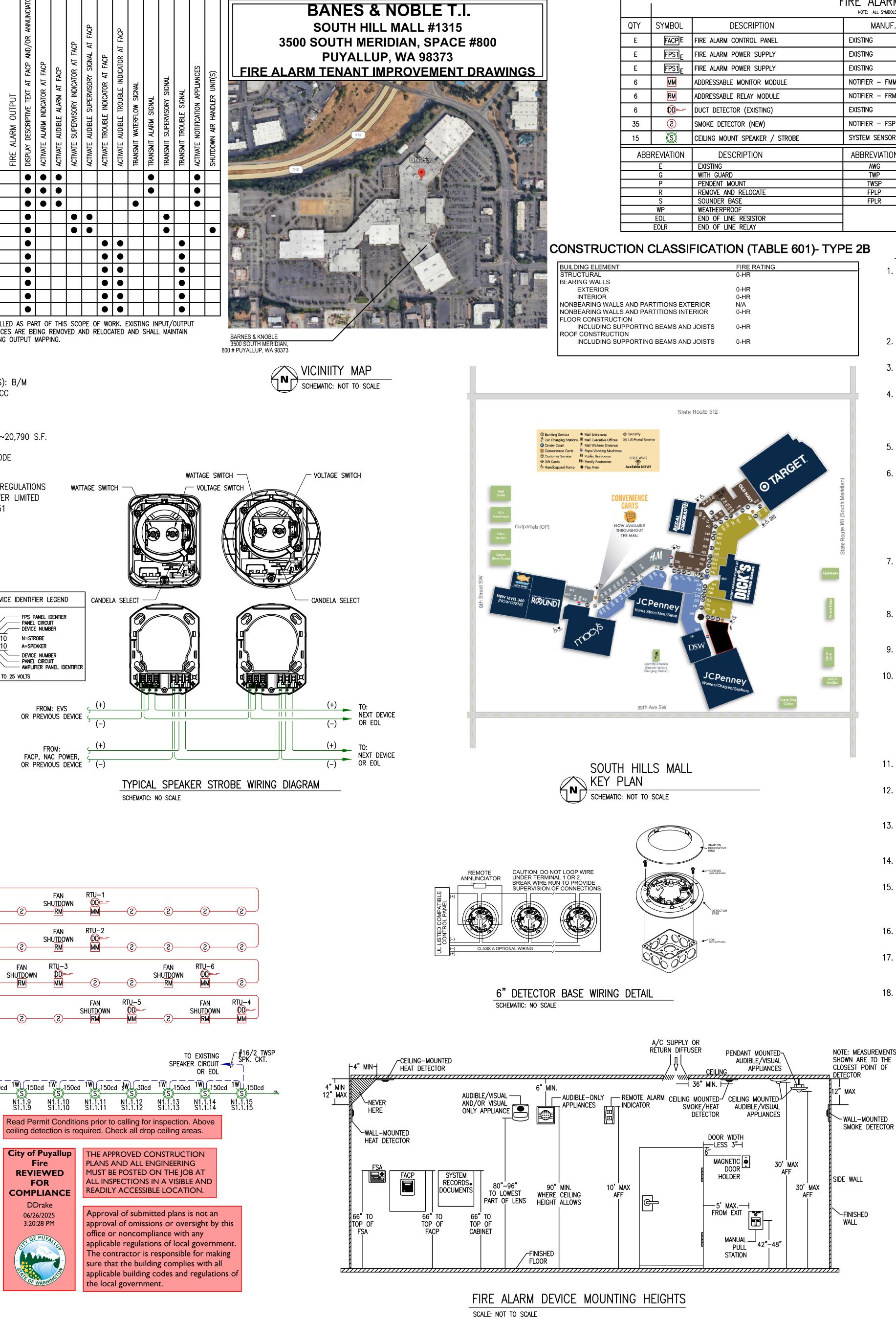
FACP Addito	onal Load Batt	ery Calculation	5/23/2025			
	PROJECT NAME: Required Standby Time: Required Alarm Time:	BARNES & KNOBLE 24 Hours 15 Minutes				
		Branch Current	1001/			
	AC Branch Curren Maxin Panel Ma	num NAC Output	120V		ERATIONS	
	Circuit Ma Regulate	ed Load in Standby			MATRIX	ļ
Device Type SMOKE DETECTOR	Model FSP-951-IV	Number         Current         1           of Devices         (Amps)         1           35         X         0.000200         =	Total Current (Amps) 0.007000			
MONITOR MODULE RELAY MODULE	FMM-1 FRM-1	6         X         0.000375         =           6         X         0.000230         =	0.002250 0.001380			
TOTAL STANDBY		ed Load in ALARM	0.010630	FIRE ALARM IN	IPUT	<b>I</b> 1 1
Device Type SMOKE DETECTOR	Model FSP-951-IV		Total Current (Amps) 0.157500	SMOKE DETECTORS	S	
MONITOR MODULE RELAY MODULE	FSP-931-IV FMM-1 FRM-1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.030000	WATERFLOW SWITC		
TOTAL ALARM		ry Requirements	1.424500	VALVE SUPERVISOR	RY SWITCHES	
Standby Load Current (Amps)		Required Standby Tim 0.010630 X 24.00000 =	0.255120	FIRE ALARM AC P		
Alarm Load Current (Amps) Total Ampere Hours (before derating fo	actor)	Required Alarm Time 1.424500 X 0.250000 =	n Hours 0.356125 0.611245	OPEN CIRCUIT GROUND FAULT		
Derating Factor TOTAL AMPERE HOURS REQUIRED BATTERIES TO BE PROVIDED (	(2 - 12v)	X = FIE	1.2 0.733494 LD VERIFY	NAC SHORT CIRCL		
NOTE: THE ABOVE BATTERY CA	ALCULATION IS A COMBINED TOTAL	OF THE ADDITIONAL LOADS THAT WILL BE AN HE EXISTING BATTERIES AND UPSIZE ACCORD	DDED		ING DEVICES ARE BEING	
FPS1 Additio	onal Load Batt	ery Calculation	5/23/2025			Ppliances Existing (
	PROJECT NAME: Required Standby Time:	BARNES & KNOBLE		<u>CODE</u> BUILDING IN	ANALYSIS	
		15 Minutes       Branch Current       t: 2.08     Amps	 120V	A) OCCL	JPANCY CLASSIFICAT JPANCY LOAD(S): 16	• •
