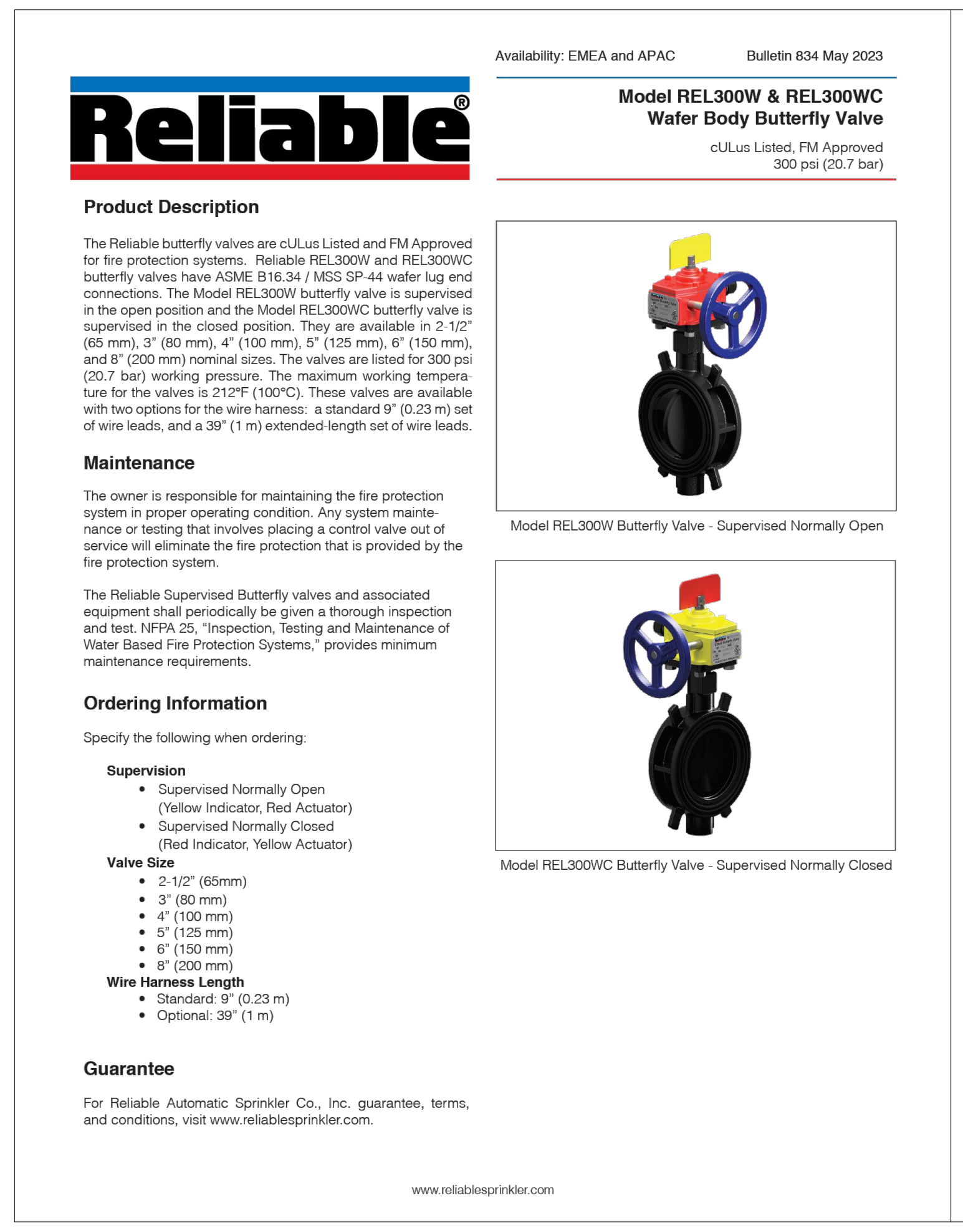

POTTER The Symbol of Protection
VSR Vane Type Waterflow Alarm Switch W/ Retard
Features
Description
Enclosure
Technical Specifications
NOTICE

