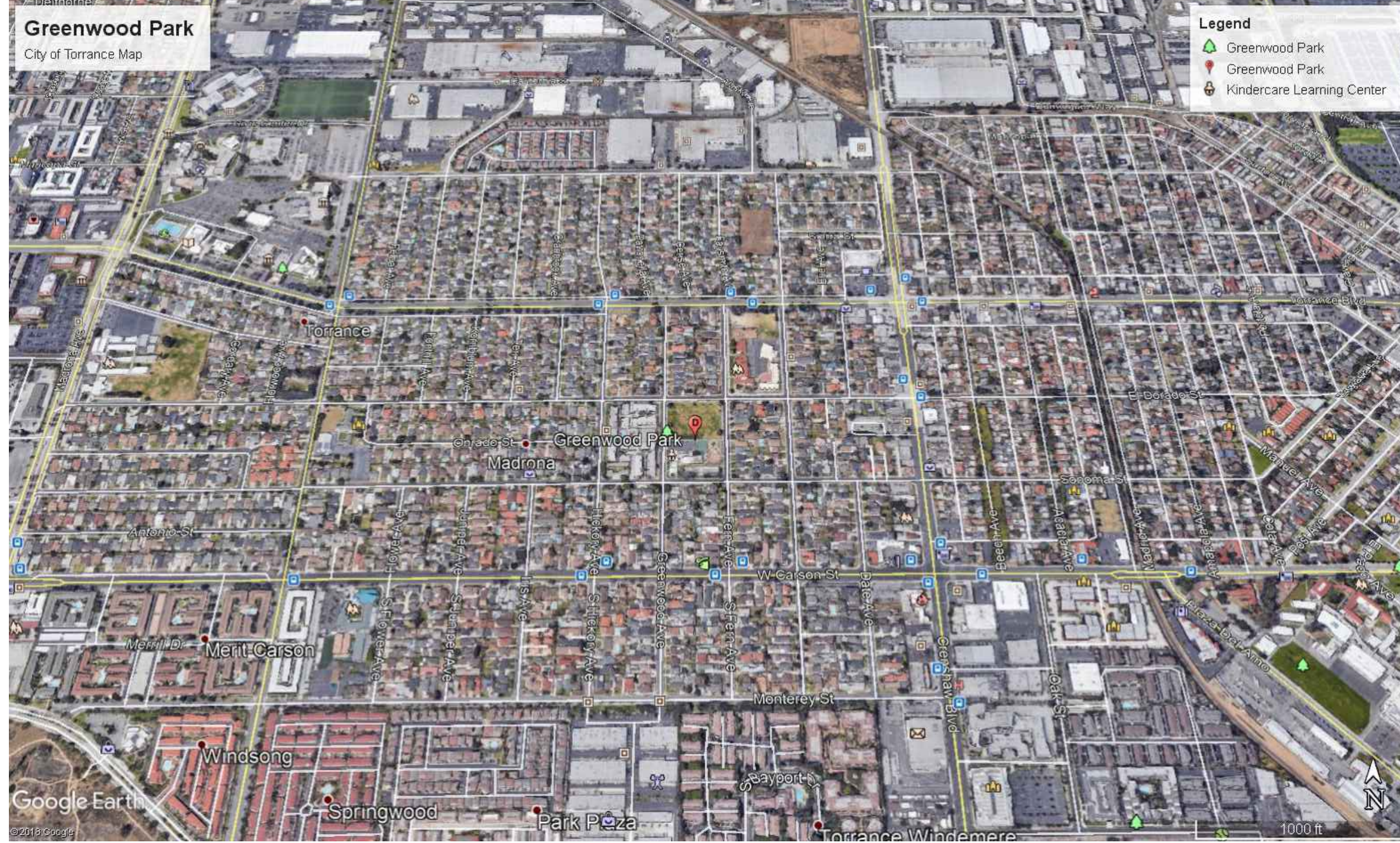


# GREENWOOD

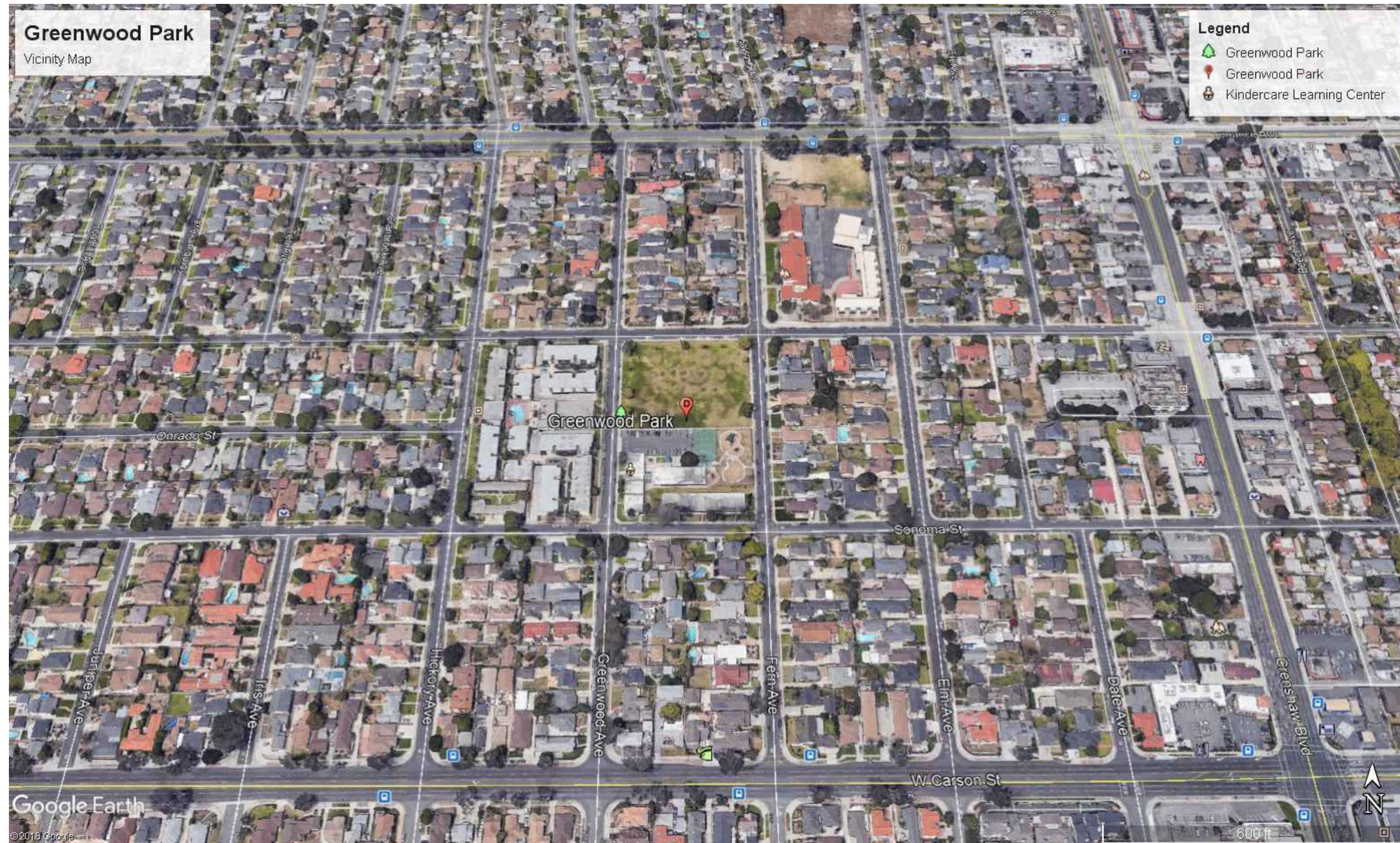
## CHILD CARE CENTER

1520 GREENWOOD AVENUE TORRANCE, CA 90503



CITY OF TORRANCE MAP

SCALE: N.T.S. 2



VICINITY MAP

SCALE: N.T.S. 1

### FIRE ALARM SPECIFICATIONS

- THE FIRE ALARM SYSTEM SHALL COMPRISE AUTOMATIC ADDRESSABLE MANUAL PULL STATIONS, SMOKE/HEAT DETECTOR SYSTEM AND CONFORM TO ARTICLE 760 OF THE 2019 CALIFORNIA ELECTRICAL CODE.
- UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE FIRE MARSHALL OR ENFORCING AGENCY.
- A STAMPED SET OF APPROVED FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FOR THE APPROVED PLANS, INCLUDING THE SUBSTITUTION OF DEVICES, SHALL BE APPROVED BY THE FIRE MARSHALL OR ENFORCING AGENCY.
- FIRE ALARM DRAWINGS ARE SCHEMATIC IN NATURE ONLY. CONTRACTOR SHALL ROUTE CONDUIT RACEWAY AS FIELD CONDITION PERMIT OR AS INDICATED ON PLANS. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND CODE OR RECOGNIZED STANDARDS, SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OF RECORD.
- ALL DEVICES OF THE FIRE ALARM SYSTEMS SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHALL.
- A CERTIFICATE OF COMPLETION SHALL BE PREPARED BY THE INSTALLER AND GIVEN TO THE FIRE MARSHALL UPON COMPLETION OF THE INSTALLATION.
- CONSULT INSTALLER PRIOR TO MAKING ANY MODIFICATIONS TO THE SYSTEMS WIRING.
- UPON COMPLETION OF THE INSTALLATION, THE INSTALLER SHALL SUPPLY THE OWNER WITH WRITTEN OPERATING, TESTING AND MAINTENANCE INSTRUCTIONS, POINT-TO-POINT AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS.
  - THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO THE ENFORCING AGENCY AND A COMPLETE TESTING AND INSPECTION FORM SHALL BE PROVIDED FOR LOCAL FIRE INSPECTOR SIGNATURE.
- 120 VAC, 60HZ INPUT POWER FOR THE FIRE ALARM CONTROLS SHALL BE A DEDICATED CIRCUIT BREAKER PROPERLY LABELED "FIRE ALARM". THE CIRCUIT BREAKER SHALL HAVE A RED MARKING AND AN APPROVED LOCK-ON DEVICE. ADDITIONALLY, THE CIRCUIT BREAKER LOCATION SHALL BE POSTED AT THE FAC.
  - EXCEPTION: ADDRESSABLE SYSTEMS, MAPNET CONDUCTORS WIRED CLASS "B" MAY BE T-TAPPED.
- 120 VAC IS NOT PERMITTED IN THE SAME CONDUIT WITH LOW VOLTAGE WIRING.
- THE LOCATION OF THE FIRE ALARM CONTROL PANEL AND THE ANNUNCIATOR SHALL BE APPROVED BY THE FIRE MARSHALL OR ENFORCING AGENCY.
- ALL OPENINGS IN RATED ASSEMBLIES SHALL BE REPAIRED PER UFC, NEC, UBC AND STANDARD BUILDING CODES ON EFFECT AT THE TIME OF APPROVAL. THE SYSTEM SHALL CONFORM TITLES 19 AND 24 AS APPLICABLE TO THIS PROJECT (CBC PART 2, CH. 7, TITLE 24).
- ALL BACK BOXES SHALL BE AS RECOMMENDED BY MANUFACTURER. CONTRACTOR SHALL LOCATE JUNCTION BOXES AS REQUIRED AND PER CEC CODES.
- ALL PANELS SHALL BE MOUNTED WITH CLEARANCES FOR OBSERVATION AND TESTING, AND ALL FIRE ALARM JUNCTION BOXES SHALL BE MARKED FOR IDENTIFICATION.
- ALL WIRING OF INITIATING DEVICES AND ANNUNCIATOR PANEL SHALL BE SUPERVISED TO THE PRINCIPLE POINT OF ANNUNCIATION (THE FIRE ALARM CONTROL PANEL IS TO SUPERVISE THE ANNUNCIATOR PANEL, ALL CIRCUITS AND INITIATING DEVICES).
- WIRING SHALL NOT BE LOOPED THROUGH DEVICES; WIRE MUST BE CUT FOR IN AND OUT. POINT COMMON ANNUNCIATION AND T-TAPPING ARE PROHIBITED.
  - EXCEPTION: ADDRESSABLE SYSTEMS, MAPNET CONDUCTORS WIRED CLASS "B" MAY BE T-TAPPED.
- ALL FIRE ALARM WIRING SHALL BE RUN IN MINIMUM 3/4" CONDUIT.
  - ALL CONDUIT SIZES SHOWN AND INDICATED ON DRAWING ARE MINIMUMS. CONTRACTOR TO ADJUST SIZES FOR FIELD CONDITIONS (I.E. NUMBER OF BENDS, ETC.) BUT SHALL NOT BE SMALLER THAN 3/4".
- ALL FIRE ALARM SYSTEM WIRING TERMINATIONS IN MAIN PULL BOXES AND TERMINAL CABINETS SHALL BE ON BOX MOUNTED TERMINAL BLOCKS.
- ALL FIRE ALARM WIRING MUST TEST FREE OF OPENS, SHORTS AND GROUNDS. SEE INSTALLATION MANUALS FOR FIELD WIRING SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
- (2) PRIMARY PHONE LINE SHALL BE DEDICATED FOR THE FIRE ALARM SYSTEM TO COMMUNICATE WITH U.L. LISTED CENTRAL STATION.
- WIRING COLOR CODE SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY CIRCUITS.
- CABINET TERMINALS SHALL BE NUMBERED AND CODED. FLEXIBLE CONNECTORS SHALL BE USED FOR DEVICES MOUNTED IN SUSPENDED PANELS.
- THE FIRE DEPARTMENT WILL TEST AND VERIFY ADEQUATE AUDIBILITY BEING PROVIDED THROUGHOUT, PARTICULARLY IN OPEN WORK AREAS AND IN TESTING AREAS.
  - AUDIBLE DEVICE(S) TO BE AT LEAST 15 DBA ABOVE THE AMBIENT SOUND LEVELS, BUT NOT LESS THAN THE 75 DBA AT 10' OR MORE THAN 110DBA AT THE MINIMUM HEARING DISTANCE. AUDIBLE DEVICES SHALL SOUND THE TEMPORAL FIRE ALARM SIGNAL.
- CONDUIT AND JUNCTION BACK BOXES ARE NOT TO BE USED FOR UNRELATED WIRING.
- ALL CONDUIT MOUNTING BOXES, AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM.
- PLACE THE BOTTOM OF THE WALL MOUNTED STROBE EXACTLY 80" ABOVE THE FLOOR TO BOTTOM OF LENS AND MAKE SURE THE TOP OF THE STROBE IS AT LEAST 6" BELOW THE CEILING. PLACE THE TOP OF THE STROBE 6" BELOW THE CEILING IF THE CEILING IS TOO LOW, AND MAKE SURE IT PROTRUDES LESS THAN 4" IF IN A WALKWAY, CORRIDOR OR AISLE. NOTE THAT THESE MOUNTING REQUIREMENTS ALSO APPLY TO COMBINATION HORN/STROBE OR SPEAKER/STROBE APPLIANCES THAT ARE WALL MOUNTED (NFPA 72, CH.6).
  - MANUAL PULL STATIONS SHALL BE MOUNTED +48" ABOVE FINISHED FLOOR TO CENTER OF BOX. STROBE SHALL BE CEILING OR WALL MOUNTED AT +80" A.F.F. AND EXTERIOR HORNS SHALL BE MOUNTED AT +90" A.F.F.
- STROBES SHALL BE VISIBLE IN ALL LOCATIONS THROUGHOUT THE BUILDING PER NFPA 72, CHAPTER 6, SECTION 6-4.
  - VISUAL DEVICES SHALL NOT EXCEED 2 FLASHER PER SECOND AND SHALL NOT BE SLOWER THAN 1 FLASH EVERY SECOND.
- PROVIDE 24 HOUR TELEPHONE NUMBER OF CENTRAL STATION NEAR ANNUNCIATOR AND FIRE ALARM CONTROL PANEL.
- ALL FIRE ALARM DEVICES LOCATED IN STUDENT RESTROOM FACILITIES ARE TO HAVE VANDAL-RESISTANT GUARDS INSTALLED.
- ALL MANUAL PULL STATIONS IN AREAS WHERE STUDENTS HAVE ACCESS ARE TO HAVE PLASTIC COVERS WITH VANDAL ALARM.

