ADDENDUM 5 (PENDING DSA APPROVAL)

HAMMEL, GREEN AND ABRAHAMSON, INC.,
ARCHITECTS & ENGINEERS
1918 Main Street, Third Floor
Santa Monica, CA 90405

PROJECT: **Santa Ana College**
Science Center

DATE: 10/4/2017

OWNER: **RSCCD**
2323 N. Broadway, Suite 112
Santa Ana, CA 92706

DSA File No.: 30-C2
DSA Applications No.: 04-115788
HGA Commission No.: 3584-001-00

CONSTRUCTION MANAGER:

BERNARDS
3633 E. Inland Empire Blvd., Suite 800
Ontario, CA 91764

The additions, revisions, omissions, corrections and clarifications contained herein shall be made to drawings and specifications for the project and shall be included in scope of work and bids to be submitted. Additionally, reference documents, such as as-built documentation of existing buildings, are provided to further quantify the scope of work. References made below to specifications, drawings, and other documents shall be used as a general guide only. Bidders and Contractors shall determine for themselves the work affected by Addendum items.

RFP

None

SPECIFICATIONS (All revisions to the specification are noted in underline or ~~strikeout~~ with the corresponding addendum reference "ADD-5")

Item AD-5-1: Revise SECTION 012100

DRAWINGS

ARCHITECTURAL:
Item AD-5-2: Revise A221
- Added <FDS-1>

Item AD-5-3: Revise A222
- Added <FDS-1>

Item AD-5-4: Revise A223
- Added <FDS-1>

ELECTRICAL:

Item AD-5-5: Revise EF4.0

- FIRE ALARM NOTES AND DETAILS, revise as indicated.

Item AD-5-6: Revise EF4.1

- FIRE ALARM RISER DIAGRAM, revise as indicated.

Item AD-5-7: Revise EF4.5

- OVERALL SITE FIRE ALARM PLAN, revise as indicated.

DRAWINGS – AS-BUILT

None

RESPONSES TO PRE-BID CLARIFICATION ("PBC")

None

ATTACHMENTS:

Item AD-5-1: Revise SECTION 012100 (2 sheets)
Item AD-5-2: Revise A221 (1 sheet)
Item AD-5-3: Revise A222 (1 sheet)
Item AD-5-4: Revise A223 (1 sheet)
Item AD-5-5: Revise EF4.0 (1 sheet)
Item AD-5-6: Revise EF4.1 (1 sheet)
Item AD-5-7: Revise EF4.5 (1 sheet)

END OF ADDENDUM 5

SECTION 01 21 00

ALLOWANCES

Revised, Addendum #5, 10/04/2017
Revised, Addendum #3, 9/22/2017

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements governing Contract allowances.

1. Allowances as set forth in the Contract Documents are to be used as compensation for items as set forth in this Section. The amounts listed in the Contract Documents are to be included in the base bid and shall be listed separately in the Schedule of Values and Application for Payment.

1.02 RELATED SECTIONS

A. Section 01 29 73: Schedule of Values Procedures.

B. Section 01 29 76: Progress Payment Procedures.

C. Section 01 32 13: Construction Schedule.

D. Section 01 50 00: Construction Facilities and Temporary Controls.

1.03 ALLOWANCES

A. Use the allowances only as authorized for Owner purposes and only by submitting a form that indicates the amounts to be charged to the respective allowance amount to the District Representative.

B. District Representative and Architect will review Contractor's basis for its use of any Allowance costs included in Contract Sum as required, and prior to the execution of Work described in Allowances.

1.04 ALLOWANCE DISBURSEMENT

A. Contractor shall submit a request for allowance disbursement to the District Representative. Include all substantiating and/or required data along with the request.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.01 SCHEDULE OF ALLOWANCES

A. Include in the base bid the following allowances ~~noted in the Contract Documents~~ in the following amounts: ***ADD-3***