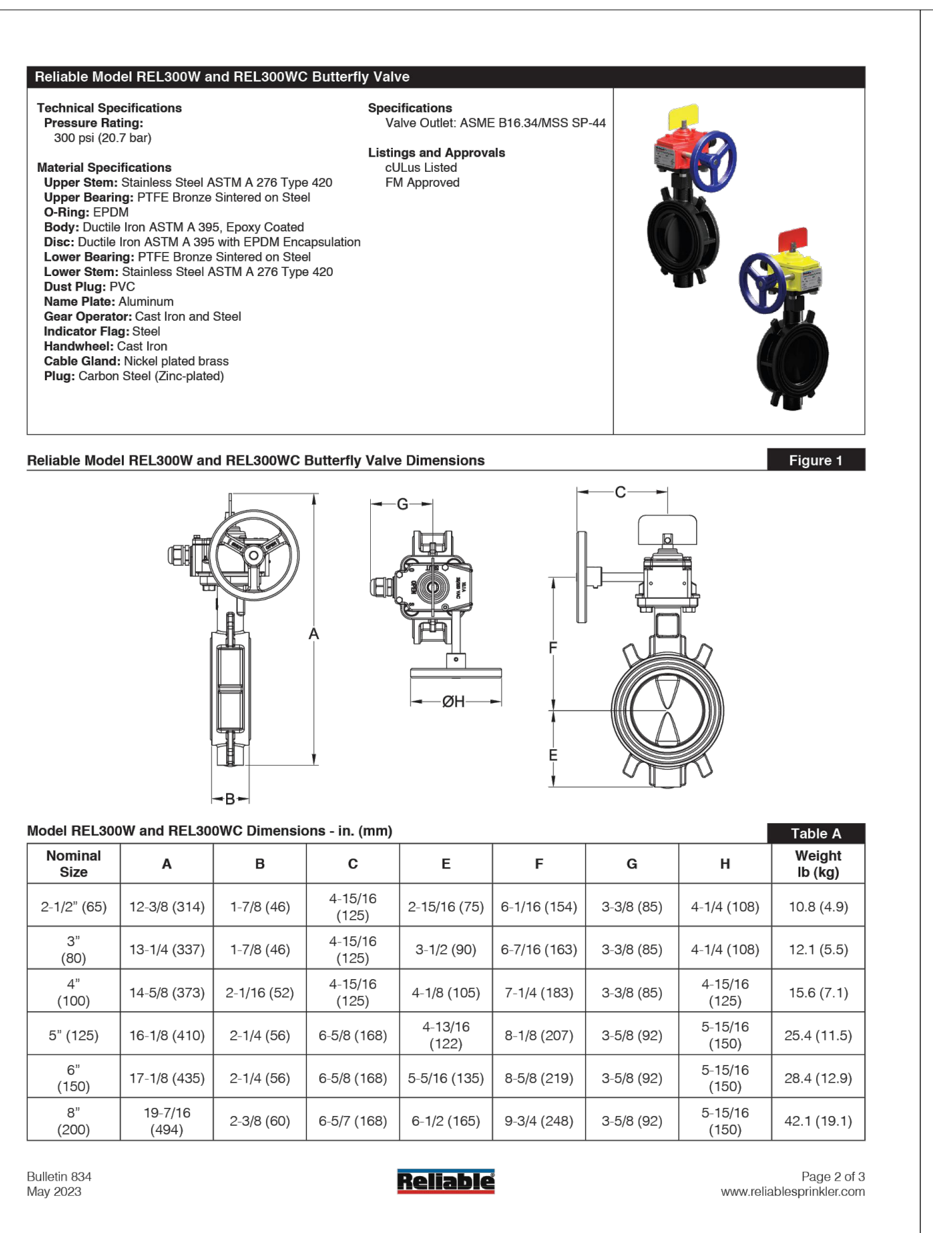

POTTER The Symbol of Protection
VSR Vane Type Waterflow Alarm Switch W/ Retard
Installation
CAUTION