### CODES AND STANDARDS

CODES AND PERMITS: ALL EQUIPMENT, INSTALLATION, ETC., SHALL CONFORM TO LOCAL ELECTRICAL, MECHANICAL AND OTHER APPLICABLE CODES. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE ARCHITECT. CODES INCLUDE BUT NOT LIMITED TO:

- TITLE 24, PART 2, CCR (2019 CALIFORNIA BUILDING CODE W/AMENDMENTS)
- TITLE 24, PART 3, CCR (2019 CALIFORNIA ELECTRICAL CODE W/AMENDMENTS)
- TITLE 24, PART 4, CCR (2019 CALIFORNIA MECHANICAL CODE W/AMENDMENTS)
- TITLE 24, PART 5, CCR (2019 CALIFORNIA PLUMBING CODE W/AMENDMENTS)
- TITLE 24, PART 9, CCR (2019 CALIFORNIA FIRE CODE W/AMENDMENTS)
- 2019 CALIFORNIA GREEN BUILDINGS STANDARDS CODES
- 2019 CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24, CCR)
- NFPA 13 - 2016
- NFPA 72 - 2016
- REFERENCED CODE SECTIONS FOR APPLICABLE STANDARDS
- 2019 CBC, CHAPTER 35
- 2019 CFC, CHAPTER 80
- NFPA STANDARDS AND GUIDES
- NFPA 72 NATIONAL FIRE ALARM CODES (CALIFORNIA AMENDED, 2016 EDITION)
- NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES".

### WIRING SCHEDULE

DESIG.	CIRCUIT TYPE	DESCRIPTION	MODEL
M	MAPNET ADDRESSABLE	4 TWISTED PAIR, 18 AWG FPLR	HONEYWELL CABLE 18/8 SOL FPL #4309, CSFM #7161-1487:0100
FA	SLC INTELLIGENT LOOP NETWORK COMM	1 TWISTED PAIR, 18 AWG FPLR (FA2 = 2 SET OF CABLES)	HONEYWELL CABLE 18/2 SOL FPL #4106, CSFM #7161-1487:0100
1A	VOICE EVAC SPEAKER OUTPUT SIGNAL CIRCUIT CABLE	2#16 AWG (RED/BLACK)	HONEYWELL CABLE #4311, CSFM #7161-1487:0100
1V	STROBE SIGNAL OUTPUT CIRCUIT CABLE	2#14 AWG (RED/BLACK)	HONEYWELL CABLE #4111 CSFM #7161-1487:0100 OR #12 THWN CU.
1A/1V	1A & 1V CABLE	MIN. 3/4" CONDUIT SYSTEM WITH BOTH VOICE EVAC SPEAKER OUTPUT SIGNAL CIRCUIT CABLE AND STROBE SIGNAL OUTPUT CIRCUIT CABLE	REFER TO 1A AND 1V ABOVE FOR CABLE TYPE
2A/2V	(2) SET OF 1A & 1V CABLES	1" CONDUIT SYSTEM WITH (2) SET BOTH VOICE EVAC SPEAKER OUTPUT SIGNAL CIRCUITS CABLES AND STROBE SIGNAL OUTPUT CIRCUITS CABLES OR LOOP	REFER TO 1A AND 1V ABOVE FOR CABLE TYPE
6 STRAND F.O.	6 STRAND FIBER OPTIC	6 STRAND FIBER OPTIC FIRE ALARM CABLES	

- NOTES:
- ALL CABLE SHALL BE INSTALLED PER NEC/CEC PA VOICE CIRCUIT.
  - ALL WIRING SHALL CONFORM TO NEC 760 PART A & C FOR A POWER-LIMITED SUPPLY.
  - ALL WIRING IN WET LOCATIONS SHALL BE THWN, UL LISTED FOR OUTDOOR USE OR EQUAL.
  - ALL FIRE ALARM CABLING SHALL BE RUN IN MINIMUM 3/4" CONDUIT RACEWAY UNLESS OTHERWISE NOTED.

### SCOPE OF WORK

UPGRADE THE FIRE ALARM SYSTEM FOR BOTH EXISTING CLASSROOM BUILDINGS AND THE ADMINISTRATION BUILDING.

THE SEISMIC ANCHORAGE OF ELECTRICAL EQUIPMENT SHALL CONFORM TO CBC 2019 AND NFPA 13 LATEST EDITION

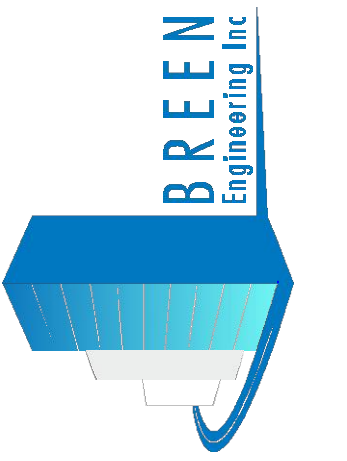
### FIRE ALARM SHEET INDEX

SHEET NO.	SHEET TITLE	CURRENT ISSUE
FA-0.1	FIRE ALARM GENERAL NOTES SYMBOLS LEGEND AND SHEET INDEX	PLAN CHECK
FA-0.2	FIRE ALARM SCHEDULES	PLAN CHECK
FA-0.3	FIRE ALARM CALCULATIONS - SHEET ONE	PLAN CHECK
FA-0.4	FIRE ALARM CALCULATIONS - SHEET TWO	PLAN CHECK
FA-1.0	FIRE ALARM SITE PLAN	PLAN CHECK
FA-2.1	FIRE ALARM BLDG. A FLOOR PLAN	PLAN CHECK
FA-2.2	FIRE ALARM BLDG. B FLOOR PLAN	PLAN CHECK
FA-2.3	FIRE ALARM BLDG. C & ADMIN. FLOOR PLAN	PLAN CHECK
FA-4.1	FIRE ALARM SINGLE LINE DIAGRAM	PLAN CHECK
FA-5.1	FIRE ALARM DETAILS - SHEET ONE	PLAN CHECK
FA-5.2	FIRE ALARM DETAILS - SHEET TWO	PLAN CHECK
FA-5.3	FIRE ALARM DETAILS - SHEET THREE	PLAN CHECK



DRAWN BY: JL/AA  
DESIGNED BY: JL/AA  
CHECKED BY: DM/JL  
APPROVED BY: DM

1985 WEST 190TH STREET, SUITE 200  
TORRANCE, CA 90504  
TEL: (310) 464-8404  
FAX: (310) 464-8408  
WWW.BREENENG.COM



FIRE ALARM GENERAL NOTES SYMBOLS  
LEGEND AND SHEET INDEX

GREENWOOD  
CHILD CARE CENTER  
1520 GREENWOOD AVENUE  
TORRANCE, CA 90503

DATE: 09/08/2021  
SCALE: NONE  
PROJECT NUMBER: 307-19-001  
DRAWN BY: JL/AA  
CHECKED BY: DM/JL

DRAWING NUMBER  
**FA-0.1**

OF

SEQUENCE OF OPERATION					
	120 VOLT POWER FAILURE	SYSTEM TROUBLE/WIRING FAULT OR OPEN	MANUAL PULL STATION	AREA SMOKE DETECTOR	AREA OR ATTIC HEAT DETECTOR
SOUND CONTROL PANEL TROUBLE BUZZER	YES	YES	NO	NO	NO
SOUND CONTROL PANEL SUPERVISORY BUZZER	NO	NO	NO	NO	NO
SOUND CONTROL PANEL ALARM BUZZER	NO	NO	YES	YES	YES
ACTIVATE RELAY FOR CENTRAL STATION MONITORING	YES	YES	YES	YES	YES
ANNUNCIATE AT FIRE ALARM CONTROL PANEL (ALARM OR TROUBLE)	YES	YES	YES	YES	YES
ANNUNCIATE AT REMOTE ANNUNCIATOR PANEL (ALARM OR TROUBLE)	YES	YES	YES	YES	YES
ACTIVATE NOTIFICATION (AUDIBLE/VISUAL) ALARM SIGNAL THROUGHOUT BLDG	NO	NO	YES	YES	YES
NOTIFY FIRE DEPARTMENT VIA MONITORING STATION	NO	NO	YES	YES	YES

- ① PRE-RECORDED FIRE ALARM VOICE EVACUATION SIGNAL SHALL BE A PRE-RECORDED ANNOUNCEMENT ACTIVATED WITH SOUND "MAY I HAVE YOUR ATTENTION PLEASE MAY I HAVE YOUR ATTENTION PLEASE, A FIRE HAS BEEN REPORTED IN THE BUILDING, PLEASE PROCEED TO THE STAIRWAYS AND NEAREST EXIT AND EXIT THE BUILDING." MESSAGE SHALL REPEAT UNTIL MANUALLY DISABLE/SILENCED AT CONTROL OR ANNUNCIATOR PANEL
- PER CBC 2016 907.6.6.3 GROUP E SCHOOLS:  
FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH EITHER UFX (CENTRAL STATION) OR UUAS (REMOTE & PROPRIETARY) BY THE UNDERWRITERS LABORATORY INC. (UL) OR OTHER APPROVED LISTING AND TESTING LABORATORY OR SHALL COMPLY WITH THE REQUIREMENTS OF STANDARD, FM 3011.

FA RECORD DOCUMENTATIONS CABINET NOTES
<p>-EVERY NEW FIRE ALARM SYSTEM SHALL PROVIDE A DOCUMENTATION CABINET, INSTALLED AT THE SYSTEM CONTROL PANEL OR OTHER APPROVED LOCATION. (REFER TO SITE PLAN FOR LOCATION)</p> <p>-THE DOCUMENTATION CABINET SHALL BE PROMINENTLY LABELED, "SYSTEM RECORD DOCUMENTS".</p> <p>-ALL RECORD AND TESTING DOCUMENTATION SHALL BE STORED IN THE CABINET.</p> <p>-CONTENTS SHALL BE ACCESSIBLE BY AUTHORIZED PERSONNEL ONLY.</p> <p>-WHERE CABINET IS INSTALLED IN A LOCATION OTHER THAN THE SYSTEM CONTROL UNITS, ITS LOCATION SHALL BE IDENTIFIED AT THE SYSTEM CONTROL UNIT.</p> <p>SYSTEM DOCUMENTS AS APPLICABLE:                      -RECORD DRAWINGS/AS-BUILTS                      -EQUIPMENT CUT SHEET &amp; CA SFM LISTINGS                      -ALTERNATIVE MEANS AND METHODS                      -PERFORMANCE BASED DESIGN DOCUMENTATION (NFPA 72, 7. 3. 7)                      -SYSTEM RECORD OF COMPLETION &amp; ANY SUPPLEMENTAL INSPECTION AND TESTING DOCUMENTATION (NFPA 72, 7. 6. 2)</p> <p>-EMERGENCY RESPONSE PLAN (NFPA 72, 7. 3. 8)                      -EVALUATION DOCUMENTATION (NFPA 72, 7. 3. 9)                      -RISK ANALYSIS DOCUMENTATION (NFPA 72, 7. 3. 6)                      -SOFTWARE &amp; FIRMWARE CONTROL DOCUMENTATION (NFPA 72, 23. 2. 2)</p>

FIRE ALARM SYSTEM EQUIPMENT SCHEDULE				
TYPE	SYMBOL	MOUNTING	MANUFACTURER/MO DEL NO.#	CSFM LISTING NUMBER
ADDRESSABLE FIRE ALARM CONTROL PANEL WITH VOICE CONTROL CENTER (VOICE EVAC)		+72" A.F.F. TO TOP OF CABINET ENCLOSURE	HONEYWELL 6820EVS	7165-0559:0500
FIRE ALARM EMERGENCY VOICE EVACUATION CONTROL PANEL		+72" A.F.F. TO TOP OF CABINET ENCLOSURE ADJACENT TO FACU	HONEYWELL SKE-450	6911-0559:0141
ANNUNCIATOR		+72" A.F.F. TO TOP OF CABINET ENCLOSURE	HONEYWELL 6860	7165-0559:0500
FIRE ALARM POWER SUPPLY		+72" A.F.F. TO TOP OF CABINET ENCLOSURE	HONEYWELL EVS-50W	7300-0559:0173
ADDRESSABLE MANUAL PULL STATION MOUNTED IN 4S BOX W/SINGLE GANG RING		+48" A.F.F. TO TOP OF CONTROL BOX	HONEYWELL SK-PULL-SA	7150-0559:0161
ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR MOUNTED IN 4S BOX W/3-0 GANG RING		CEILING MOUNT	HONEYWELL SK-PHOTO	7272-0559:0149
ADDRESSABLE THERMAL/HEAT MOUNTED IN 4S BOX W/3-0 GANG RING		CEILING	HONEYWELL SK-HEAT	7270-0559:0511
FIRE ALARM SPEAKER/STROBE FLUSH CEILING MOUNTED IN 4S DEEP BOX W/EXT. RING. (#CD DENOTES CANDELA)		CEILING MOUNT	GENTEX #SSPK24CLPW	7320-0569:0137
FIRE ALARM WEATHER-PROOF SPEAKER FLUSH ON WALL MOUNTED IN WEATHER-PROOF BOX		+90" A.F.F. TO BOTTOM OF DEVICE	GENTEX #WSSPKR	7320-0569:0141
FIRE ALARM SPEAKER/STROBE FIRE WALL MOUNTED IN 4S DEEP BOX W/EXT. RING. (#CD DENOTES CANDELA)		+80"-96" A.F.F. TO BOTTOM OF LENS	GENTEX #SSPK24WLPW	7320-0569:0140
MULTI-CRITERIA FIRE/CO DETECTOR MOUNTED IN 4S BOX W/3-0 GANG RING.		CEILING MOUNT	HONEYWELL SK-FIRE-CO	#7275-0559:0170
FIRE ALARM STROBE ONLY		+80"-96" A.F.F. TO BOTTOM OF LENS	GENTEX #GXS4	#7125-0569:0114