	AC Branch Curren Maxin Panel Ma	num NAC Output	1200	C) SPRI	NKLERS: YES STRUCTION TYPE: IIB	
	Circuit Ma Regulate	x: 3.00 Amps ed Load in Standby			DING HEIGHT: 1 STO IECT SQUARE FOOTA	
Device Type	Model	Number Current T of Devices (Amps)	Total Current (Amps)	´ 2021	ICABLE CODES: INTERNATIONAL FIR	E CODE
TOTAL STANDBY		ed Load in ALARM	0.000000	2021	NFPA 72 NEC E AND LOCAL MARSI	HAI REC
Device Type FPS1 Additional Load.1 (See Voltage D	Model rop Calculations)	Number     Current     1       of Devices     (Amps)     1       1.198000     =	Total Current (Amps) 1.198000	H) CIRCU	UIT CLASSIFICATION: EL NUMBER: 60210	POWER
TOTAL ALARM		ry Requirements	1.198000	· <b>)</b>		
Standby Load Current (Amps)	Datte	Required Standby Tim 0.000000 X 24.00000 =	0.000000			
Alarm Load Current (Amps) Total Ampere Hours (before derating fo	actor)	Required Alarm Time 1.198000 X 0.250000 =	in Hours 0.299500 0.299500			
Derating Factor TOTAL AMPERE HOURS REQUIRED		X =	1.2 0.359400		SPEAKER / STROE	 BE DEVICE
	ALCULATION IS A COMBINED TOTAL	OF THE ADDITIONAL LOADS THAT WILL BE AN HE EXISTING BATTERIES AND UPSIZE ACCORD				
Point to Point NAC Vo		TE EXISTING DATTERIES AND OFSIZE ACCORD			SPEAKER SP	N1.1.10 A1.1.10
Project Name Circuit Number	BARNES & KNC FPS1.1	BLE			STROBE	
Nominal System Voltage Minimum Device Voltage	20.4 vo 16.0 vo				ALL SPEAKER VOLTAGE SHALL	BE SET TO 2
Distance from source to 1st o Wire Gauge for balance of circ						
Max Output Current Total Circuit Current	3.00 an 1.198 an					
Spare Current Capacity End of Line Voltage Notification Appliance Manufact	20% 16.58 vo System Sensor	Its				
Circuit is within limits Speaker NAC Device Mod	s del # Device D	Distance Voltage Drop evice Previous at From Perce				
IdentifierIdentifierandCandeS1.1.1N1.1.1SPSCRLEDS1.1.2N1.1.2SPSCRLED	15 1/4 (	urrent         Device         Device         Source         Dro           0.018         150         19.30         1.103         5.41           0.018         15         19.19         1.212         5.94	%			