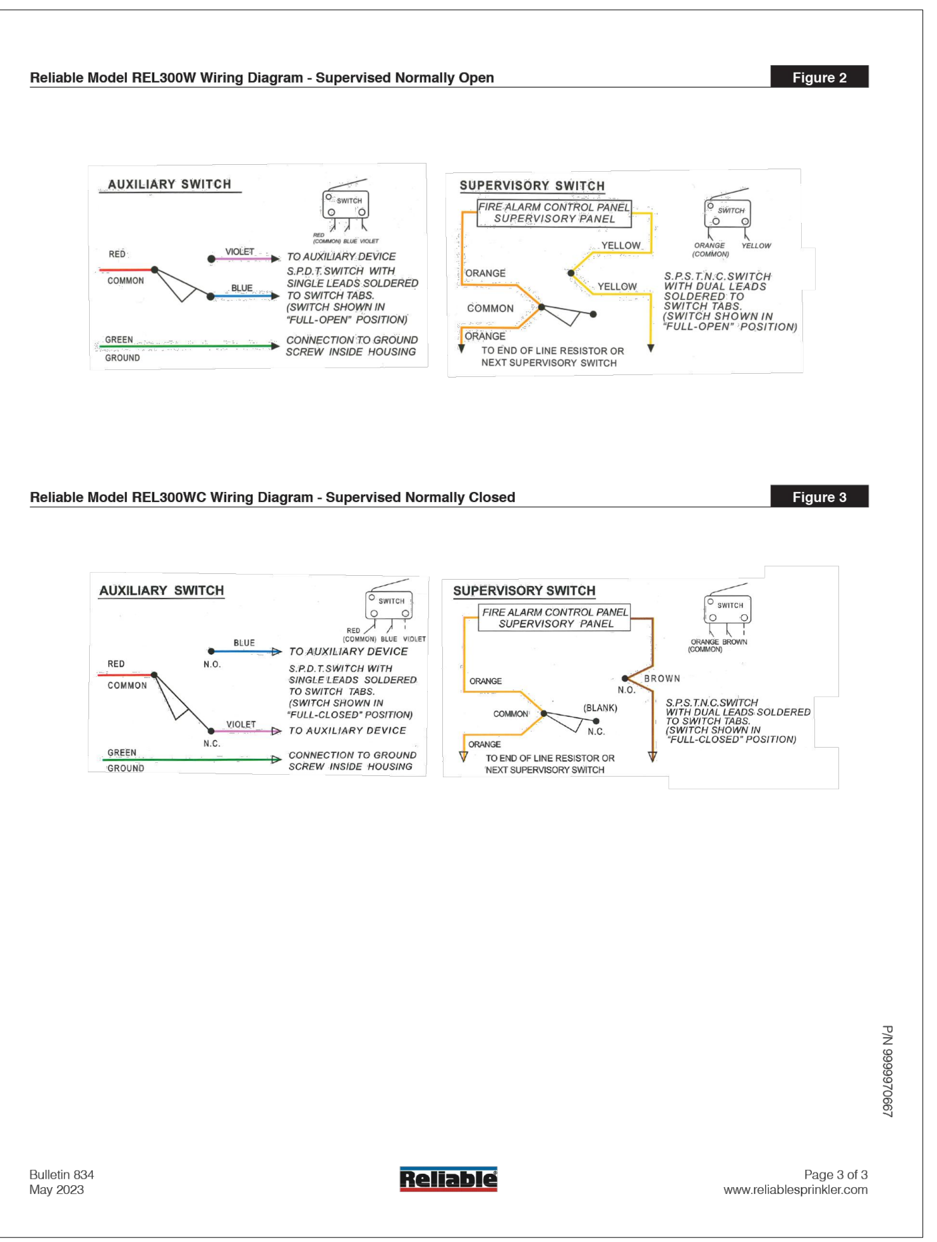

POTTER The Symbol of Protection
VSR Vane Type Waterflow Alarm Switch W/ Retard
Switch Terminal Connections Clamping Plate Terminal
Typical Electrical Connections
Testing
NOTICE

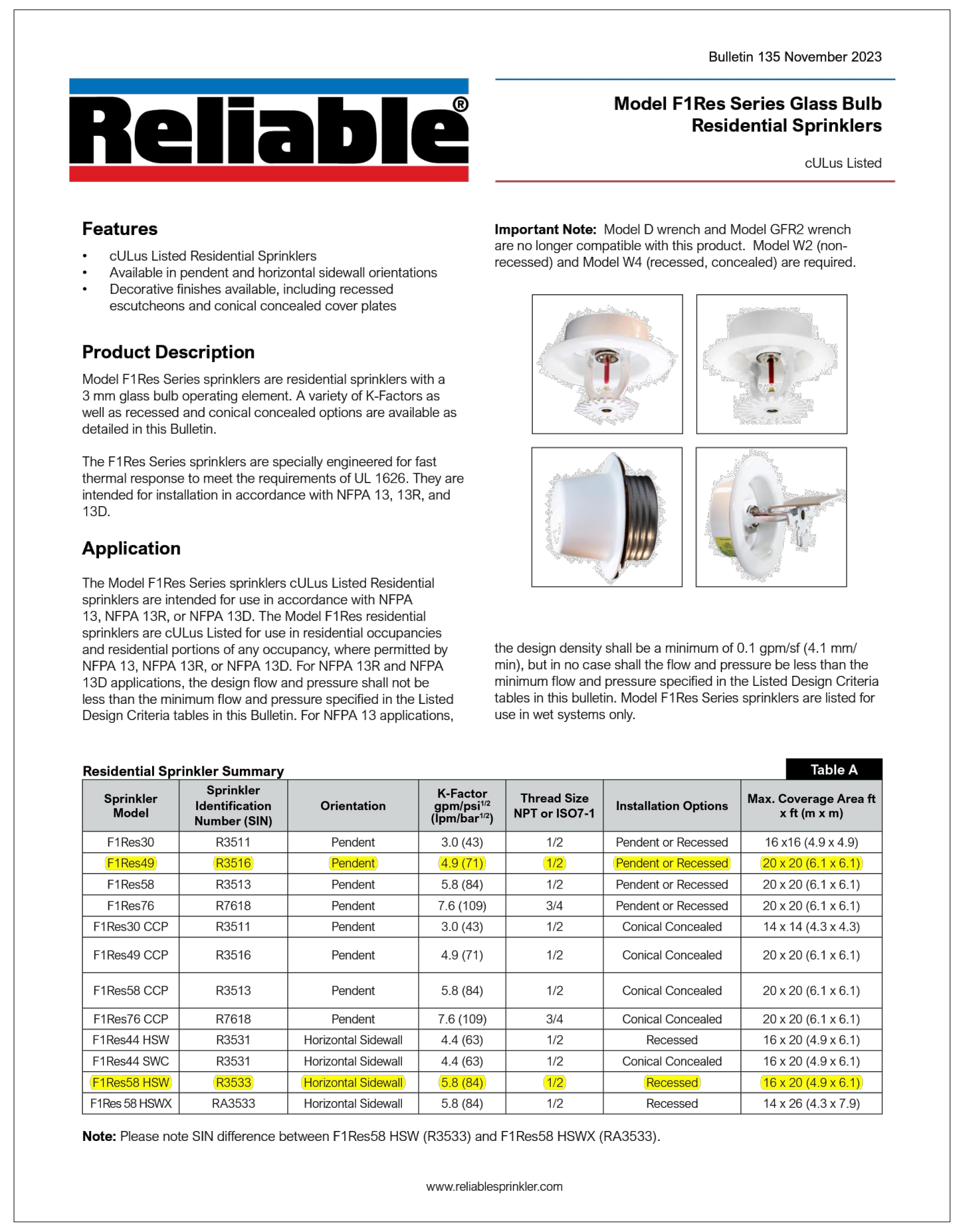

POTTER The Symbol of Protection
VSR Vane Type Waterflow Alarm Switch W/ Retard
Maintenance
Retard/Switch Assembly Replacement
NOTICE