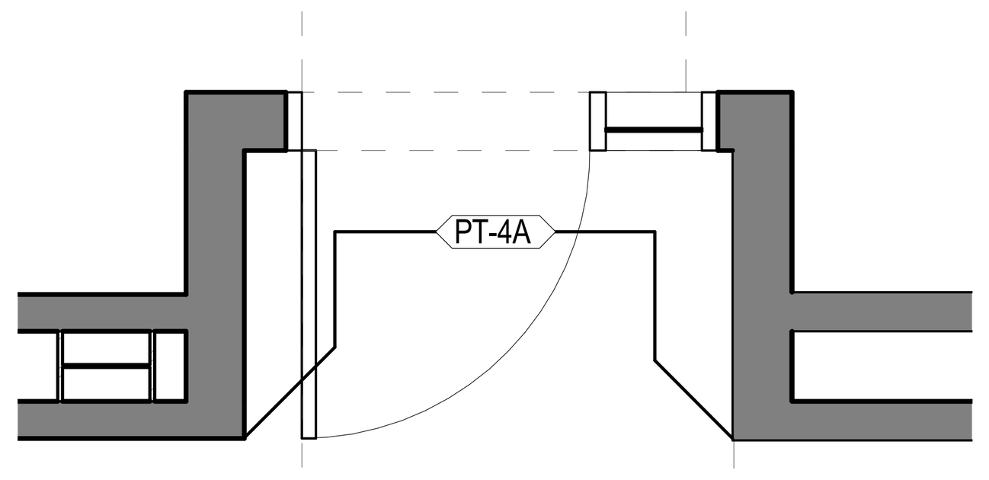
Title	Description	Amount
1) F&E REVISIONS	Furniture and/or equipment revisions such as, but not limited to: additional provisions for backing, power, and data. ***ADD-3***	$30,000
2) UNFORESEEN CONDITIONS	Unforeseen underground conditions such as, but not limited to: existing soils, utilities and the related verification, relocation and/or abatement. ***ADD-3***	$40,000

3) REVISION TO THE AIR HANDLING UNIT COOLING COIL CAPACITY AND MONITORING OF ROOM RELATIVE HUMIDITY	To provide cooling coil discharge air temperature at 51 degrees at each of the three air handling units and provide relative humidity sensor option in the room thermostats. Monitor room relative humidity from the BMS to allow dehumidification sequence of the three air handling units. ***ADD-3 ADD-5***	$100,000

END OF SECTION 01 21 00

1 FLOOR FINISH PLAN - LEVEL 01
1/8" = 1'-0"

TYP. ALCOVE WALL FINISH



FINISH PLAN LEGEND

- = TER-3
- = TER-4
- = CS-2
- = RSF-1
- = RSF-2
- = CPT-50
- = CPT-1

KEYNOTES - FINISH PLAN

#	DESCRIPTION
1	GYPSUM BOARD TO RECEIVE LEVEL 5 FINISH AT THIS LOCATION.
2	SPECIALTY ACOUSTIC WALL PANEL DESIGN. SEE ELEVATION FOR DETAIL.
3	CTW TO EXTEND FROM CTB TO 6'-8" A.F.F. UON.
4	SEE STAIR DETAILS FOR TERRAZZO DESIGN AT THIS LOCATION.
5	PROVIDE CHAIR RAIL <WR-1> ACROSS FULL WIDTH OF WALL. REFER TO INTERIOR ELEVATIONS FOR MORE INFO.
6	INSTALL 3/4" PLYWOOD ON ALL WALLS TO 8'-0" A.F.F. PAINT PER FINISH SCHEDULE.

GENERAL NOTES - FLOOR FINISH PLAN

A. SEE SHEET A011 - MATERIAL ID CODES FOR ADDITIONAL FINISH INFORMATION.
B. ALL MISCELLANEOUS ACCESS PANELS, FEC, GRILLES, DIFFUSERS TO BE PAINTED TO MATCH THE SURFACE ON WHICH THEY OCCUR.
C. ALL EXPOSED STRUCTURE STEEL COLUMNS AND BRACES TO BE PAINTED <HPC-1>, COLOR TO MATCH PT-1D UON, TYP. ALL OTHER EXPOSED STRUCTURE TO BE PAINTED <PT-1D> UON, TYP. ALL EXPOSED STEEL STAIR ELEMENTS TO BE PAINTED <HPC-1>, COLOR TO MATCH GUARDRAIL.
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E. RB - RESILIENT BASE: STRAIGHT BASE (RB-2) AT CARPET, COVED BASE (RB-1) AT HARD FLOOR FINISHES (RSF, TER, CS).
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RANCHO SANTIAGO COMMUNITY COLLEGE DISTRICT
1530 W. 17TH ST.
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SANTA ANA COLLEGE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF CA.