S1.1.3         N1.1.3         SPSCRLED           S1.1.4         N1.1.4         SPSCRLED           S1.1.5         N1.1.5         SPSCRLED	30 1/2 0	0.0181619.071.3266.500.0223918.801.6007.840.1105418.431.9729.67	1%			
S1.1.6         N1.1.6         SPSCRLED           S1.1.7         N1.1.7         SPSCRLED           S1.1.8         N1.1.8         SPSCRLED	150         1         0           150         1         0	0.110         59         18.06         2.339         11.40           0.110         55         17.76         2.643         12.90           0.110         37         17.58         2.823         13.84	6% 6%			
S1.1.9         N1.1.9         SPSCRLED           S1.1.10         N1.1.10         SPSCRLED	150         1         0           150         1         0	0.110 78 17.25 3.150 15.44 0.110 56 17.05 3.347 16.40	4% 0%		(5)(5)	
S1.1.11         N1.1.11         SPSCRLED           S1.1.12         N1.1.12         SPSCRLED           S1.1.13         N1.1.13         SPSCRLED	30 1/2 0	0.110         61         16.88         3.520         17.25           0.022         55         16.76         3.638         17.84           0.110         38         16.68         3.715         18.21	4%			
S1.1.14         N1.1.14         SPSCRLED           S1.1.15         N1.1.15         SPSCRLED           Totals         Totals         State of the second s	150 1 0	0.110 50 16.62 3.783 18.54 0.110 52 16.58 3.818 18.72 .198 815		5		<u>S</u>
Notes: Wire resistance is doubled in t	the calculations for two wires (Po	sitive and Negative). The voltage calculated				2
operating voltage 16-33 VDC		sted minimum operating voltage (IE: rated			()()	2)
				<u></u>		S S
		FROM EXISTI				
		ADDRESSAE SLC CIRC	BLE > X	6/2 AWG (CLASS B)		<u>S</u>
	TO NEXT FPS	#16/2 TWSP SPK. CKT.				