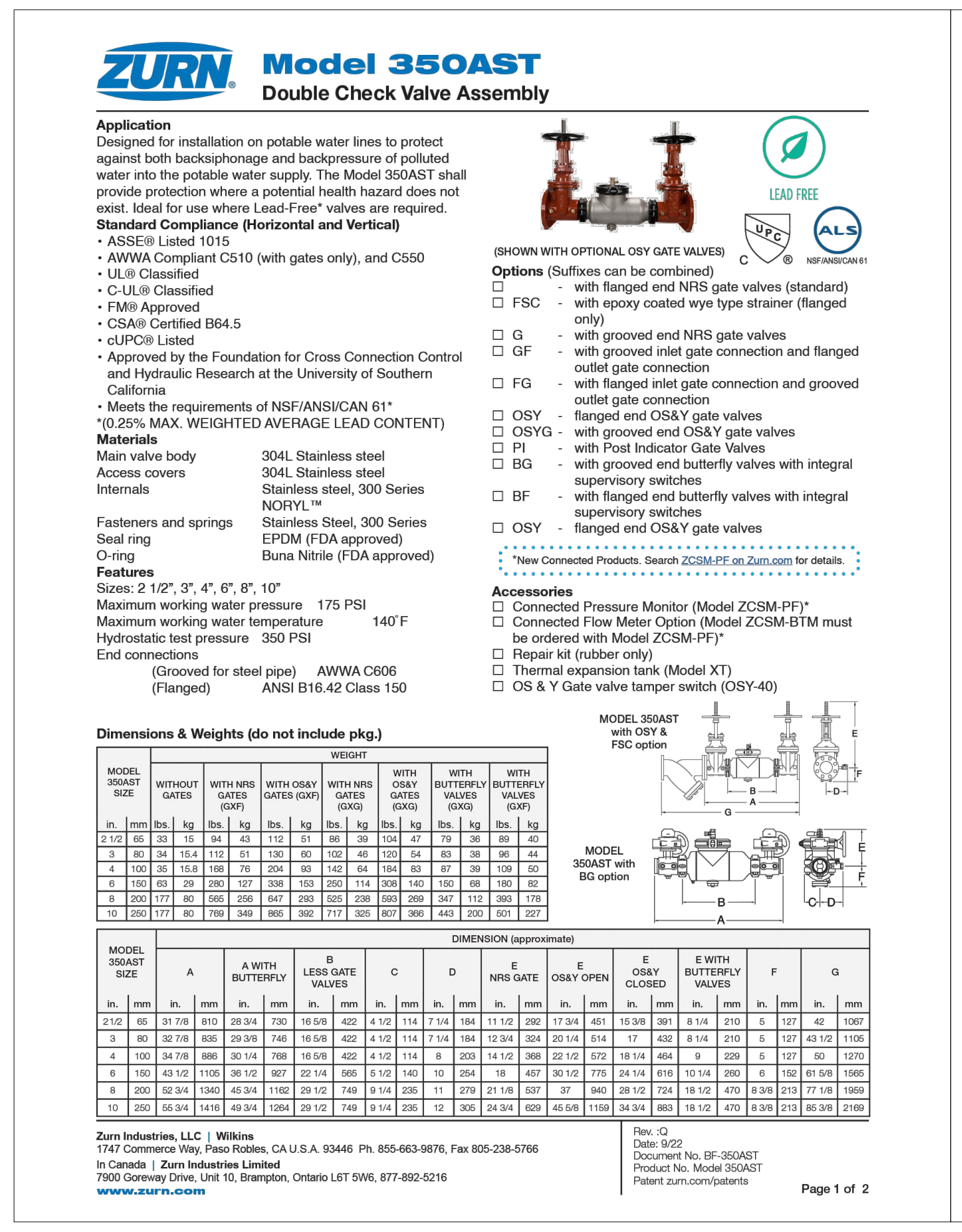

POTTER The Symbol of Protection
VSR Vane Type Waterflow Alarm Switch W/ Retard
Removal of Waterflow Switch
NOTICE
Ordering Information