LICENSED ARCHITECT JAMES G. MATSON C13036 SEPTEMBER 30, 2019 RENEWAL DATE STATE OF CALIFORNIA

NAME: JAMES G. MATSON
DATE: MAY 16, 2017
REGISTRATION NUMBER: C13036

NO	DESCRIPTION	DATE
3	Addendum 3	9/22/17
4	Addendum 4	10/02/17
5	Addendum 5	10/04/17

ISSUANCE HISTORY - THIS SHEET

DRAWN BY: AD | REVIEW BY: Approver

HGA NO: 3584-001-00

FIRST LEVEL FINISH PLAN

DATE: JULY 06, 2017

ADDENDA PACKAGE

A221

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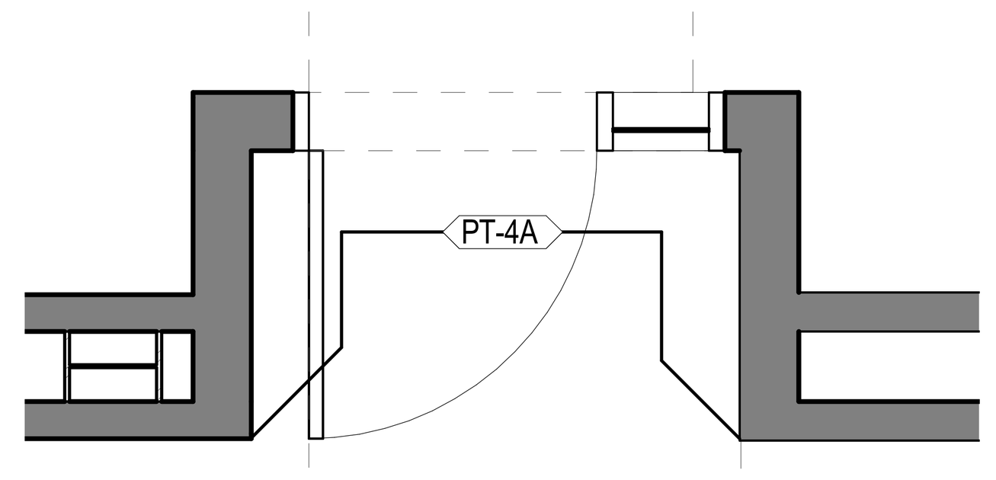
AD

1 FLOOR FINISH PLAN - LEVEL 02

1/8" = 1'-0"

TYP. ALCOVE WALL FINISH



FINISH PLAN LEGEND

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- = RSF-2
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KEYNOTES - FINISH PLAN

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NAME: JAMES G. MATSON
DATE: MAY 16, 2017
REGISTRATION NUMBER: C13036

NO	DESCRIPTION	DATE
4	Addendum 4	10/02/17
5	Addendum 5	10/04/17

ISSUANCE HISTORY - THIS SHEET

DRAWN BY: AD REVIEW BY: Approver

HGA NO: 3584-001-00

SECOND LEVEL FINISH PLAN

ADDENDA PACKAGE

DATE: JULY 06, 2017

A222

10/4/2017 10:42:36 AM C:\Users\lsstacyk\Documents\Revit Local Files\A16-3584-001-00_SAC SC_lsstacyk.rvt

AD

1 FLOOR FINISH PLAN - LEVEL 03
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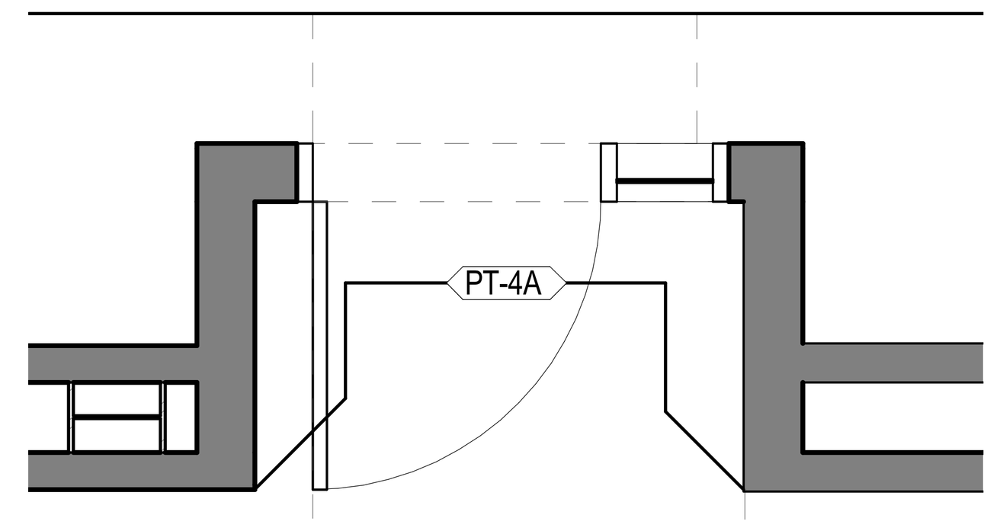
TYP. ALCOVE WALL FINISH