	TO NEXT FPS					~
#14/2 AWG (SYNC & TROUBLE SUPERVISION)		N111 N112 N1	15cd 2w (. S (. 1.3 N1.1.4 .1.3 S1.1.4	30cd 1W 150cd 1W S (S) (S) 4 N1.1.5 N1. 4 S1.1.5 S1.		150cd S .1.8 .1.8
WG (SYNC & C	✓   SUPPLY     →   TYPICAL	\$1.1.1 \$1.1.2 \$1 #14/2 AWG (CLASS B)	.1.3 S1.1.4	¥ S1.1.5 S1.	1.6 S1.1.7 S1	R
FROM FACP OR FPS	FPS 2					C
	3					C
				Developm	tity of Puyallup ent & Permitting Servic	es
SLC 5				Build	SSUED PERMIT	
SLC				Engine		
	BATTERY BATTERY			Fire	e Traffic	
عرب 120 VAC (DEDICATED)		FIRE ALARN	A RICED			
		SCHEMATIC: NOT TO			-	



			FIRE ALARM			
QTY	SYMBOL	DESCRIPTION	MANUF. 8	د PART #	MOUNTING	MOUNT IN
E	FACPE	FIRE ALARM CONTROL PANEL	EXISTING		WALL - TOP @ 66"	EXISTING TO REMAIN
E	FPS1 <sub>E</sub>	FIRE ALARM POWER SUPPLY	EXISTING		WALL - TOP @ 66"	EXISTING TO REMAIN
E	FPS1 <sub>E</sub>	FIRE ALARM POWER SUPPLY	EXISTING		WALL - TOP @ 66"	EXISTING TO REMAIN
6	ММ	ADDRESSABLE MONITOR MODULE	NOTIFIER - FMM-1		FIELD VERIFY	4 SQ. DEEP, MOUNTED FLUSH
6	RM	ADDRESSABLE RELAY MODULE	NOTIFIER - FRM-1		FIELD VERIFY	4 SQ. DEEP, MOUNTED FLUSH
6	(DD=	DUCT DETECTOR (EXISTING)	EXISTING		INDICATED DUCT	MONITOR CONTACTS, PROVIDE SHUTDOWN
35	S	SMOKE DETECTOR (NEW)	NOTIFIER - FSP-9	51-IV	CEILING	4 SQ. DEEP W/ SINGLE GANG MUD RING, MOUNTED F
15	Ś	CEILING MOUNT SPEAKER / STROBE	SYSTEM SENSOR -	SPSCRLED	CEILING	4 SQ. DEEP, MOUNTED FLUSH
AB	BREVIATION	DESCRIPTION	ABBREVIATION		SCRIPTION	DEVICE ADDRESS 🔨 P
	E	EXISTING	AWG		WIRE GAUGE	L1S001 OR M01
	G P	WITH GUARD PENDENT MOUNT	TWP	TWISTED PA		(L - DENOTES LOOP #) (S or M - DENOTES SENSOR OR MODULE #)
	 R	REMOVE AND RELOCATE	TWSP FPLP		HIELDED PAIR R LIMITED PLENUM	_ 1_#16/2_TWP
	S	SOUNDER BASE	FPLR		R LIMITED RISER	-1 - #16/2  TWP wire type abbreviated
	WP	WEATHERPROOF		•		CONDUCTOR COUNT
	EOL	END OF LINE RESISTOR				WIRE SIZE # OF CABLES (IF OMITTED ONLY 1 CABLE NEEDED)