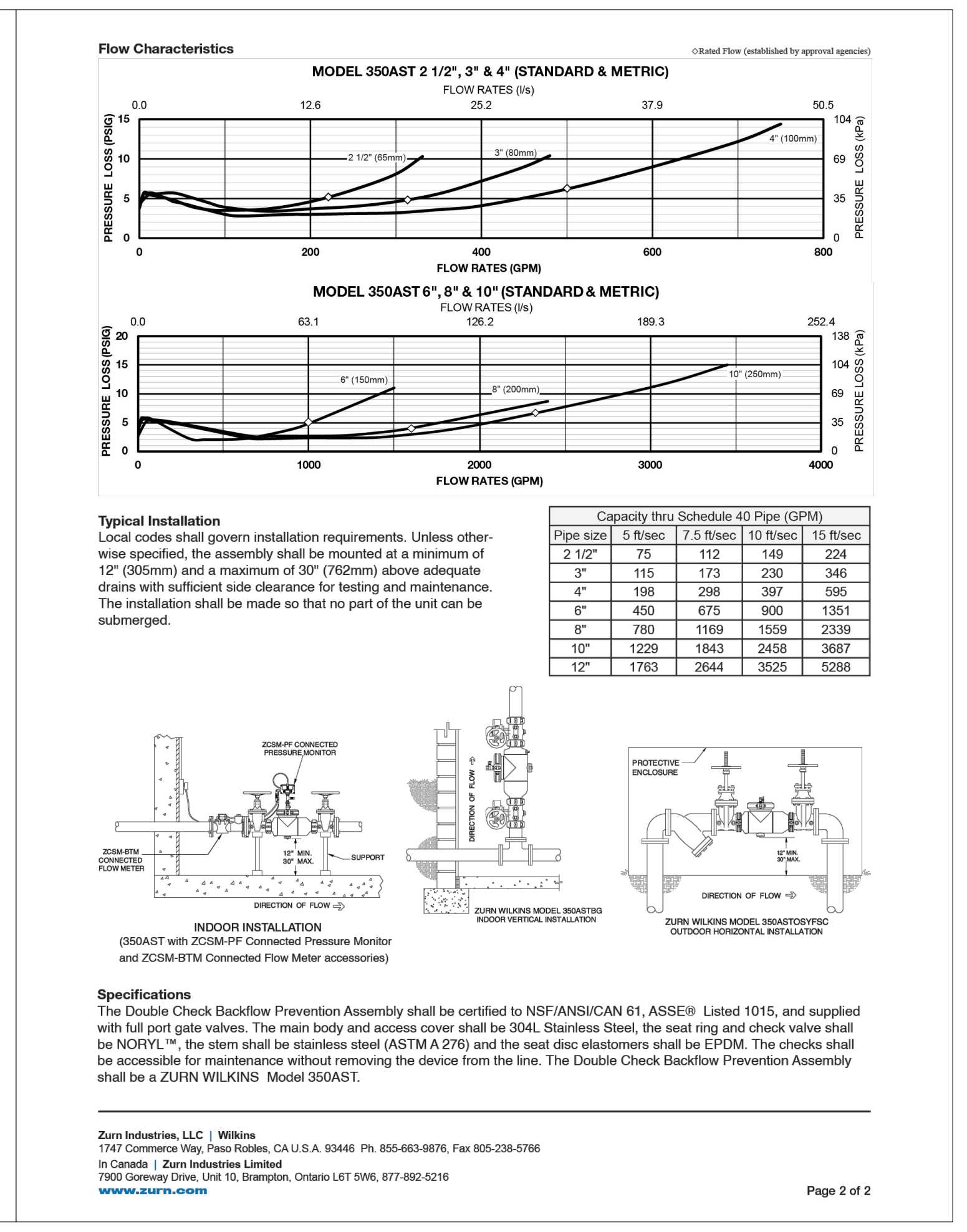

Reliable
Model REL300W & REL300WC Wafer Body Butterfly Valve
Product Description
Maintenance
Ordering Information
Guarantee