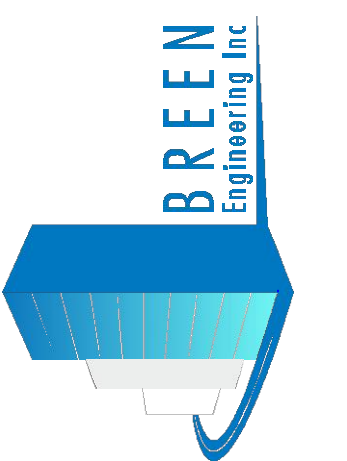
FIRE ALARM SYSTEM NOTES	
FIRE ALARM COMPLETE PLAN SUBMITTAL	
1.0 PROJECT INFORMATION	<p>A. OCCUPANCY GROUP: CHILDCARE E3, OFFICE B2.</p> <p>B. CONSTRUCTION TYPE: TYPE V NON-RATED WOOD.</p> <p>C. FLOOR AREA: 5,589 S.F.</p> <p>D. HEIGHT/NUMBER OF STORIES: 15 FT./ONE STORY.</p> <p>E. THESE BUILDINGS DO NOT HAVE A FIRE SPRINKLER SYSTEM.</p> <p>F. PENETRATIONS OF FIRE RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH CALIFORNIA BUILDING CODE, PART 2, CHAPTER 7, TITLE 24. REFER TO THE ARCHITECTURAL PLANS FOR FIRE-RATE CORRIDORS, OCCUPANCY SEPARATIONS AND AREA SEPARATION WALLS.</p> <p>G. UPON COMPLETION OF SYSTEM INSTALLATION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO THE ENFORCING AGENCY.</p> <p>H. PROVIDE A STATEMENT OF COMPLIANCE WHEN REQUESTING INSPECTION CFC 901.2.1</p> <p>I. THE FIRE ALARM SYSTEM DESIGN FOR THIS PROJECT IS ADDRESSABLE AND FULLY AUTOMATIC.</p>
2.0 APPLICABLE CODES AND STANDARDS	<p>A. PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2017</p> <p>2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C. C. R. (2018 INTERNATIONAL BUILDING CODE VOLUMES 1-2 AND 2019 CALIFORNIA AMENDMENTS)</p> <p>2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3 TITLE 24 C. C. R. (2017 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)</p> <p>2019 CALIFORNIA ENERGY CODE (CEC), PART 6 TITLE 24, C. C. R.</p> <p>2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C. C. R. (2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)</p> <p>B. PARTIAL LIST OF APPLICABLE STANDARDS</p> <p>NFPA 72 NATIONAL FIRE ALARM CODE 2016 EDITION</p> <p>NFPA 92 STANDARDS FOR SMOKE CONTROL SYSTEMS 2018 EDITION</p> <p>UL 464 AUDIBLE SIGNAL APPLIANCES 2003 EDITION</p> <p>UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING 1999 EDITION SYSTEMS</p> <p>REFERENCE CODE SECTION FOR NFPA STANDARDS-2019 CBC (SFM) CHAPTER 35. SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.</p> <p>3.0 UPON RECEIPT OF THE CERTIFICATE OF COMPLIANCE, THE INSTALLER SHALL SUPPLY THE OWNER WITH A WRITTEN OPERATION, TESTING AND MAINTENANCE INSTRUCTIONS, POINT TO POINT AS BUILD DRAWINGS AND EQUIPMENT SPECIFICATIONS.</p> <p>4.0 NFPA 72 CHAPTER 10.14 INSPECTION TESTING AND MAINTENANCE COMPLETE THE INSPECTION AND TESTING FORM IN ITS ENTIRETY SUBMIT A COPY TO THE CITY.</p> <p>5.0 OCCUPANCY PROHIBITED TO ANY PORTION OF BUILDING UNTIL FIRE ALARM SYSTEM HAS BEEN TESTED AND APPROVED. CBC 901. 5; CFC 901 5. 1 RECORD DRAWINGS OF ALL INSPECTION, TEST SHALL BE MAINTAINED ON PREMISES MINIMUM THREE YEARS. CFC 901 6. 2 (5 YEARS PER TITLE 14) SMOKE DETECTORS TO UTILIZE CALIBRATED MANUFACTURE SENSITIVITY TEST INSTRUMENT. CFC 907. 9. 4</p>

FIRE ALARM NOTE:  
FIRE ALARM SUBMITTAL IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CFC-901. 1 AND 907. 1. 1.



DRAWN BY: JL/AA  
 DESIGNED BY: JL/AA  
 CHECKED BY: DM/JL  
 APPROVED BY: DM

1983 WEST 180TH STREET, SUITE 200  
 TORRANCE, CA 90504  
 TEL: (310) 464-8404  
 FAX: (310) 464-8408  
 WWW.BREENENG.COM



DATE:	09/08/2021
SCALE:	NONE
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL
DRAWING NUMBER:	FA-0.2
DATE:	09/08/21
DATE:	07/15/21
PLAN CHECK #2	1
PLAN CHECK	1
DESCRIPTION	
BY	

FIRE ALARM SCHEDULES

**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503



PDF Created on: 9/8/21 at 1:50 PM by: JONATHAN LOPEZ File Name: H:\PROJECTS\307 CITY OF TORRANCE\19-001 GREENWOOD PARK FIRE ALARM SYSTEM DETECTION 01 - CAD\FIRE ALARM\FA-0.4 FIRE ALARM CALCULATIONS - SHEET TWO.DWG  
 PLOTTED PAPER SIZE (DRAWING HAS BEEN SCALED IF DIFFERENT); ARCH FULL BLEED D (24.00 X 36.00 INCHES) PLOT SCALE: 1:1 PLOT STYLE: PDF & DMF STB LAST SAVED BY: JLOPEZ

### EVS-50W BATTERY CALCULATION FOR BUILDING "B"

DEVICE	QTY.	CURRENT STANDBY (A)	CURRENT ALARM (A)	TOTAL STANDBY (A)	TOTAL ALARM (A)
		0.0000	0.0000	0.0000 A	0.0000 A
SPEAKER (4W)	0	0.0000	0.0570	0.0000 A	0.0000 A
SPEAKER (2W)	0	0.0000	0.0286	0.0000 A	0.0000 A
SPEAKER (1W)	5	0.0000	0.0143	0.0000 A	0.0715 A
SPEAKER (1/2W)	0	0.0000	0.0071	0.0000 A	0.0000 A
SPEAKER (1/4W)	0	0.0000	0.0036	0.0000 A	0.0000 A
SPEAKER (1/8W)	0	0.0000	0.0018	0.0000 A	0.0000 A
				0.0000 A	0.0715 A
ALARM CURRENT X ALARM TIME / 60 = AMP/HR FOR ALARM					
0.0715 A X 15/60 = 0.0179 AMP HR.					
PLUS (+) 30% DERATING FACTOR = 0.0054 AMP HR.					
TOTAL REQUIRED = 0.0232 AMP HR.					
BATTERY SIZE = 7 AMP HR.					

### EVS-50W BATTERY CALCULATION FOR BUILDING "A"

DEVICE	QTY.	CURRENT STANDBY (A)	CURRENT ALARM (A)	TOTAL STANDBY (A)	TOTAL ALARM (A)
		0.0000	0.0000	0.0000 A	0.0000 A
SPEAKER (4W)	0	0.0000	0.0570	0.0000 A	0.0000 A
SPEAKER (2W)	0	0.0000	0.0286	0.0000 A	0.0000 A
SPEAKER (1W)	5	0.0000	0.0143	0.0000 A	0.0715 A
SPEAKER (1/2W)	0	0.0000	0.0071	0.0000 A	0.0000 A
SPEAKER (1/4W)	0	0.0000	0.0036	0.0000 A	0.0000 A
SPEAKER (1/8W)	0	0.0000	0.0018	0.0000 A	0.0000 A
				0.0000 A	0.0715 A
ALARM CURRENT X ALARM TIME / 60 = AMP/HR FOR ALARM					
0.0715 A X 15/60 = 0.0179 AMP HR.					
PLUS (+) 30% DERATING FACTOR = 0.0054 AMP HR.					
TOTAL REQUIRED = 0.0232 AMP HR.					
BATTERY SIZE = 7 AMP HR.					

### WORST CASE VOLTAGE DROP% CALCULATION FOR BUILDING "B"

PANEL	ECC	WIRE GAUGE	14	
CIRCUIT NO.	0.071500	AREA CIR. MILL	2680	
SYSTEM VOLTAGE	70	DC RESISTANCE OHM/FT	3.2600	
DISTANCE IN FEET	272			
			ALARM	TOTAL
MODEL NUMBER	DESCRIPTION	QTY	CURRENT	CURRENT
SYSTEM SENSOR SPSR	SPEAKER (2W)	0	0.028600	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1W)	5	0.014300	0.071500
SYSTEM SENSOR SPRK	SPEAKER (1/2W)	0	0.007100	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1/4W)	0	0.003570	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1/8W)	0	0.001780	0.000000
			CIRCUIT TOTAL CURRENT	0.07150000
RESISTANCE (OHMS)	OPERATING VOLTS	VOLTAGE DROP	%VOLTAGE DROP	
1.77344000	70	0.12680096	0.18114423	
NOTE: % VOLTAGE DROP SHALL NOT EXCEED 10%				
RESISTANCE	(2 X DISTANCE IN FEET X WIRE RESISTANCE IN OHMS) / (1000)			
DROPPED VOLTAGE =	(CURRENT X RESISTANCE)			
% VOLTAGE DROP	(SYSTEM VOLTAGE/DROPPED VOLTAGE) X 100			

### WORST CASE VOLTAGE DROP% CALCULATION FOR BUILDING "A"

PANEL	ECC	WIRE GAUGE	14	
CIRCUIT NO.	0.071500	AREA CIR. MILL	2680	
SYSTEM VOLTAGE	70	DC RESISTANCE OHM/FT	3.2600	
DISTANCE IN FEET	285			
			ALARM	TOTAL
MODEL NUMBER	DESCRIPTION	QTY	CURRENT	CURRENT
SYSTEM SENSOR SPSR	SPEAKER (2W)	0	0.028600	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1W)	5	0.014300	0.071500
SYSTEM SENSOR SPRK	SPEAKER (1/2W)	0	0.007100	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1/4W)	0	0.003570	0.000000
SYSTEM SENSOR SPRK	SPEAKER (1/8W)	0	0.001780	0.000000
			CIRCUIT TOTAL CURRENT	0.07150000
RESISTANCE (OHMS)	OPERATING VOLTS	VOLTAGE DROP	%VOLTAGE DROP	
1.85820000	70	0.13286130	0.18980186	
NOTE: % VOLTAGE DROP SHALL NOT EXCEED 10%				
RESISTANCE	(2 X DISTANCE IN FEET X WIRE RESISTANCE IN OHMS) / (1000)			
DROPPED VOLTAGE =	(CURRENT X RESISTANCE)			
% VOLTAGE DROP	(SYSTEM VOLTAGE/DROPPED VOLTAGE) X 100			

### EVS-50W BATTERY CALCULATION BUILDING "B"

DEVICE	QTY.	CURRENT STANDBY (A)	CURRENT ALARM (A)	TOTAL STANDBY (A)	TOTAL ALARM (A)
115CD STROBE	0	0.0000	0.2170	0.0000 A	0.0000 A
110CD STROBE	0	0.0000	0.1630	0.0000 A	0.0000 A
75CD STROBE	4	0.0000	0.1170	0.0000 A	0.4680 A
30CD STROBE	0	0.0000	0.0910	0.0000 A	0.0000 A
15/75CD STROBE	0	0.0000	0.1170	0.0000 A	0.0000 A
15CD STROBE	4	0.0000	0.0300	0.0000 A	0.1200 A
CONTROL PANEL	1	0.3850	6.0000	0.3850 A	6.0000 A
				TOTAL STANDBY CURRENT = 0.3850 A	6.5880 A
ALARM X ALARM TIME / 60 = AMP/HR FOR ALARM					
6.5880 A X 15/60 = 1.6470 AMP HR.					
STANDBY CURRENT X 24 HRS = AMP/HR FOR ALARM					
0.3850 A X 24 = 9.2400 AMP HR.					
PLUS (+) 30% DERATING FACTOR = 2.7720 AMP HR.					
TOTAL REQUIRED = 12.0120 AMP HR.					
BATTERY SIZE = 18 AMP HR.					

### EVS-50W BATTERY CALCULATION BUILDING "A"

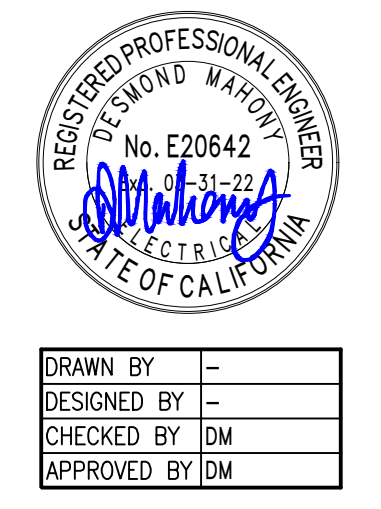
DEVICE	QTY.	CURRENT STANDBY (A)	CURRENT ALARM (A)	TOTAL STANDBY (A)	TOTAL ALARM (A)
115CD STROBE	0	0.0000	0.2170	0.0000 A	0.0000 A
110CD STROBE	0	0.0000	0.1630	0.0000 A	0.0000 A
75CD STROBE	6	0.0000	0.1170	0.0000 A	0.7020 A
30CD STROBE	1	0.0000	0.0910	0.0000 A	0.0910 A
15/75CD STROBE	0	0.0000	0.1170	0.0000 A	0.0000 A
15CD STROBE	0	0.0000	0.0300	0.0000 A	0.0000 A
CONTROL PANEL	1	0.3850	6.0000	0.3850 A	6.0000 A
				TOTAL STANDBY CURRENT = 0.3850 A	6.7930 A
ALARM X ALARM TIME / 60 = AMP/HR FOR ALARM					
6.7930 A X 15/60 = 1.6983 AMP HR.					
STANDBY CURRENT X 24 HRS = AMP/HR FOR ALARM					
0.3850 A X 24 = 9.2400 AMP HR.					
PLUS (+) 30% DERATING FACTOR = 2.7720 AMP HR.					
TOTAL REQUIRED = 12.0120 AMP HR.					
BATTERY SIZE = 18 AMP HR.					

### WORSE CASE VOLTAGE DROP CALCULATION BLDG. "B"

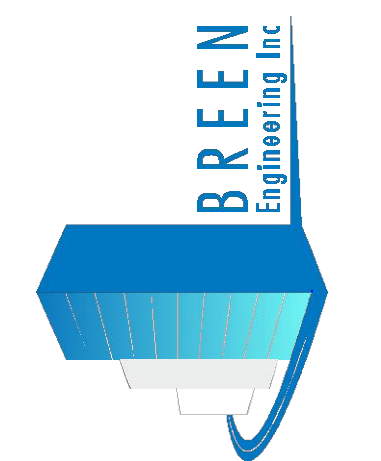
VISUAL CIRCUIT #5				
0	AUDIO/VISUAL DEVICE (115cd) Ⓢ	0.2170 A	=	0.0000 A
0	AUDIO/VISUAL DEVICE (110cd) Ⓢ	0.1630 A	=	0.0000 A
4	AUDIO/VISUAL DEVICE (75cd) Ⓢ	0.1170 A	=	0.4680 A
4	AUDIO/VISUAL DEVICE (15/75cd) Ⓢ	0.1170 A	=	0.4680 A
0	AUDIO/VISUAL DEVICE (30cd) Ⓢ	0.0910 A	=	0.0000 A
0	VISUAL DEVICE (15cd) Ⓢ	0.0300 A	=	0.0000 A
	TOTAL		=	0.9360 A
			=	0.0000 A
	0.9360 A	X	345	21.5
				0
				= 1.0632 VD
				6,530 (#12)
		1.06 A	X	4.4301
		24 V	X	100
				= 4.4301 VD%

### WORSE CASE VOLTAGE DROP CALCULATION BLDG. "A"

VISUAL CIRCUIT #5				
0	AUDIO/VISUAL DEVICE (115cd) Ⓢ	0.2170 A	=	0.0000 A
0	AUDIO/VISUAL DEVICE (110cd) Ⓢ	0.1630 A	=	0.0000 A
6	AUDIO/VISUAL DEVICE (75cd) Ⓢ	0.1170 A	=	0.7020 A
1	AUDIO/VISUAL DEVICE (15/75cd) Ⓢ	0.1170 A	=	0.1170 A
0	AUDIO/VISUAL DEVICE (30cd) Ⓢ	0.0910 A	=	0.0000 A
0	VISUAL DEVICE (15cd) Ⓢ	0.0300 A	=	0.0000 A
	TOTAL		=	0.8190 A
			=	0.0000 A
	0.8190 A	X	345	21.5
				0
				= 0.9303 VD
				6,530 (#12)
		0.93 A	X	3.8763
		24 V	X	100
				= 3.8763 VD%