	EOLR	END OF LINE RELAY		10	00	ONLY 1 CABLE NEEDED)

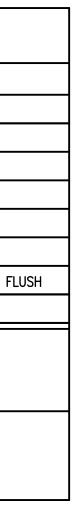
ELEMENT	FIRE RATING	
RAL	0-HR	
VALLS		
RIOR	0-HR	
RIOR	0-HR	
NG WALLS AND PARTITIONS EXTERIOR	N/A	
NG WALLS AND PARTITIONS INTERIOR	0-HR	
NSTRUCTION		
JDING SUPPORTING BEAMS AND JOISTS	0-HR	
STRUCTION		
JDING SUPPORTING BEAMS AND JOISTS	0-HR	

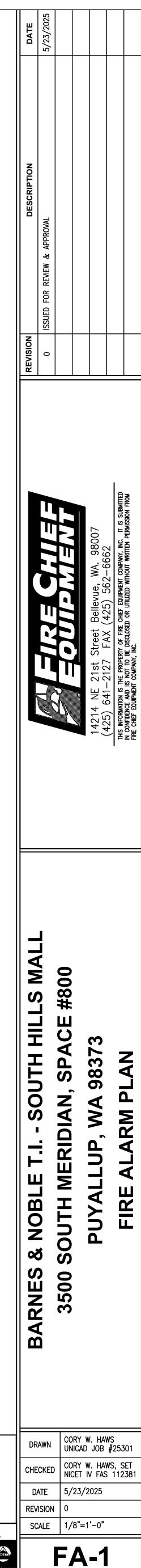
GENERAL NOTES:

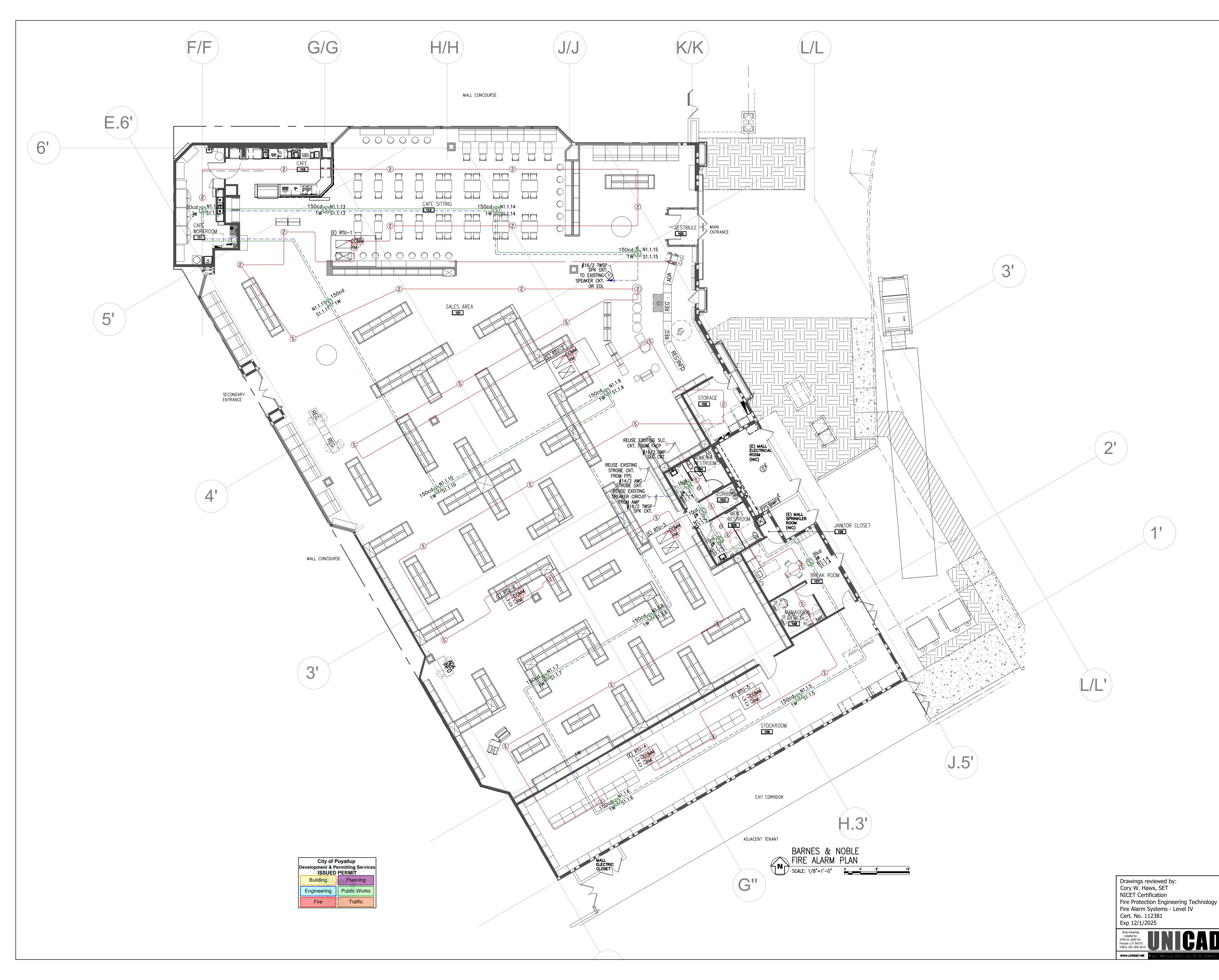
- SCOPE OF WORK: THIS PROJECT SHALL INCLUDE. TENANT IMPROVEMENTS TO EXISTING FIRE ALARM SYSTEM AT THE SOUTH HILLS MALL. PROVIDE AND INSTALL NEW SPEAKER STROBES IN TENANT SPACE. CONNECT NEW SPEAKER STROBES TO EXISTING SPEAKER AND STROBE CIRCUITS LOCATED IN TENANT SPACE. EXISTING FIRE ALARM POWER SUPPLY IN ELECTRICAL ROOM TO REMAIN. EXISTING SMOKE DETECTOR IN ELECTRICAL ROOM TO REMAIN. CONNECT NEW SLC DEVICES TO EXISTING SLC CKT.
- 2. THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
- 3. INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- WIRING DEPICTED ON THESE PLANS IS SCHEMATIC ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF A RACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME RACEWAY.
- 5. FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
- 6. POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT. THE LOCATION OF THE BRANCH CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE CONTROL UNIT, MECHANICALLY PROTECTED, ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL AND SHALL BE RED AND LABELED "FIRE ALARM CIRCUIT CONTROL" IN ACCORDANCE WITH NFPA 72. ELECTRICAL CONTRACTOR SHALL PERFORM LOAD CALCULATIONS TO DETERMINE SIZE OF WIRING AND BREAKERS FOR ALL FIRE ALARM AC BRANCH CIRCUITS BASED ON THE INFORMATION PROVIDED IN THE BATTERY CALCULATIONS FOR THE FIRE ALARM EQUIPMENT.
- 7. POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINET. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 0.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