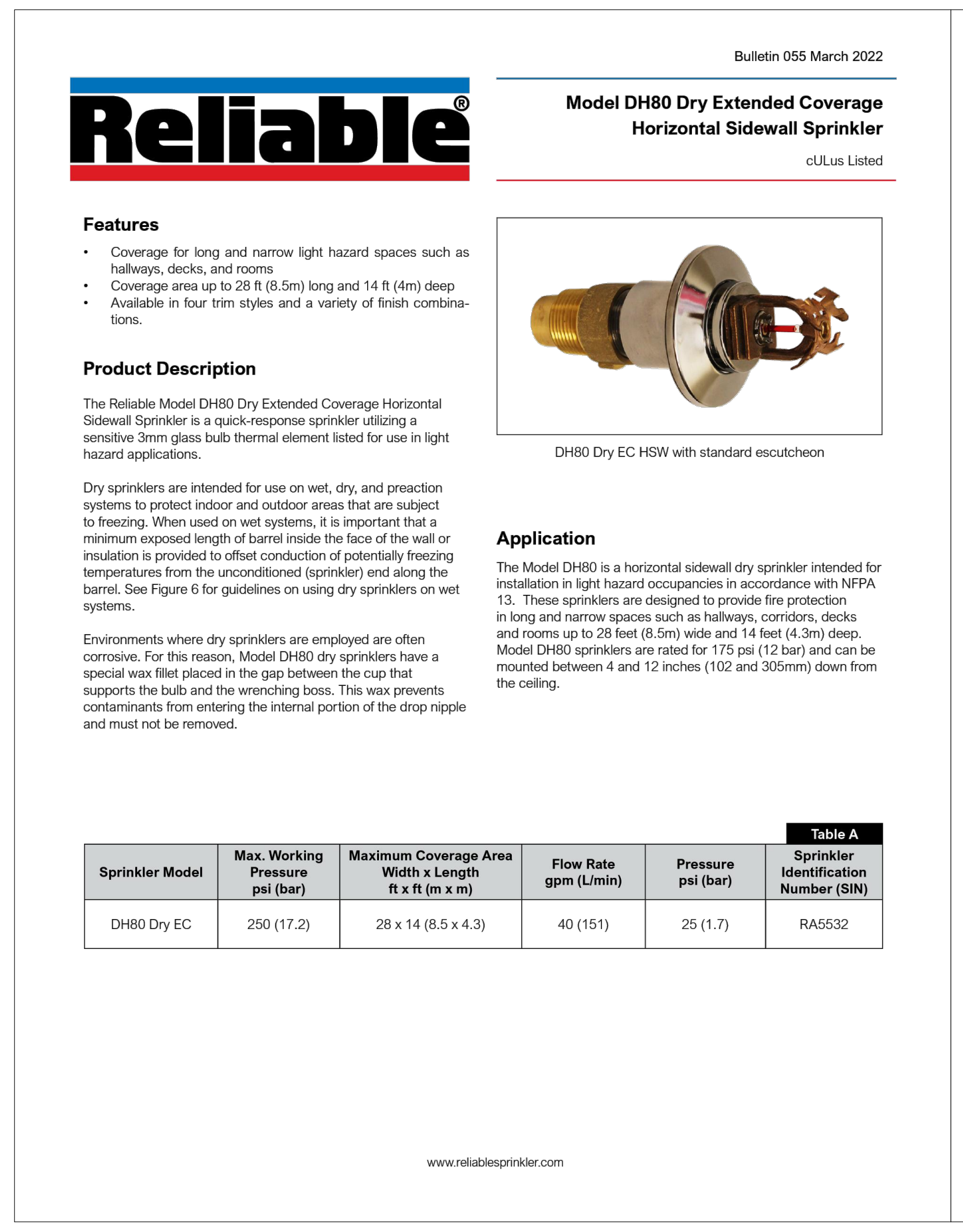

Reliable Model REL300W and REL300WC Butterfly Valve
Reliable Model REL300W and REL300WC Butterfly Valve Dimensions