DRAWN BY: -  
 DESIGNED BY: -  
 CHECKED BY: DM  
 APPROVED BY: DM



**FIRE ALARM CALCULATIONS - SHEET TWO**  
**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

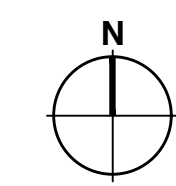
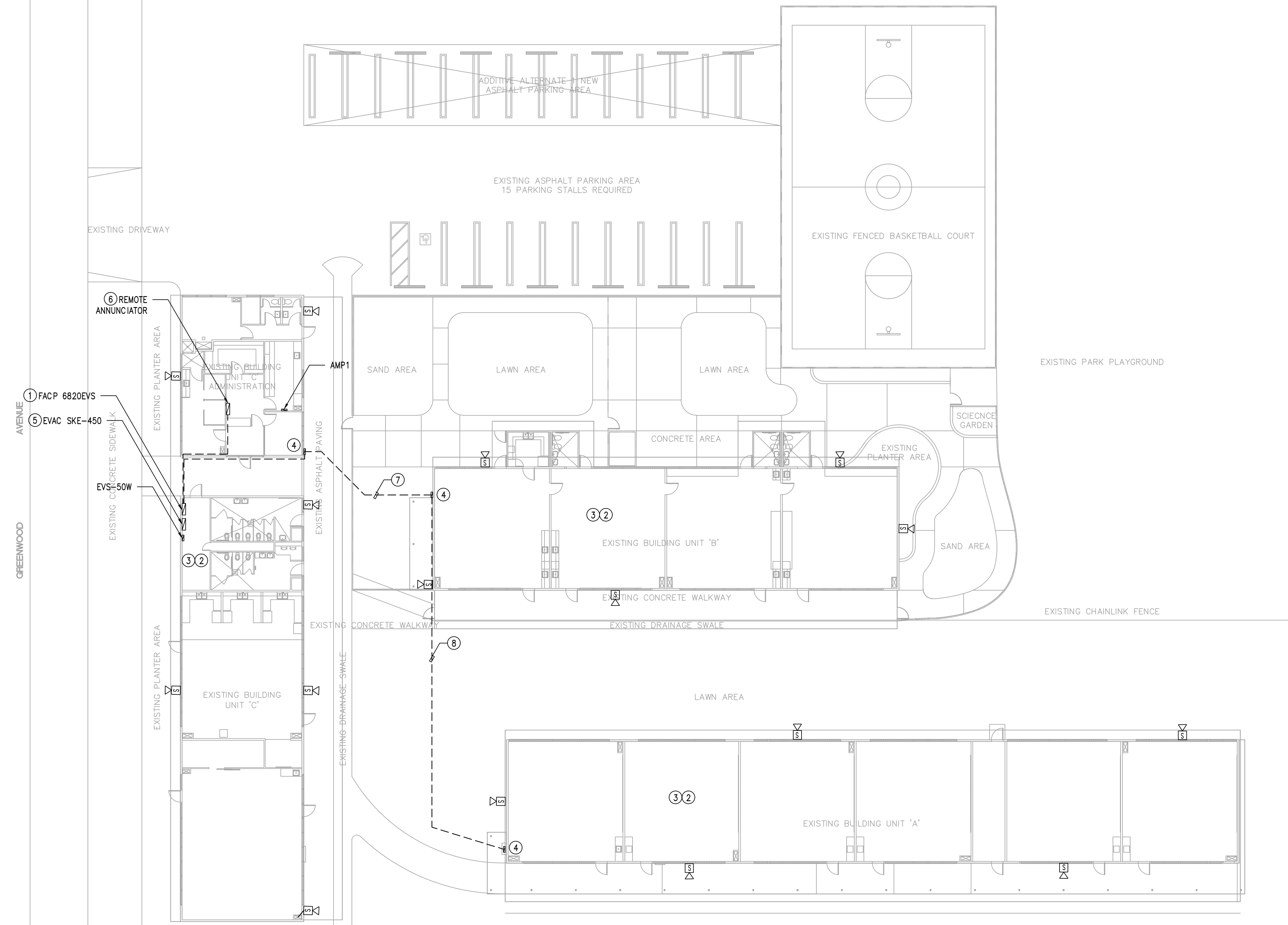
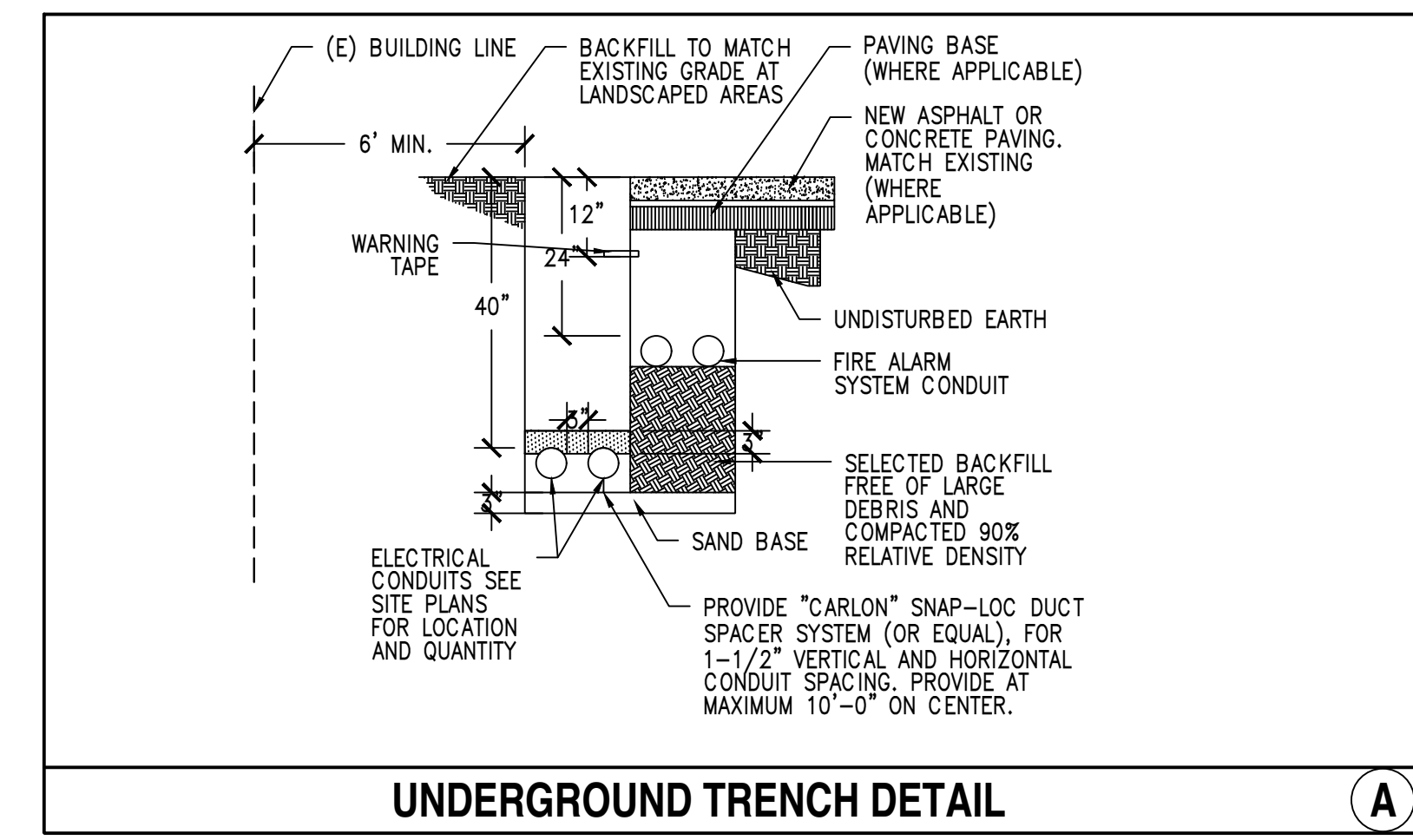
DATE: 09/08/2021  
 SCALE: NONE  
 PROJECT NUMBER: 307-19-001  
 DRAWN BY: JL/AA  
 CHECKED BY: DM/JL  
 DRAWING NUMBER: **FA-0.4**

**GENERAL NOTES**

- 1 ALL NEW AND EXISTING FIRE ALARM SYSTEM WORK, INCLUDING EXISTING CAMPUS FIRE ALARM INSTALLATION DEMOLITION WORK, BOTH NEW AND EXISTING FIRE ALARM SYSTEM INSTALLATION SHALL INCLUDED BUT NOT BE LIMITED TO:
  - A. COMPLETE NEW FIRE ALARM SYSTEM INSTALLATION AND WORK FOR SCHOOL DISTRICT AND CAMPUS USE.
  - B. DEMO AND REMOVE ALL EXISTING FIRE ALARM SYSTEM DEVICES, EQUIPMENT AND CONDUIT SYSTEM WITHIN BUILDING. DEMO OF EXISTING FIRE ALARM SYSTEM DEVICES AND WIRING SHALL NOT BE STARTED UNTIL NEW FIRE ALARM SYSTEM REQUIRED IN THIS CONTRACT IS IN PLACE, TESTED AND CERTIFIED FOR OPERATIONAL.
- 2 BECAUSE THE NEW FIRE ALARM SYSTEM AND WORK WILL BE INSTALLED IN SEVERAL CONSTRUCTION PHASES AND AT SEPARATE AREAS OF THE CAMPUS, CONTRACTOR SHALL INCLUDE THIS IN HIS BID COST AND SCOPE OF WORK "FIRE WATCH" WHEN THE EXISTING SCHOOL CAMPUS FIRE ALARM SYSTEM IS DOWN OR WHEN CUT OVER BETWEEN THE NEW AND EXISTING FIRE ALARM SYSTEM HAVE TO BE MADE. FIRE WATCH SHALL BE PROVIDED FOR CLASSROOM BUILDING WHICH ARE OCCUPIED DURING THE SCHOOL YEAR.
- 3 AT PORTABLE CLASSROOM BUILDINGS BOTH NEW FIRE ALARM SYSTEM INSTALLATION WORK AND DEMO OF EXISTING FIRE ALARM SYSTEM SHALL BE SCHEDULED DURING THE SAME TIME PERIOD TO REDUCE THE FIRE WATCH REQUIRED AT EACH OF THE BUILDINGS DURING CONSTRUCTION.

**REFERENCE NOTES**

- 1 NEW LOCATION OF THE NEW HONEYWELL FACP 6820-EVS TERMINAL CABINETS.
- 2 CONTRACTOR SHALL DEMO AND REMOVE EXISTING CAMPUS FIRE ALARM SYSTEM (I.E. FA DEVICES SMOKE DETECTOR, HORN/STROBE, EQUIPMENT) INCLUDING REMOVAL OF ALL EXISTING WIRING, ONCE THE NEW FIRE ALARM SYSTEM AND WORK IS IN PLACE, CERTIFIED/TESTED AND OPERATIONAL WITHIN THE CLASSROOM BUILDING.
- 3 FOR CONNECTION AND ADDITIONAL FIRE ALARM WIRING INSTALLATION WITHIN THE CLASSROOM BUILDING REFER TO SHEET FA-2.1 THROUGH FA-2.3 FLOOR PLANS AND FIRE ALARM SYSTEM RISER DIAGRAM SHEET FA-4.1.
- 4 PROVIDE NEW PULL BOX FOR THE FIRE ALARM SYSTEM DISTRIBUTION SYSTEM.
- 5 NEW EVAC HONEYWELL MODEL NO. SKE-450.
- 6 NEW HONEYWELL MODEL NO. 6860 REMOTE ANNUNCIATOR.
- 7 EXISTING 2" UNDERGROUND PVC PIPE.
- 8 EXISTING 1" UNDERGROUND PVC PIPE.

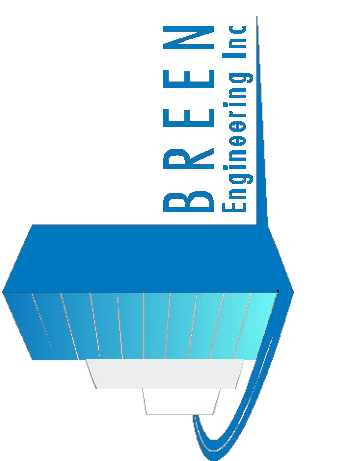


REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL



DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

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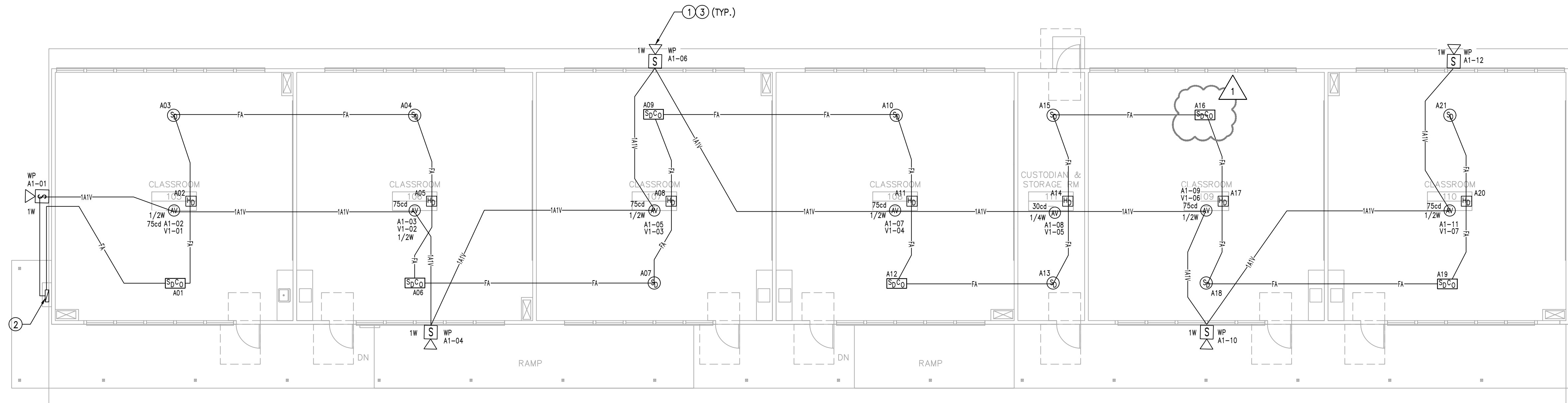


**FIRE ALARM SITE PLAN**

**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	1/16" = 1'-0"
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL

DRAWING NUMBER  
**FA-1.0**  
 OF



**CONSTRUCTION NOTES**

1. BECAUSE THE NEW FIRE ALARM SYSTEM AND WORK WILL BE INSTALLED IN SEVERAL CONSTRUCTION PHASES AND AT SEPARATE AREAS OF THE CAMPUS, CONTRACTOR SHALL INCLUDE THIS IN HIS BID COST AND SCOPE OF WORK "FIRE WATCH" WHEN THE EXISTING SCHOOL CAMPUS FIRE ALARM SYSTEM IS DOWN OR WHEN CUT OVER BETWEEN THE NEW AND EXISTING FIRE ALARM SYSTEM HAVE TO BE MADE. FIRE WATCH SHALL BE PROVIDED FOR CLASSROOM BUILDINGS WHICH ARE OCCUPIED DURING THE SCHOOL YEAR.
2. IF CONSTRUCTION SCHEDULING AT EXISTING CLASSROOM BUILDINGS BOTH NEW FIRE ALARM SYSTEM INSTALLATION WORK AND DEMO OF EXISTING FIRE ALARM SYSTEM SHALL BE SCHEDULE DURING THE SAME TIME PERIOD TO REDUCE THE FIRE WATCH REQUIRED AT EACH OF THE BUILDINGS DURING CONSTRUCTION.