- 8. WHEN UTILIZING CLASS "A" CIRCUITS, SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
- 9. WHEN UTILIZING SHIELDED CABLE TIE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
- 10. ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE. CABLES USED IN VERTICAL RUNS SHALL BE TYPE FPLP OR FPLR. CABLE SPLICES OR TERMINATIONS SHALL BE MADE IN LISTED FITTINGS, BOXES, ENCLOSURES, FIRE ALARM DEVICES, OR UTILIZATION EQUIPMENT. WHERE INSTALLED EXPOSED, CABLES SHALL BE ADEQUATELY SUPPORTED AND INSTALLED IN SUCH A WAY THAT MAXIMUM PROTECTION AGAINST PHYSICAL DAMAGE IS AFFORDED BY BUILDING CONSTRUCTION. WHERE LOCATED WITHIN 7 FT OF THE FLOOR, CABLES SHALL BE SECURELY FASTENED IN AN APPROVED MANNER AT INTERVALS OF NOT MORE THAN 18 IN.
- 11. SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
- 12. LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MAXIMUM OF 12" FROM CEILING.
- 13. PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
- 14. VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
- 15. UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM, PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
- 16. PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.6.6 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- 17. INSTALLING CONTRACTOR SHALL, PHYSICALLY, LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"). THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.
- 18. ROOMS CONTAINING CONTROLS FOR AIR-CONDITIONING SYSTEMS, SPRINKLER RISERS AND VALVES OR OTHER FIRE DETECTION, SUPPRESSION OR CONTROL ELEMENTS SHALL BE IDENTIFIED WITH PERMANENTLY MOUNTED SIGNS WITH LETTERING NOT LESS THAN 2 INCHES TALL WITH A PRINCIPAL STROKE OF NOT LESS THAN 3/8 INCH. LETTERS SHALL CONTRAST WITH BACKGROUND.



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