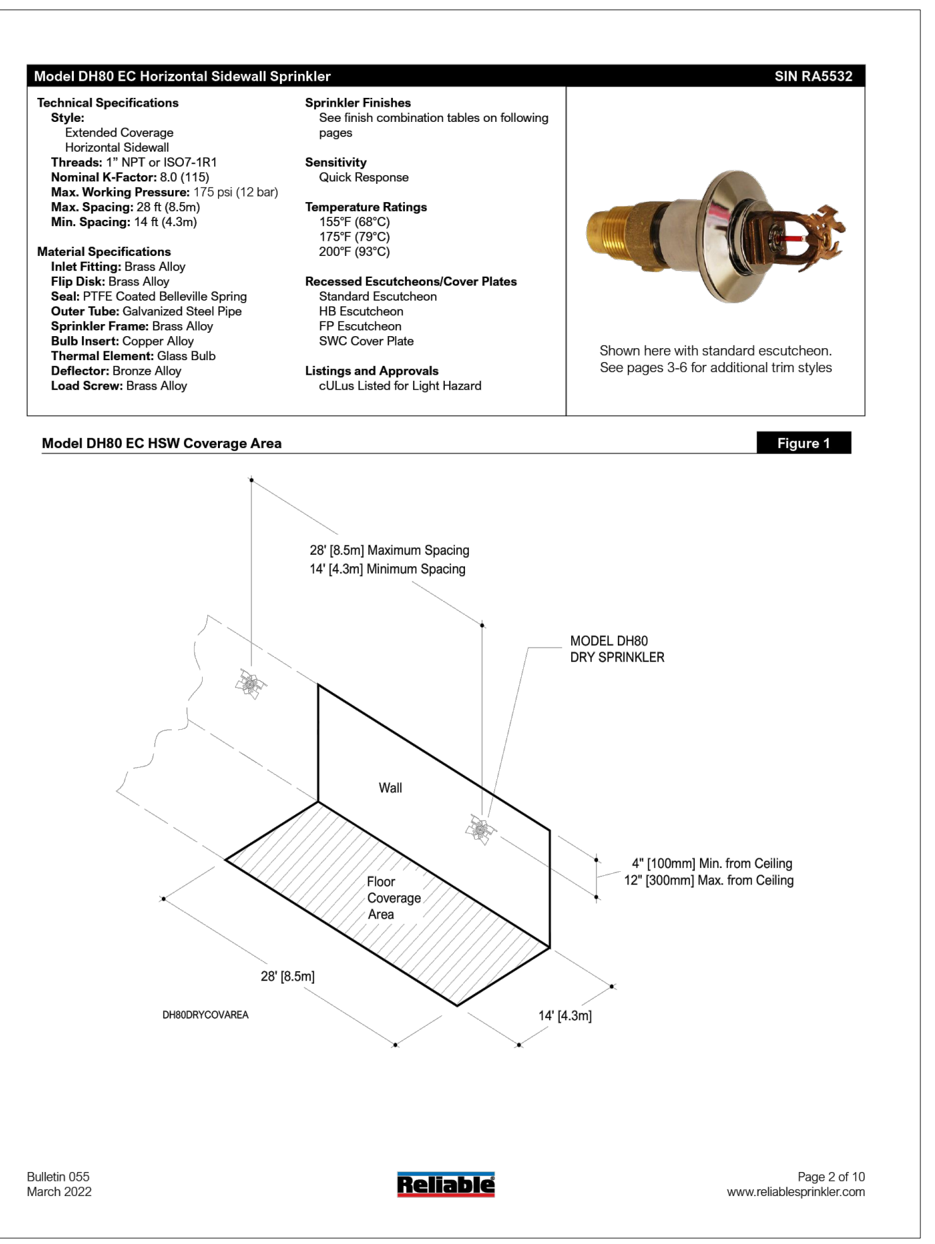

Reliable Model REL300W Wiring Diagram - Supervised Normally Open
Reliable Model REL300WC Wiring Diagram - Supervised Normally Closed

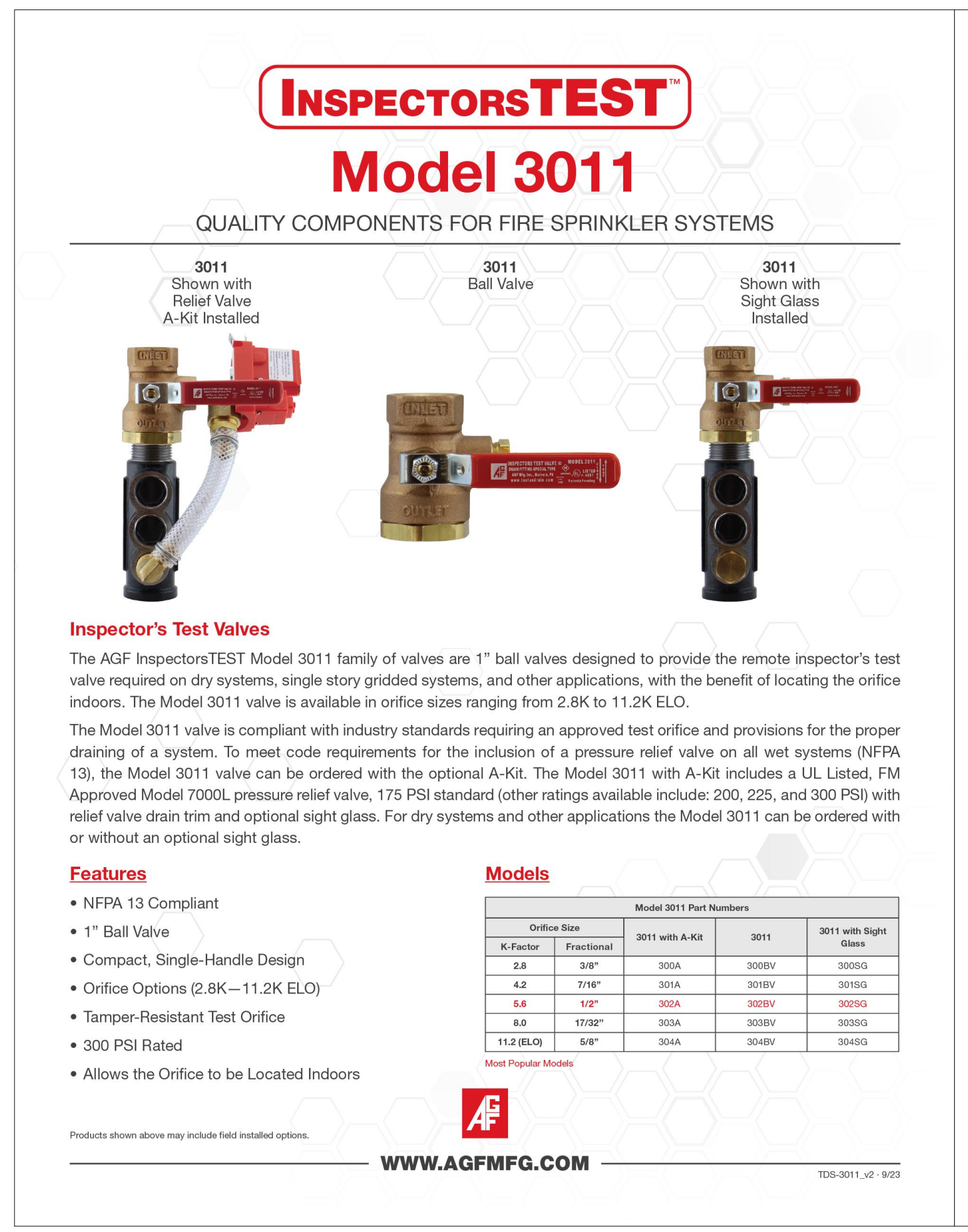

Reliable
Model F1Res Series Glass Bulb Residential Sprinklers
Features
Product Description
Application
Residential Sprinkler Summary