**REFERENCE NOTES**

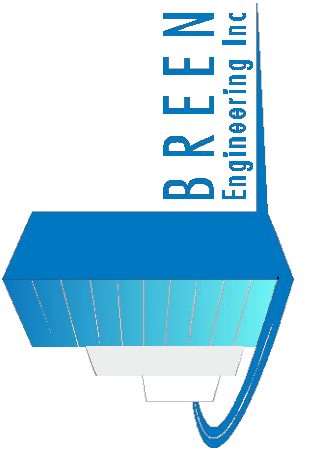
- ① WEATHERPROOF VOICE EVAC. SPEAKER AT 10'-0" A.F.F.
- ② NEW EXTERIOR BOX ON BUILDING TO BE REUSED IN THIS CONTRACT FOR THE CONNECTION FIRE ALARM SYSTEM DEVICES. REFER TO FIRE ALARM SITE PLAN SHEET FA-1.0 FOR ADDITIONAL INFORMATION ON THE CONNECTIONS.
- ③ NEW FIRE ALARM SPEAKER/STROBE TO BE WALL MOUNTED +80" A.F.F.

REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL



DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

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TORRANCE, CA 90504  
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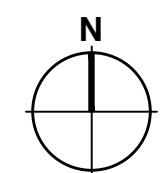


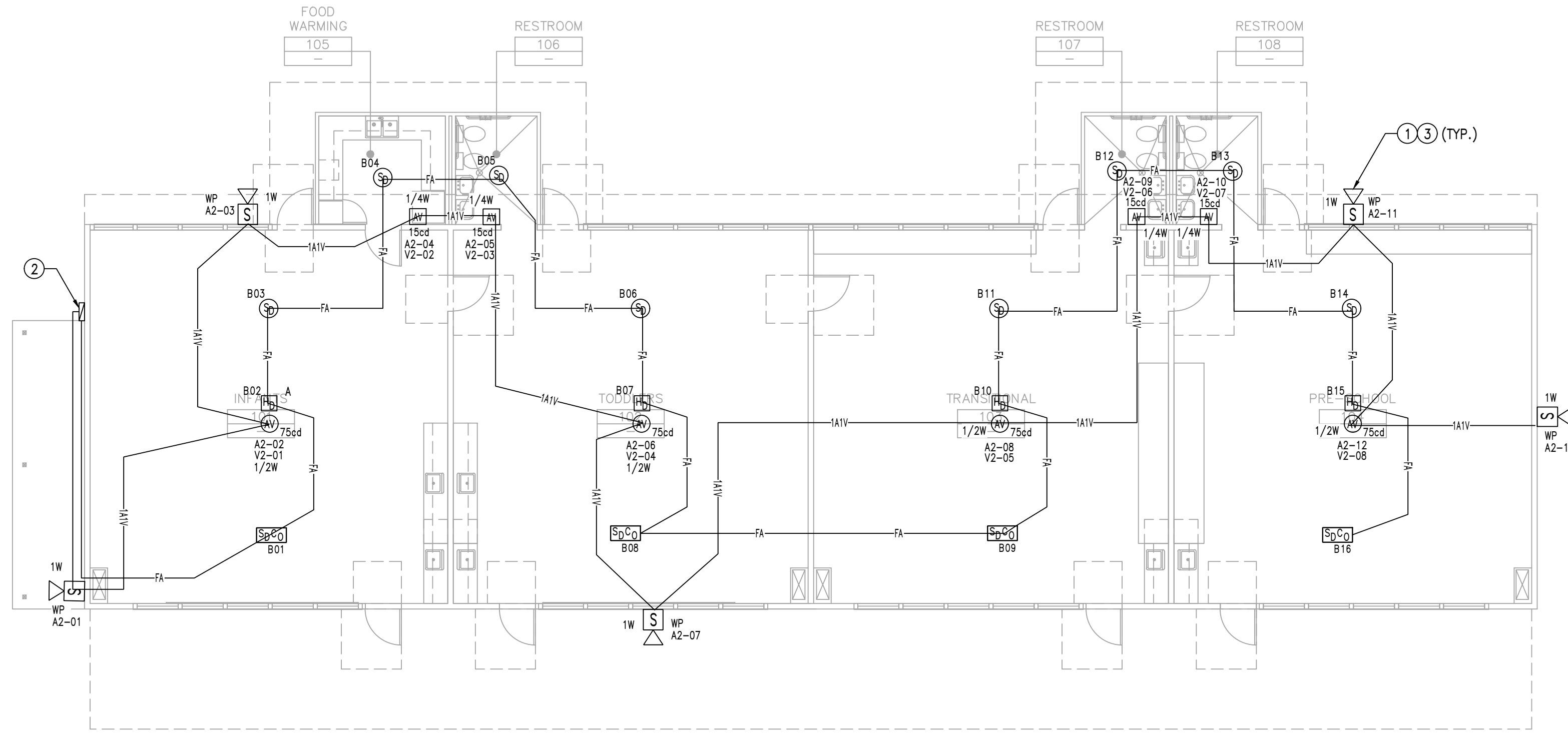
**FIRE ALARM BLDG. A FLOOR PLAN**

**GREENWOOD CHILD CARE CENTER**  
1520 GREENWOOD AVENUE  
TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	1/8" = 1'-0"
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL

DRAWING NUMBER	<b>FA-2.1</b>
OF	





**CONSTRUCTION NOTES**

1. BECAUSE THE NEW FIRE ALARM SYSTEM AND WORK WILL BE INSTALLED IN SEVERAL CONSTRUCTION PHASES AND AT SEPARATE AREAS OF THE CAMPUS, CONTRACTOR SHALL INCLUDE THIS IN HIS BID COST AND SCOPE OF WORK "FIRE WATCH" WHEN THE EXISTING SCHOOL CAMPUS FIRE ALARM SYSTEM IS DOWN OR WHEN CUT OVER BETWEEN THE NEW AND EXISTING FIRE ALARM SYSTEM HAVE TO BE MADE. FIRE WATCH SHALL BE PROVIDED FOR CLASSROOM BUILDING WHICH ARE OCCUPIED DURING THE SCHOOL YEAR.
2. IF CONSTRUCTION SCHEDULING AT EXISTING CLASSROOM BUILDINGS BOTH NEW FIRE ALARM SYSTEM INSTALLATION WORK AND DEMO OF EXISTING FIRE ALARM SYSTEM SHALL BE SCHEDULED DURING THE SAME TIME PERIOD TO REDUCE THE FIRE WATCH REQUIRED AT EACH OF THE BUILDINGS DURING CONSTRUCTION.

**REFERENCE NOTES**

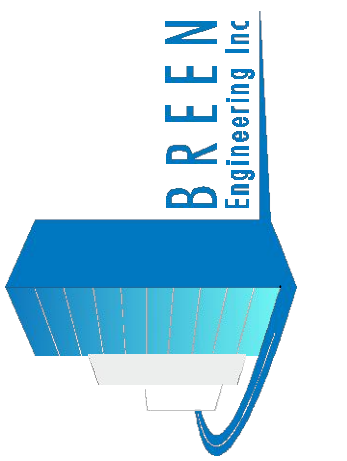
- ① WEATHERPROOF VOICE EVAC. SPEAKER AT 10'-0" A.F.F.
- ② NEW EXTERIOR BOX ON BUILDING TO BE REUSED IN THIS CONTRACT FOR THE CONNECTION FIRE ALARM SYSTEM DEVICES. REFER TO FIRE ALARM SITE PLAN SHEET FA-1.0 FOR ADDITIONAL INFORMATION ON THE CONNECTIONS.
- ③ NEW FIRE ALARM SPEAKER/STROBE TO BE WALL MOUNTED +80" A.F.F.

REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL
-	REV.	-	-



DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

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 TORRANCE, CA 90504  
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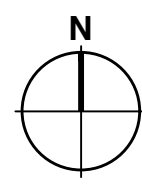
**FIRE ALARM BLDG. B FLOOR PLAN**

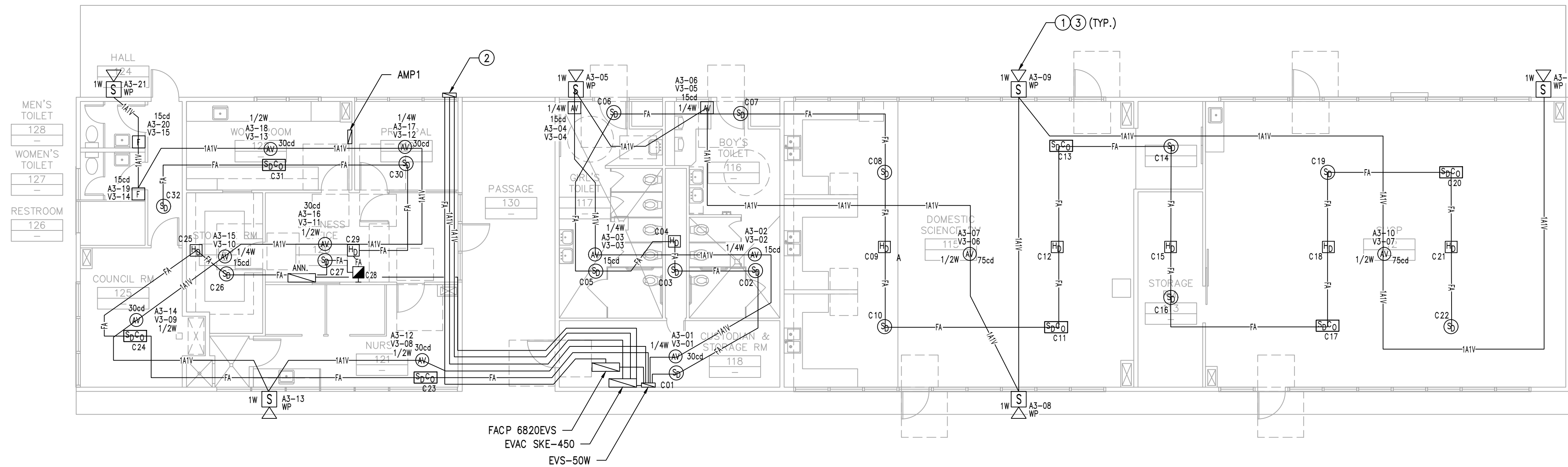
**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	1/8" = 1'-0"
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL
DRAWING NUMBER	

**FA-2.2**

OF





**CONSTRUCTION NOTES**

1. BECAUSE THE NEW FIRE ALARM SYSTEM AND WORK WILL BE INSTALLED IN SEVERAL CONSTRUCTION PHASES AND AT SEPARATE AREAS OF THE CAMPUS, CONTRACTOR SHALL INCLUDE THIS IN HIS BID COST AND SCOPE OF WORK "FIRE WATCH" WHEN THE EXISTING SCHOOL CAMPUS FIRE ALARM SYSTEM IS DOWN OR WHEN CUT OVER BETWEEN THE NEW AND EXISTING FIRE ALARM SYSTEM HAVE TO BE MADE. FIRE WATCH SHALL BE PROVIDED FOR CLASSROOM BUILDING WHICH ARE OCCUPIED DURING THE SCHOOL YEAR.
2. IF CONSTRUCTION SCHEDULING AT EXISTING CLASSROOM BUILDINGS BOTH NEW FIRE ALARM SYSTEM INSTALLATION WORK AND DEMO OF EXISTING FIRE ALARM SYSTEM SHALL BE SCHEDULE DURING THE SAME TIME PERIOD TO REDUCE THE FIRE WATCH REQUIRED AT EACH OF THE BUILDINGS DURING CONSTRUCTION.

**REFERENCE NOTES**

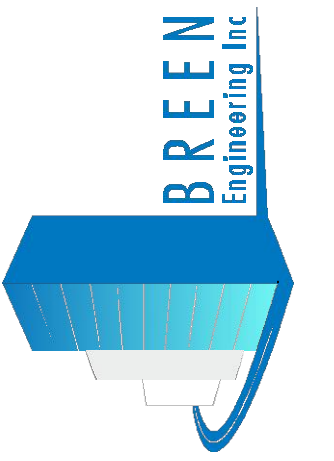
- 1 WEATHERPROOF VOICE EVAC. SPEAKER AT 10'-0" A.F.F.
- 2 NEW EXTERIOR BOX ON BUILDING TO BE REUSED IN THIS CONTRACT FOR THE CONNECTION FIRE ALARM SYSTEM DEVICES. REFER TO FIRE ALARM SITE PLAN SHEET FA-1.0 FOR ADDITIONAL INFORMATION ON THE CONNECTIONS.
- 3 NEW FIRE ALARM SPEAKER/STROBE TO BE WALL MOUNTED +80" A.F.F.
- 4 FOR CONNECTION OF FA EQUIPMENT CONTRACTOR SHALL PROVIDE 1/2" C. 2#12 AND CONNECT TO NEAREST 120 VOLT PANEL (SPARE 20A, 1P DEDICATED CIRCUIT) SERVING THE SPACE OR AREA.

REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL



DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

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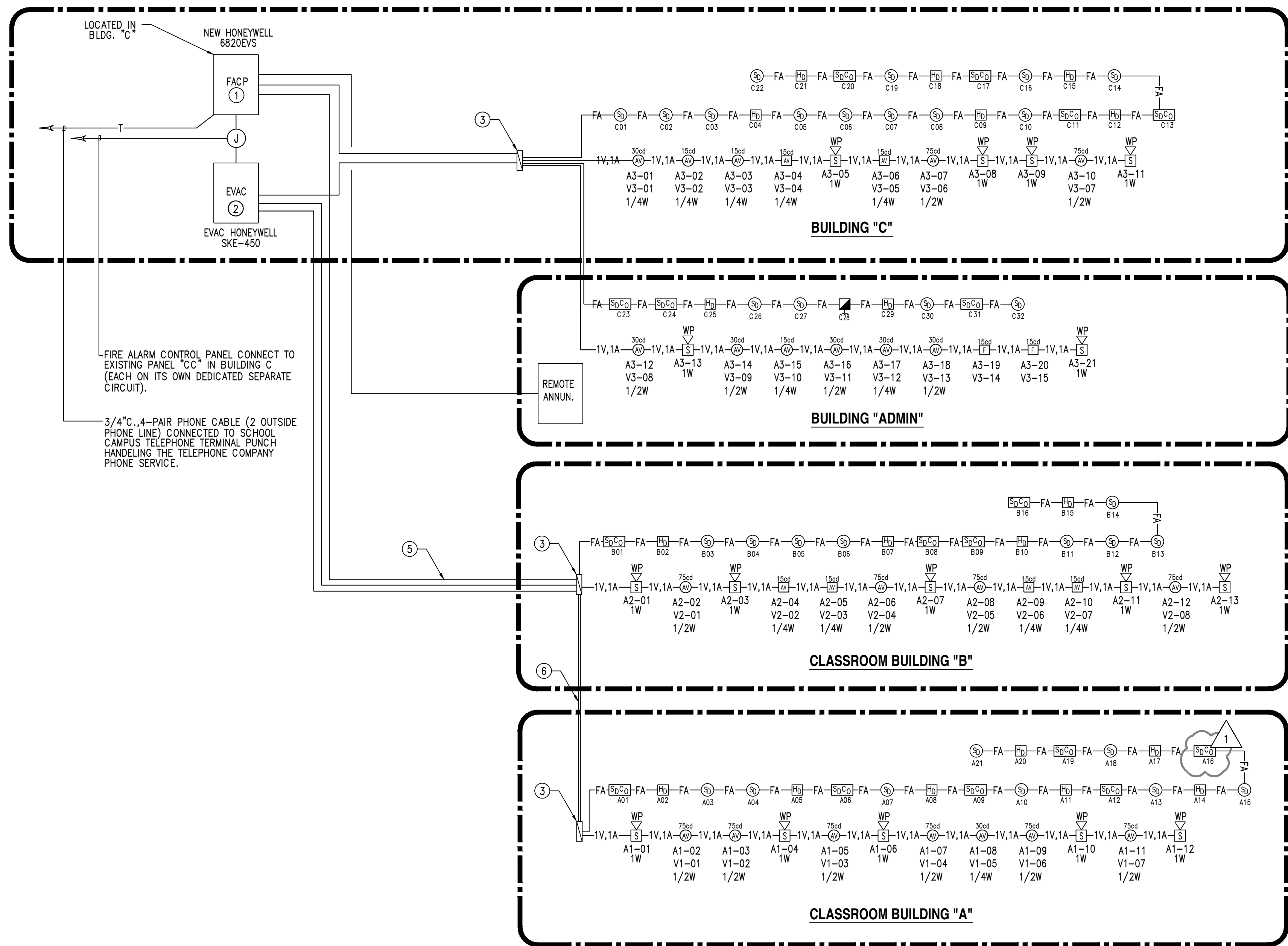
**FIRE ALARM BLDG. C & ADMIN. FLOOR PLAN**

**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	1/8" = 1'-0"
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL

**FA-2.3**





**REFERENCE NOTES**

- 1 NEW FACP (INTELLIGENT ADDRESSABLE FACP WITH BUILT-IN COMMUNICATOR) HONEYWELL 6820EVS REV 3. FURNISHED AND INSTALLED UNDER THIS CONTRACT.
- 2 NEW EMERGENCY COMMAND CENTER SKE-450.
- 3 NEW PULL BOX AT BUILDING. SEE SITE PLAN FA-1.0.
- 4 CONTRACTOR SHALL PROVIDE 1/2" C, 4#12 AND CONNECT TO PANEL "CC" ON (2) SEPARATE CIRCUITS. SPARE 20A 1P DEDICATED CIRCUITS ON #15 AND #17 SERVING THE FACP AND SKE-450 FA EQUIPMENT.
- 5 EXISTING 2" C WITH 4 STRAND F.O. CABLES, SLC LOOP AND 1V STROBE CIRCUIT.
- 6 EXISTING 1" C WITH 3 STRAND F.O. CABLES, SLC LOOP AND 1V STROBE CIRCUIT.

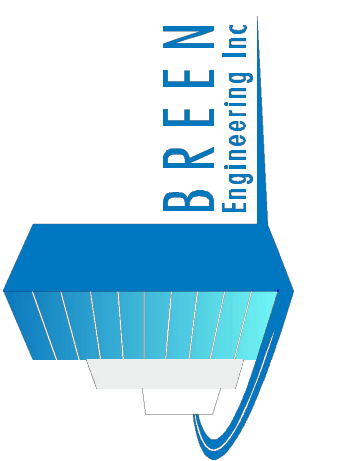
**FIRE ALARM NOTES**

1. CONTRACTOR SHALL MAINTAIN A MINIMUM 3'-0" DISTANCE BETWEEN THE SMOKE DETECTOR AND THE HVAC SUPPLY AIR DIFFUSER.
2. DUE TO MAINTENANCE PURPOSES AND ACCESS TO THE ATTIC SPACE PROTECTOWIRE LINEAR HEAT DETECTOR SHALL BE USED IN THE ATTIC SPACE IN LIEU OF HEAT DETECTOR DEVICES.



DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

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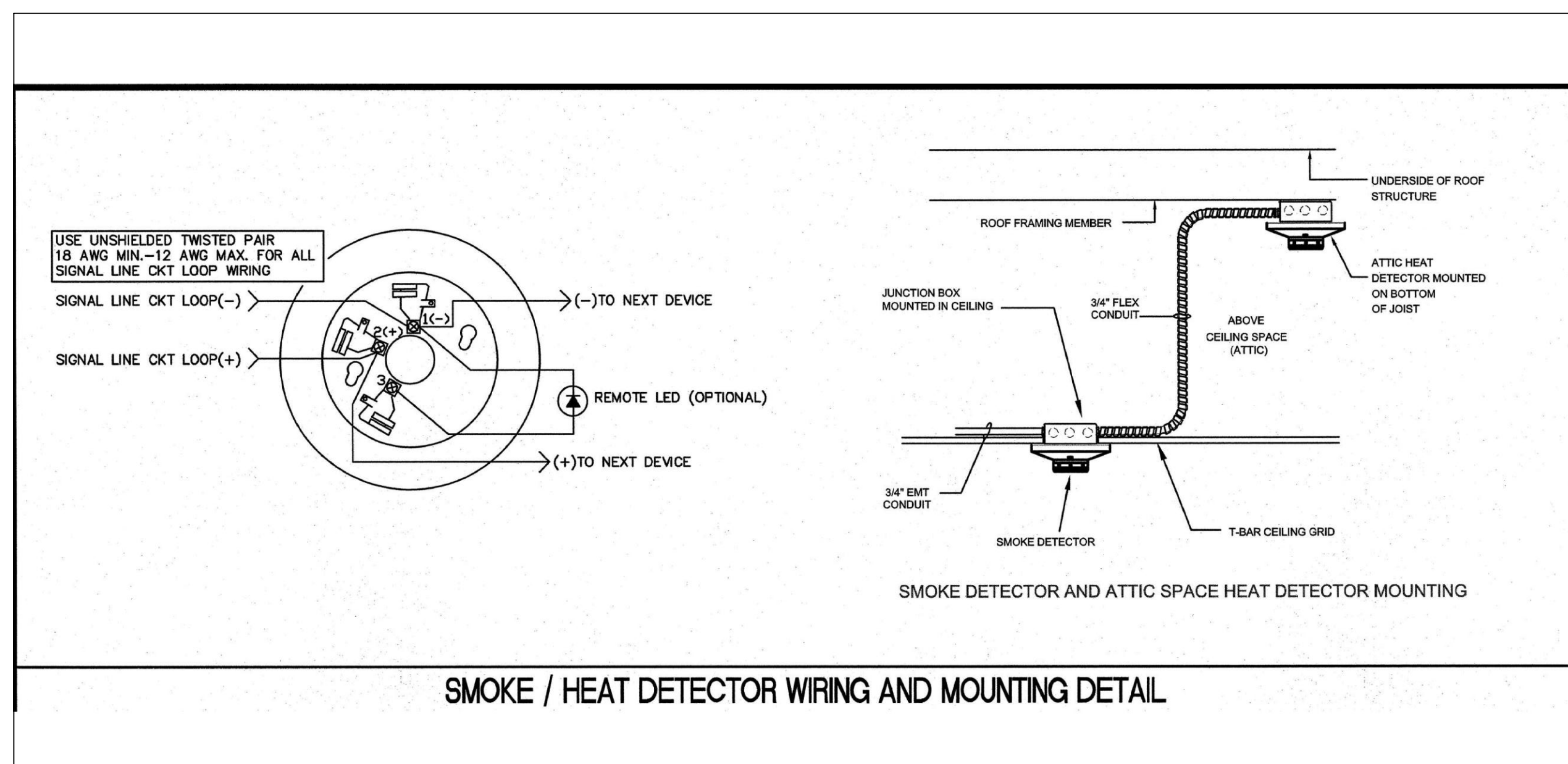


**FIRE ALARM SINGLE LINE DIAGRAM**

**GREENWOOD CHILD CARE CENTER**  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

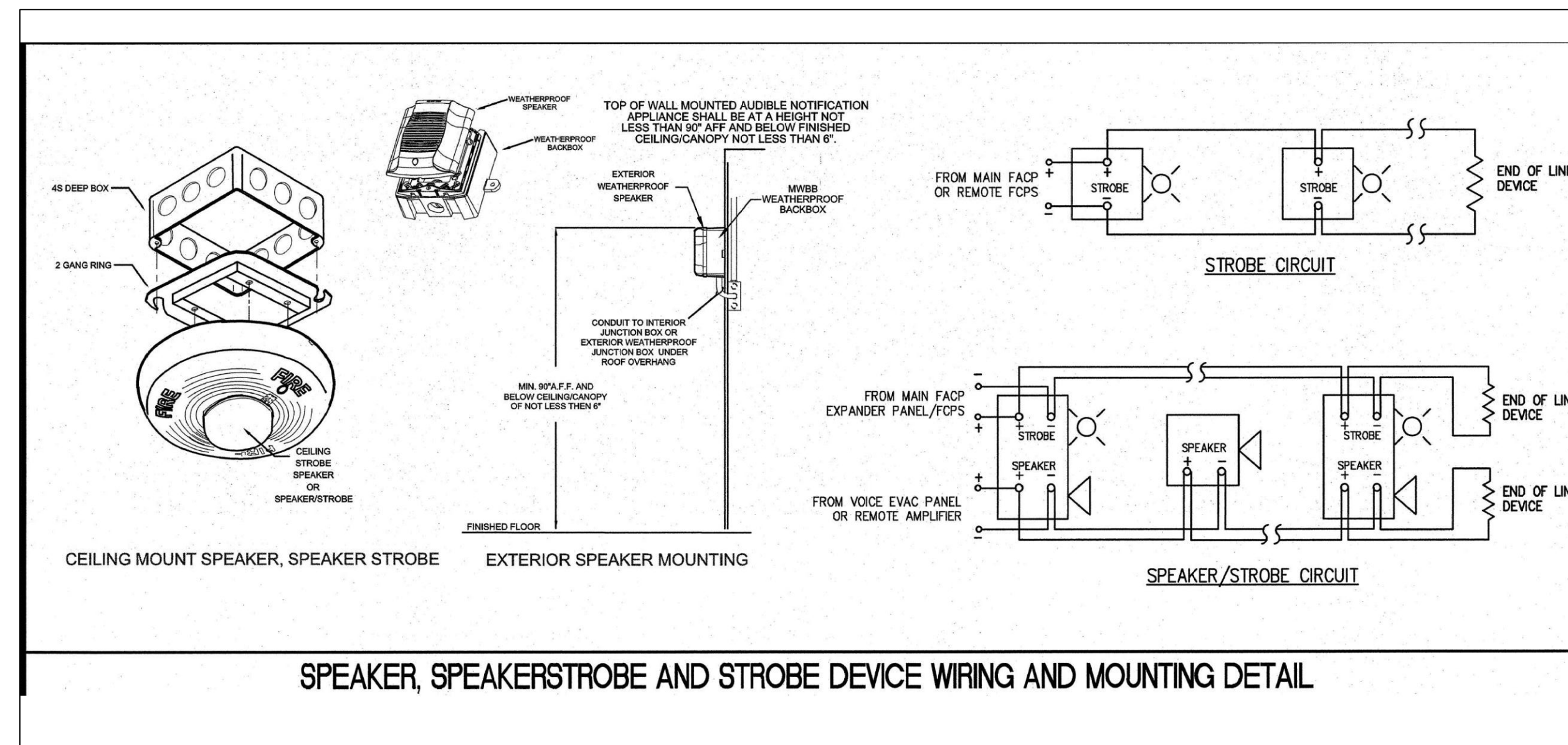
DATE:	09/08/2021
SCALE:	N.T.S.
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL

DRAWING NUMBER  
**FA-4.1**



SMOKE/HEAT DETECTOR WIRING AND MOUNTING DETAIL

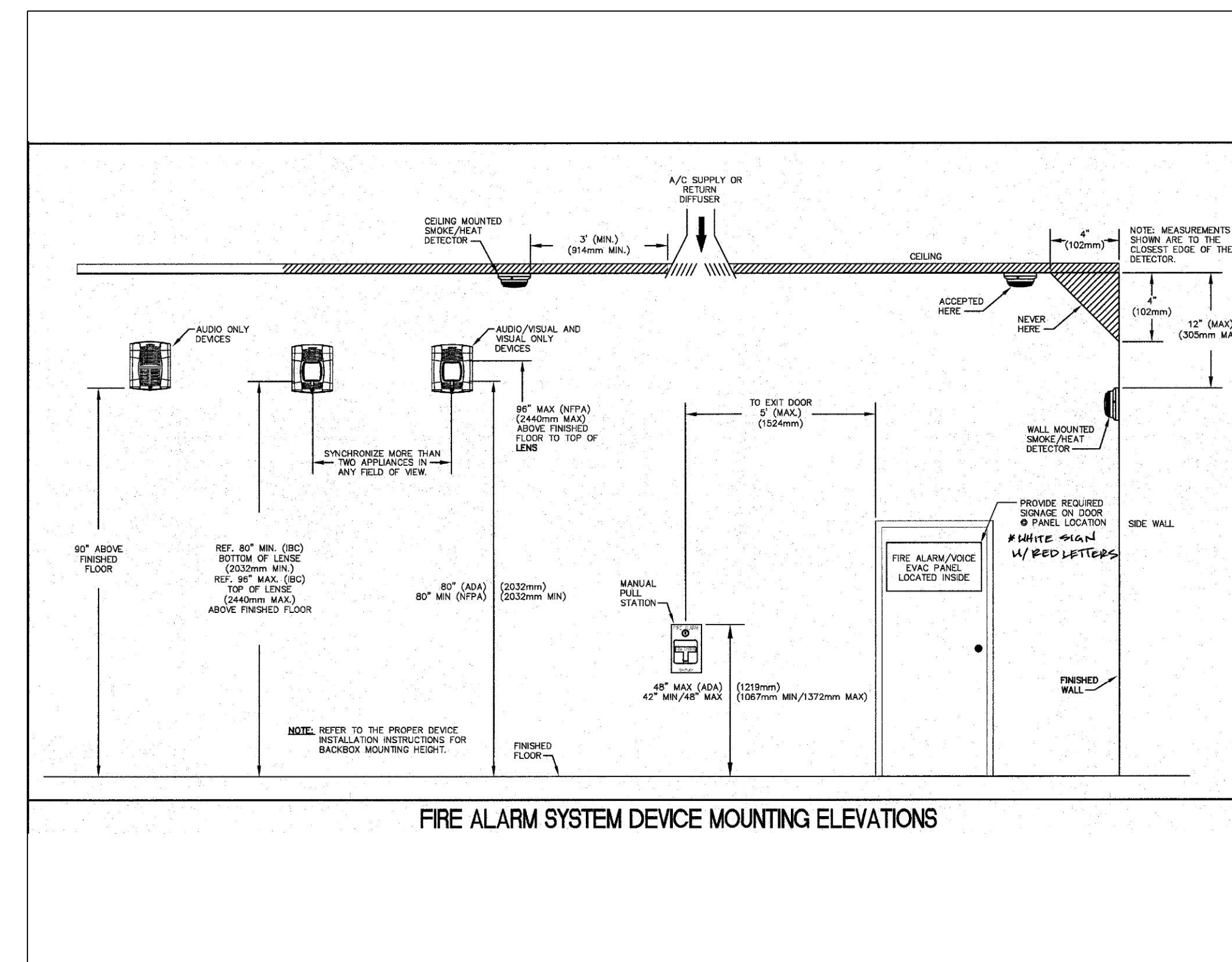
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SPEAKER, SPEAKERSTROBE AND STROBE DEVICE WIRING AND MOUNTING DETAIL

SPEAKER, SPEAKERSTROBE AND STROBE DEVICE WIRING AND MOUNTING DETAIL

2



FIRE ALARM SYSTEM DEVICE MOUNTING ELEVATIONS

1

FIRE ALARM DETAILS - SHEET ONE

**GREENWOOD  
CHILD CARE CENTER**  
1520 GREENWOOD AVENUE  
TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	N.T.S.
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL
DRAWING NUMBER	