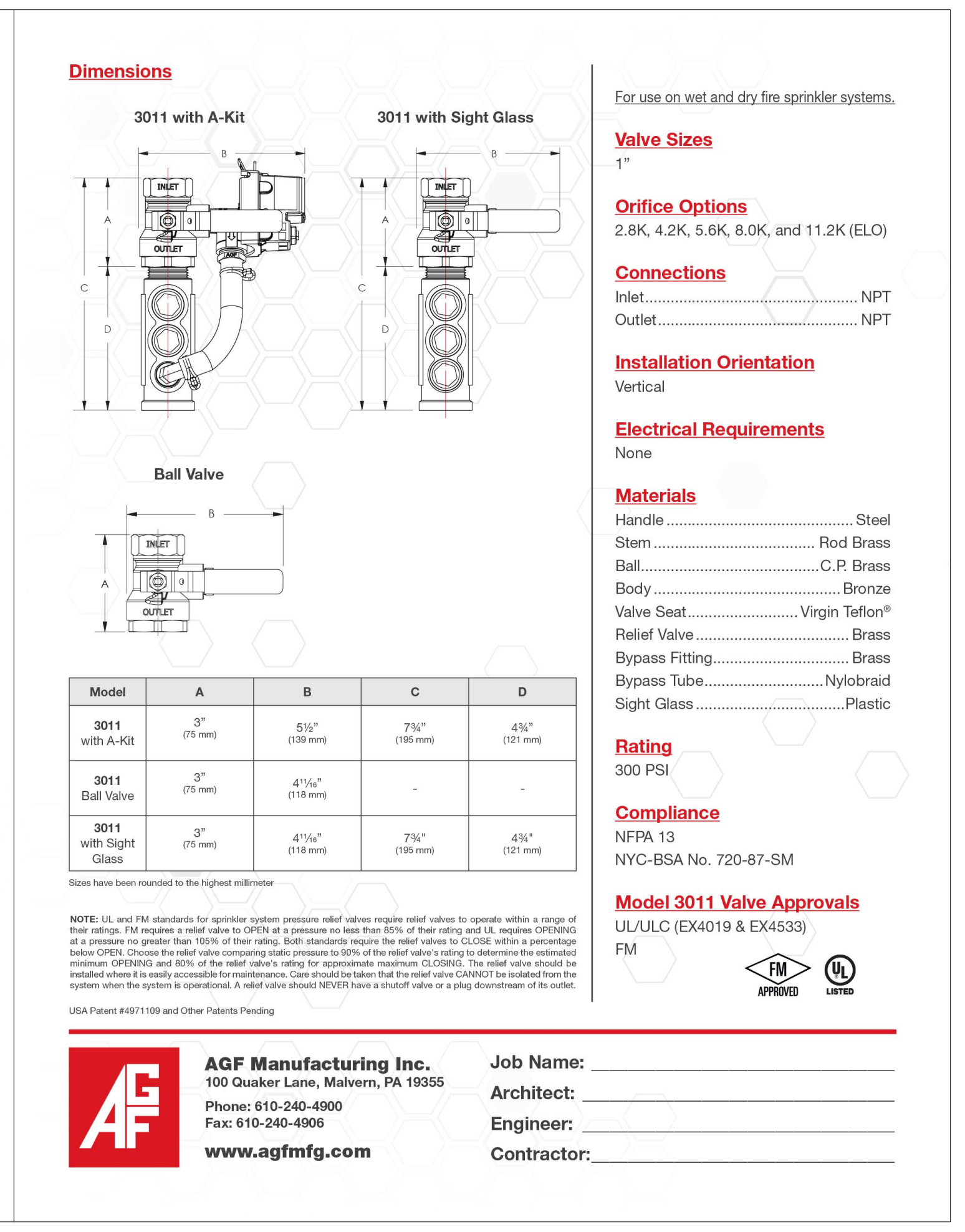

ZURN Model 350AST Double Check Valve Assembly


Flow Characteristics
Model 350AST 2 1/2", 3" & 4" (STANDARD & METRIC)
Model 350AST 6", 8" & 10" (STANDARD & METRIC)
Specifications


Reliable
Model DH60 Dry Extended Coverage Horizontal Sidewall Sprinkler
Features
Product Description
Application


Model DH60 EC Horizontal Sidewall Sprinkler
Model DH60 EC HSW Coverage Area


INSPECTORSTEST
Model 3011
QUALITY COMPONENTS FOR FIRE SPRINKLER SYSTEMS
Inspector's Test Valves
Features
Models
WWW.AGFMFG.COM


Dimensions
AGF Manufacturing Inc.

SENIOR HOUSING

1188 KING STREET,
GREENWICH, CT 06831

EQUIPMENT DATA SHEETS

Drawn By: MJ
Scale: NTS
Date: 03.04.2024
PROJ.NO.:

F-6.01

SHEET NO. 6 OF 6