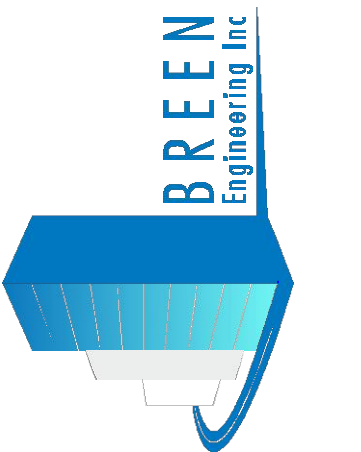
**FA-5.1**

OF



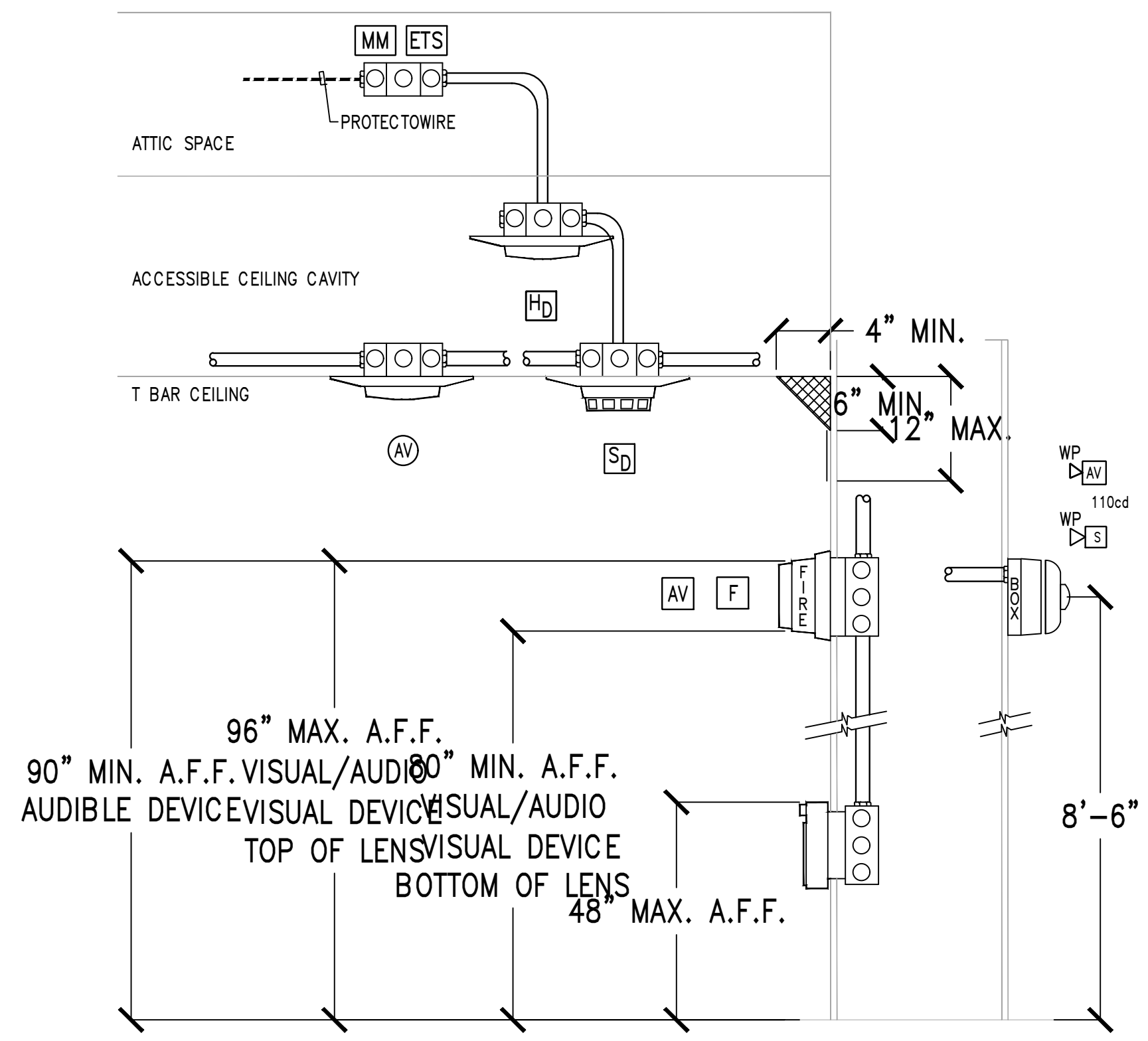
DRAWN BY:	
DESIGNED BY:	
CHECKED BY:	DM
APPROVED BY:	DM

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TORRANCE, CA 90504  
TEL: (310) 464-8404  
FAX: (310) 464-8408  
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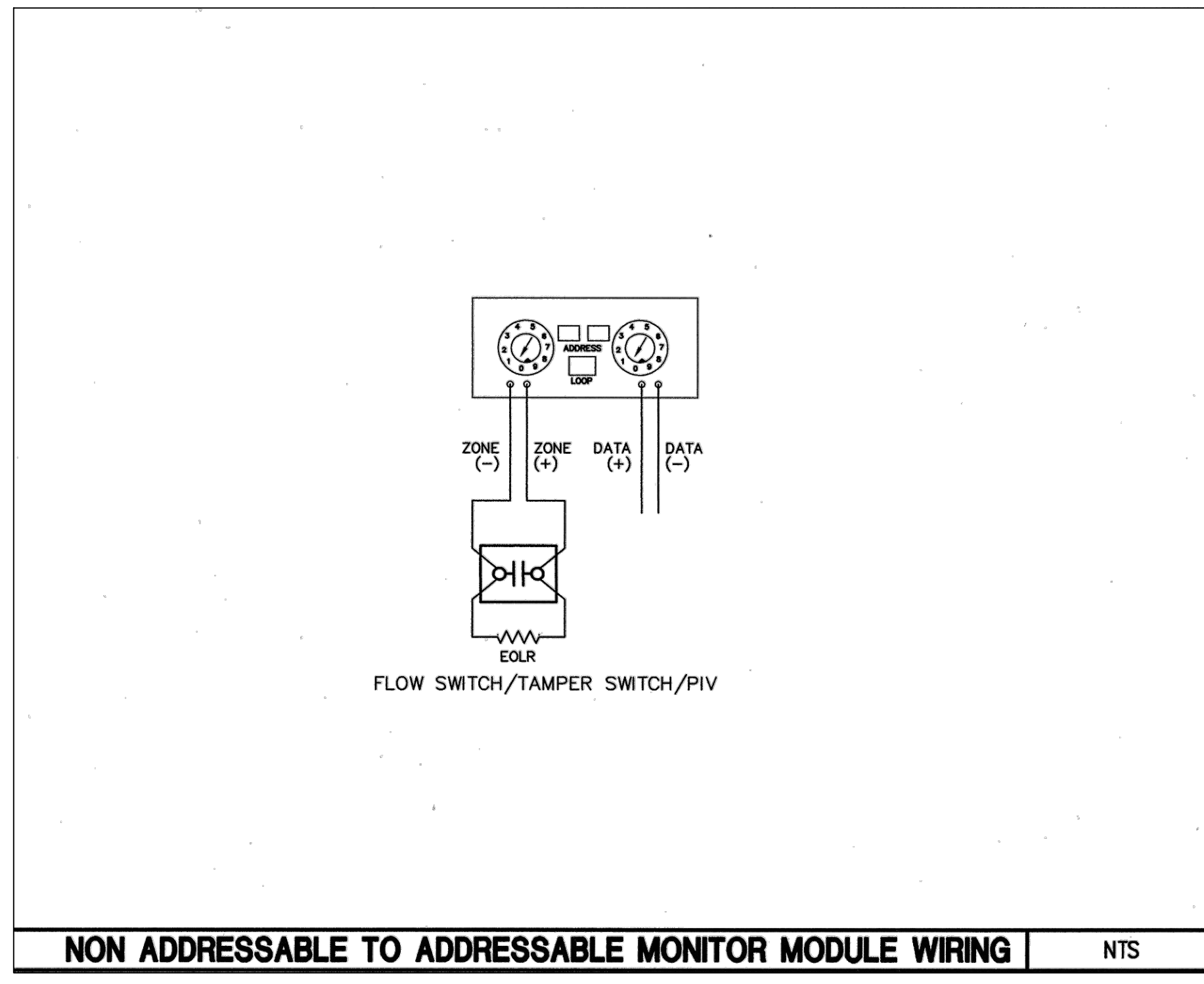


REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL

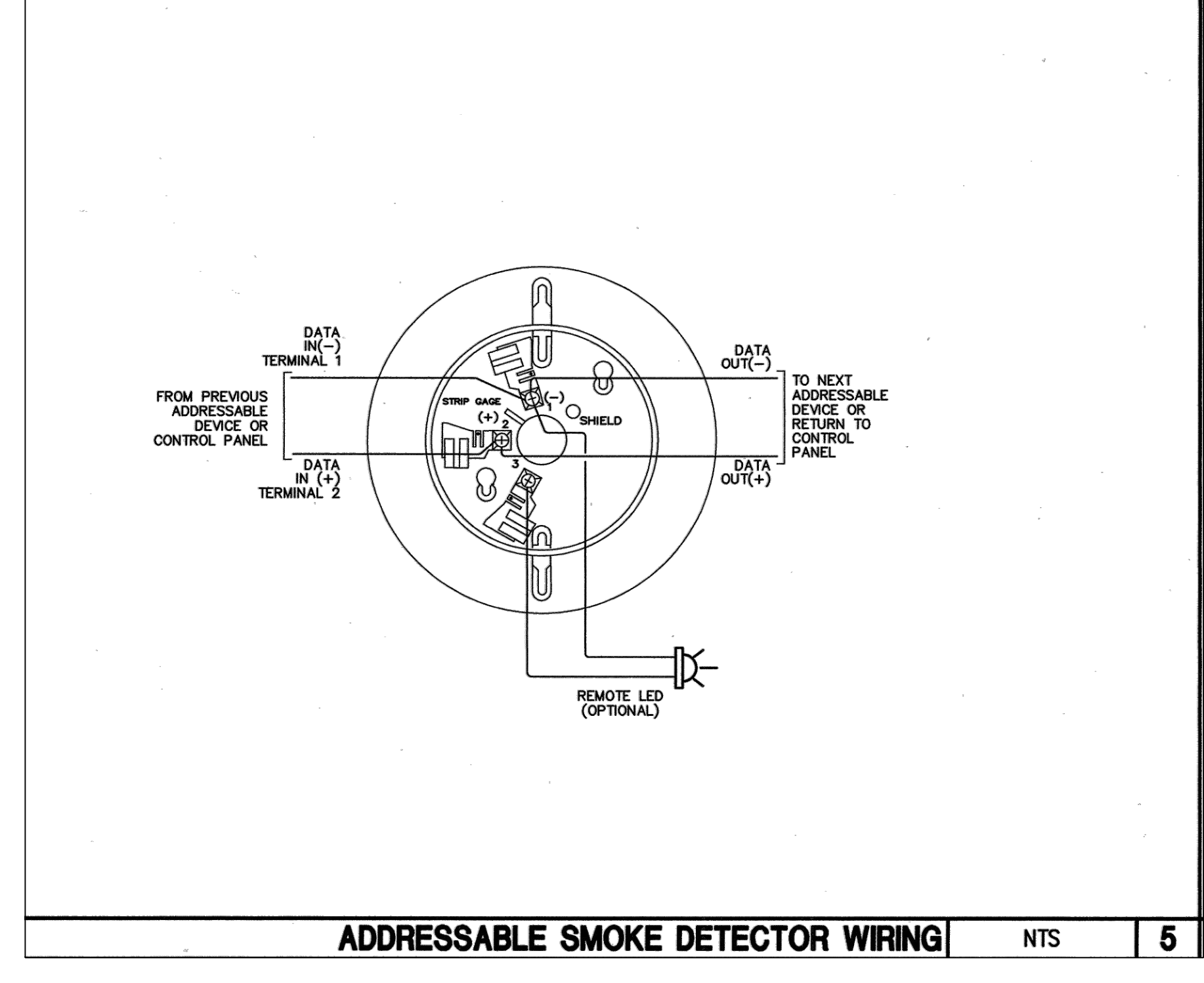
PDF Created on: 08/21 at 1:51 PM by JONATHAN LOPEZ File: H:\PROJECTS\307 CITY OF TORRANCE\19-001 GREENWOOD PARK FIRE ALARM SYSTEM DETECTION\01 - CAD\FIRE ALARM\FA-5.2 FIRE ALARM DETAILS - SHEET TWO.DWG PLOTTED PAPER SIZE (DRAWING HAS BEEN SCALED IF DIFFERENT); ARCH FULL BLEED D (24.00 X 36.00 INCHES); PLOT SCALE: 1:1 PLOT STYLE: PDF & DMF; STB LAST SAVED BY: JLOPEZ



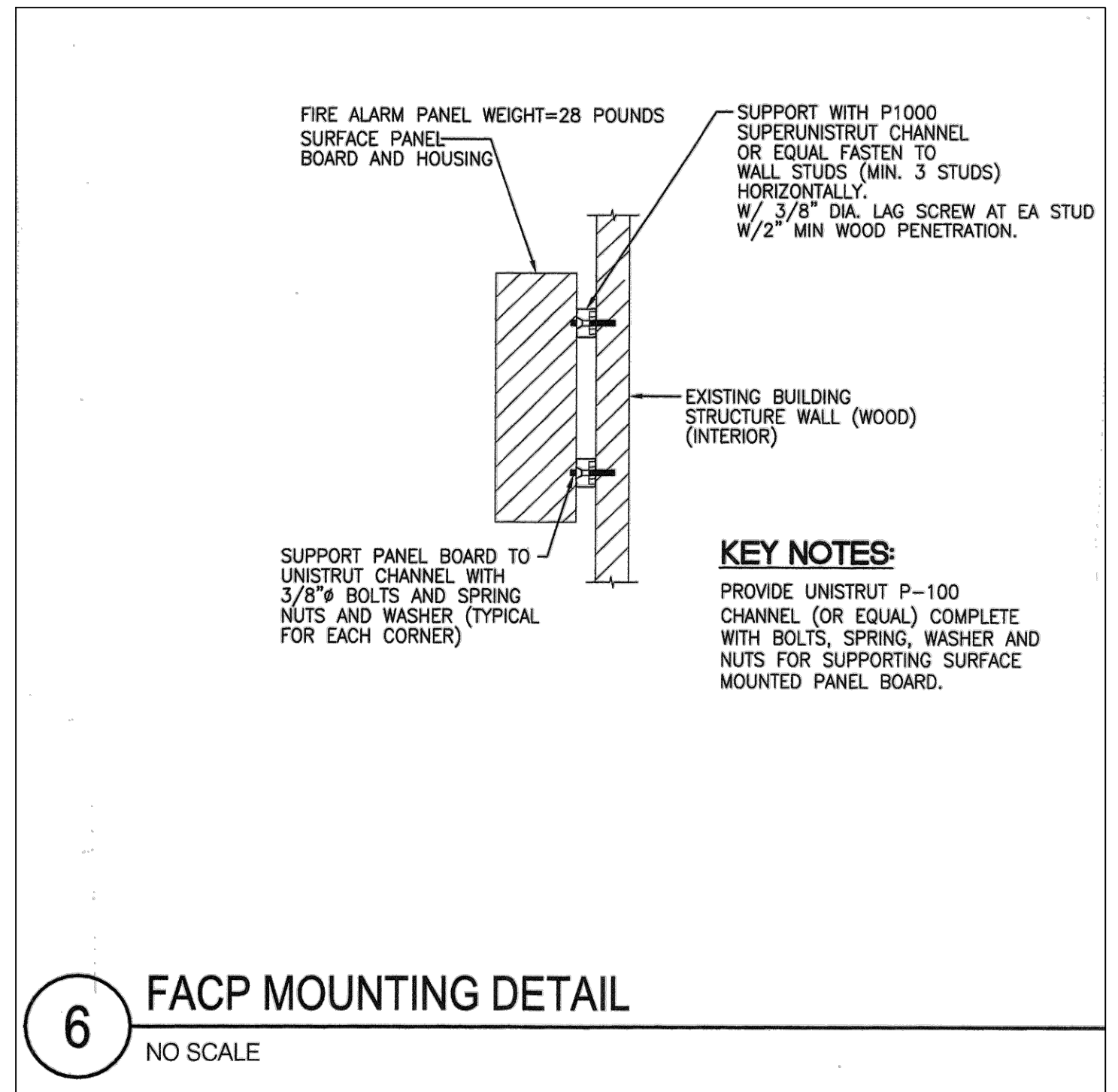
10 SMOKE/HEAT DETECTOR/PULL STATION, AUDIO/VISUAL DEVICE MOUNTING DETAILS



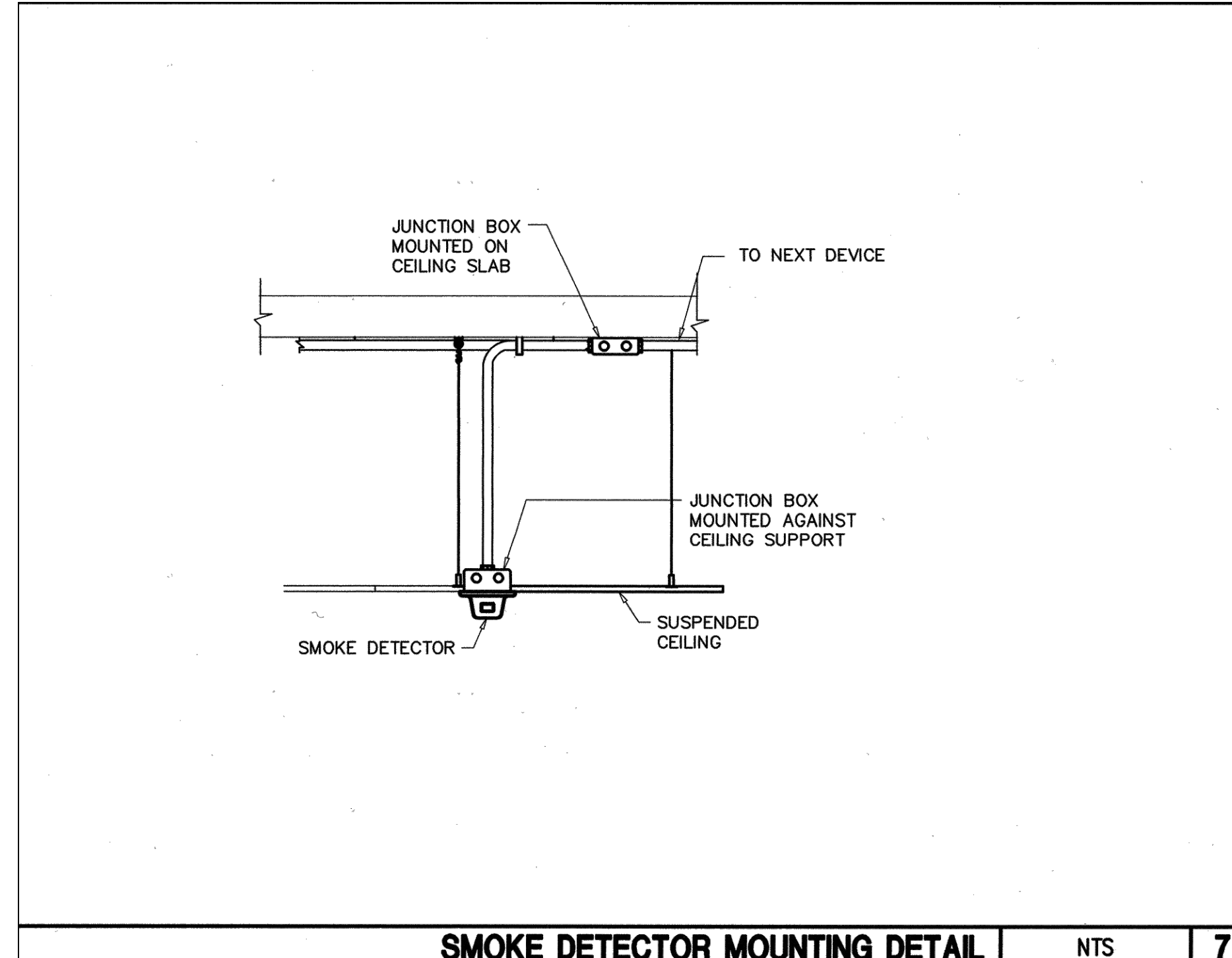
7 NON ADDRESSABLE TO ADDRESSABLE MONITOR MODULE WIRING NTS



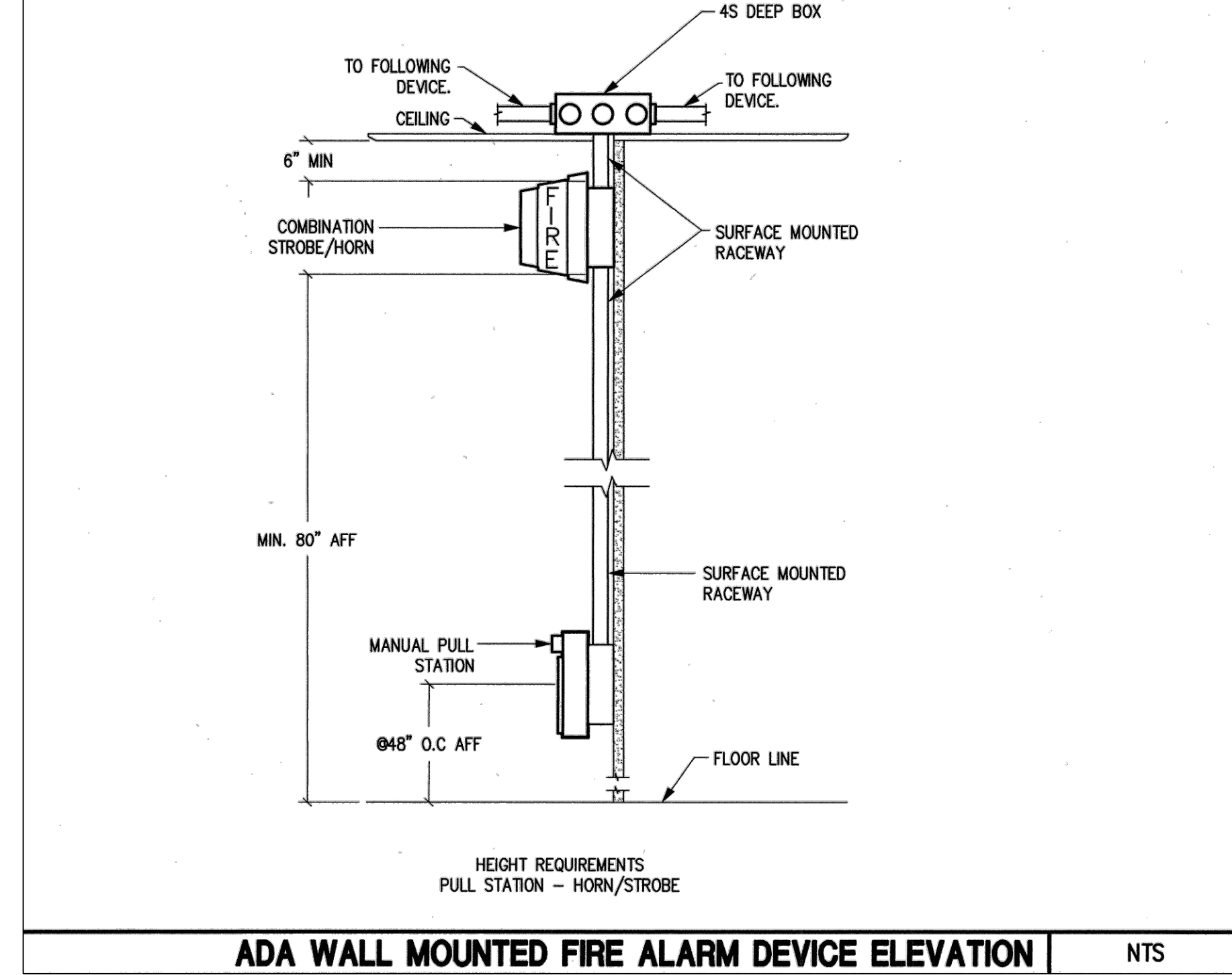
6 ADDRESSABLE SMOKE DETECTOR WIRING NTS 5



9 FACP MOUNTING DETAIL NO SCALE



8 SMOKE DETECTOR MOUNTING DETAIL NTS 7

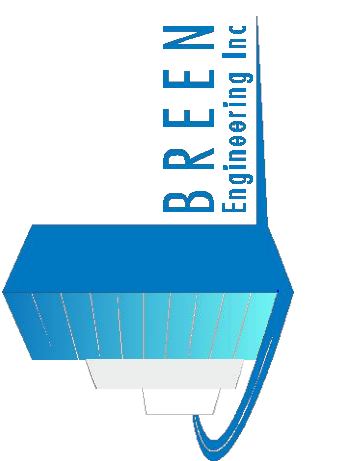


5 ADA WALL MOUNTED FIRE ALARM DEVICE ELEVATION NTS

REV.	DESCRIPTION	DATE	BY
1	PLAN CHECK #2	09/08/21	JL
-	PLAN CHECK	07/15/21	JL

REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA  
 No. E20642  
 31-22  
 BREEN ENGINEERING INC.  
 DRAWN BY: JL/AA  
 DESIGNED BY: JL/AA  
 CHECKED BY: DM/JL  
 APPROVED BY: DM

1983 WEST 180TH STREET, SUITE 200  
 TORRANCE, CA 90504  
 TEL: (310) 464-8404  
 FAX: (310) 464-8408  
 WWW.BREENENG.COM



FIRE ALARM DETAILS - SHEET TWO

GREENWOOD CHILD CARE CENTER  
 1520 GREENWOOD AVENUE  
 TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	N.T.S.
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL
DRAWING NUMBER	

FA-5.2

OF

CITY OF TORRANCE FIRE DEPARTMENT  
COMMUNITY RISK REDUCTION DIVISION

**FIRE DEPARTMENT NOTES – FIRE ALARM INSTALLATIONS – NFPA 72 (2016)**

- All fire protection water supply control valves shall be electrically supervised.
- A zone map and legend shall be provided at the Fire Alarm Control Panel (FACP) and annunciator/Remote Operator Control Panel (ROCP). These diagrams shall be durably posted and shall contain the location of all initiating devices or zones, as well as control and power equipment.
- Inside the lockable FACP, provide instructions for silencing and resetting FACP, account numbers and contact information for the monitoring company and responsible party SHALL BE PROVIDED.
- Inside the FACP, a label shall be placed with the location and name of the electrical panel as well as the circuit number that powers the fire alarm system.
- A document panel with most current software shall and plans shall be provided at the main FACP.
- At the electrical panel, a marking with red letters shall be used to label the dedicated breaker for the FACP. A lock shall also be provided to prevent the circuit from being shut off manually.
- The date of manufacture shall be marked on the batteries and shall be in the "MM/DD/YYYY" format. A printout from battery manufacturer/distributor is required for verification of date codes.
- Additional Notification may be required. If a kitchen hood suppression system is installed, it shall be connected/monitored to by fire alarm system and shall activate notification devices.
- A list of all initiating devices (program) shall be provided on a separate sheet at the time of acceptance test. This list shall be organized by floor in order to expedite testing.
- At least two representatives from the fire alarm company shall be present at the time of the acceptance test and shall be equipped with all of the necessary testing equipment; such as reliable method of communication-radios/cell phone, canned smoke, heat gun, ladders, etc.
- A 24-hour battery standby test shall be required followed by a 5-minute full alarm test at the end of the 24-hour test period. (When required)
- Keys to reset the FACP, Pull Stations, and any other fire alarm equipment, shall be provided at time of test and placed in a Knox Box.
- A 100% system pre-test shall be performed by installation contractor before scheduling an acceptance test with the fire department.
- NFPA 72 System Record of Completion is required upon final.
- A rough-in (pre wire) inspection MAY BE required on large projects, and final test inspection shall be required and requested at least 48 hours in advance. To schedule an inspection please call the City of Torrance fire Department, Community Risk Reduction Division at (310) 618-2973.

Sole Path Communication:

- Communicators shall be listed with the California State Fire Marshal.
- Cellular alarm communication shall be installed following the requirements of NFPA-72 26.6.3 .3 and installer must follow manufactures recommendations.
- Cellular communications shall be programmed so that the path shall be supervised at intervals not more than 60 minutes.
- Where only one communication path technology is used, any failure of the communication path shall be annunciated at the supervising station within 60 minutes of the failure.
- Installing technician shall indicate the signal strength indicator on each communicator to the Fire Inspector.
- Sole Path communicator will be approved on a case by case basis.



**Torrance Fire Department  
Fire Alarm System  
Plan Submittal Requirements**

**If the required information below is not provided on the formal plan submittal plans will not be accepted. Supplemental information or attachments will also not be accepted. Please check boxes to indicate information below has been noted on plans:**

- Name of owner and occupant.
- Name, address and contact information of party submitting the plans
- Name, address, license and contact information of contractor *Pending Bid Process*
- Location, including street address
- Point of compass
- Provide a scope describing the project and purpose/ type of system
- Scale floor plan
- List all applicable codes, regulations and ordinances
- Provide identification of circuit styles
- Provide symbol legend showing existing and new devices, manufacturer name, model, quantities, etc.
- Manufacturer's specification manual/CSFM building materials listing/approvals
- Location of all components, including end-of-line devices, zone assignments/device addresses
- Provide a wiring diagram, wiring legend, riser diagram
- Device mounting heights for manual pulls/visible notification appliances
- Provide candela setting listed on floor plan
- Location of sprinkler system test valve *N/A*
- Voice evacuation message/language(s)
- Sequence of operations (tampers shall have a distinctive signal)
- HVAC systems producing greater than 2000cfm require duct detector protection *N/A*
- Duct detectors shall report a "Supervisory" signal *N/A*
- Special system features/fire pump/operations *N/A*
- Provide central or remote station monitoring company information, UL listing, number & certificate
- Provide primary power supply details
- Provide secondary power supply details/ generator etc. *N/A*
- Provide voltage drop calculations
- Conductor information, including size, stranding, insulation type, etc.
- Conduit size and conduit fill calculations *N/A*
- Provide a full height cross section or schematic diagram, including structural member information if required for clarity and including ceiling construction
- Location of fire walls/ fire stops if required *N/A*
- Location of partitions *N/A*
- Occupancy and hazard class of each area or room
- Building two stories or more requires elevator recall; elevator shaft with sprinkler head requires shunt trip with smoke and a heat detector *N/A*
- In strip centers/malls manual pull station and horn/strobe shall be located in the riser closet *N/A*
- SOLE PATH COMMUNICATIONS:
  - Communicators shall be listed with the California State Fire Marshal.
  - Cellular alarm communication shall be installed following the requirements of NFPA 72 26.6.3.3 and installer must follow manufactures recommendations.

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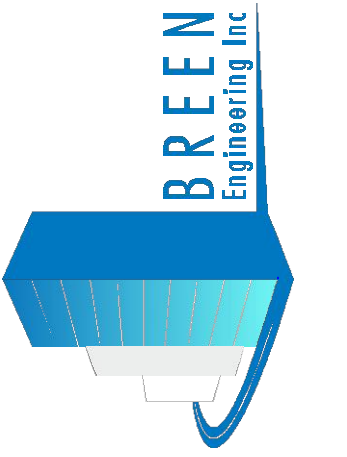
- Cellular communications shall be programmed so that the path shall be supervised at intervals not more than 60 minutes.
- Where only one communication path technology is used, any failure of the communication path shall be annunciated at the supervising station within 60 minutes of the failure.
- Installing technician shall indicate the signal strength indicator on each communicator to the Fire Inspector upon final.
- Sole Path communicator will be approved on a case by case basis.

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DRAWN BY	-
DESIGNED BY	-
CHECKED BY	DM
APPROVED BY	DM

1983 WEST 180TH STREET, SUITE 200  
TORRANCE, CA 90504  
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**FIRE ALARM DETAILS - SHEET THREE**

**GREENWOOD  
CHILD CARE CENTER**  
1520 GREENWOOD AVENUE  
TORRANCE, CA 90503

DATE:	09/08/2021
SCALE:	N.T.S.
PROJECT NUMBER:	307-19-001
DRAWN BY:	JL/AA
CHECKED BY:	DM/JL

DRAWING NUMBER

**FA-5.3**

OF