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NO	DESCRIPTION	DATE
4	Addendum 4	10/02/17
5	Addendum 5	10/04/17

ISSUANCE HISTORY - THIS SHEET
DRAWN BY: AD | REVIEW BY: Approver

HGA NO: 3584-001-00

THIRD LEVEL FINISH PLAN

DATE: JULY 06, 2017

A223

ADDENDA PACKAGE

FIRE ALARM EQUIPMENT SCHEDULE

ITEM DESCRIPTION	SYMBOL	MOUNTING	CATALOG NUMBER	CSFM LISTING NUMBER	NOTES
FIRE ALARM CONTROL PANEL WITH BUILT IN UDACT-2, DIGITAL VOICE COMMANDER, PAGING MICROPHONE, IN CAB-C3 "FACP"		+48"	NOTIFIER NFS2-3030	7165-0028:0224	0.275A 0.400A
FIRE ALARM NETWORK REMOTE ANNUNCIATOR "ANN"		+48"	NOTIFIER NCA-2	7165-0028:0224	0.100A 0.225A
FIRE ALARM REMOTE MICROPHONE "RM"		+48"	NOTIFIER DVC-RPU	7165-0028:0224	0.040A 0.160A
FIRE ALARM INTELIGENT AMPLIFIER "AMP_"		+48"	NOTIFIER DAA2 -5070E	7165-0028:0224	0.085A 0.525A
MONITOR MODULE	MM	—	NOTIFIER FMM-1	7165-0028:0224	0.0003A 0.0003A
RELAY MODULE	RM	—	NOTIFIER FRM-1	7165-0028:0224	0.0003A 0.0003A
FIRE ALARM REMOTE POWER SUPPLIES "PS_"		+48"	NOTIFIER FCPS-24S8	7315-0028:0225	0.375A 0.700A
MANUAL PULLSTATION ON FLUSH WALL MOUNTED OUTLET BOX	F	+48"	NOTIFIER NBG-12LX	7150-0028:0199	0.0003A 0.0003A
WEATHERPROOF MANUAL PULLSTATION ON SURFACE WEATHERPROOF OUTLET BOX	F WP	+48"	NGB-12 L08		
SMOKE DETECTOR PHOTOELECTRIC TYPE ON FLUSH CEILING MOUNTED OUTLET BOX		CEILING	NOTIFIER FSP-851	7272-0028:0206	0.0003A 0.006A
HEAT DETECTOR ON FLUSH CEILING MOUNTED OUTLET BOX	C	CEILING	NOTIFIER FST-851R	7270-0028:0196	0.0002A 0.006A
WEATHERPROOF SPEAKER ON FLUSH WALL MOUNTED WEATHERPROOF OUTLET BOX	S WP 1W	+90"	SYSTEM SENSOR SPRK	7320-1653:0201	0.040A
ELECTRONIC VISUAL AND SPEAKER DEVICE ON FLUSH WALL MOUNTED OUTLET BOX	WP 75cd 1W	+90"	SYSTEM SENSOR SPSR SERIES	7320-1653:0201	75 CANDELA MINIMUM PER U.L. STANDARD 1971 0.158A, 0.040A
ELECTRONIC VISUAL AND SPEAKER DEVICE ON FLUSH CEILING MOUNTED OUTLET BOX	15cd,30cd 75cd,110cd 0.25W,0.5W, 1W	CEILING	SYSTEM SENSOR SPSC SERIES	7320-1653:0201	15,30,75,110 CANDELA MINIMUM PER U.L. STANDARD 1971 0.066A,0.094A,0.158A,0.202A 0.010A,0.020A,0.040A
ELECTRONIC VISUAL DEVICE ON FLUSH CEILING MOUNTED OUTLET BOX.	15cd,30cd 75cd,110cd	CEILING	SYSTEM SENSOR SC	7125-1653:0186	15,30,75,110 CANDELA MINIMUM PER U.L. STANDARD 1971 0.066A,0.094A,0.158A,0.202A
TAMPER SWITCH		—	SYSTEM SENSOR PIBV2	7770-1653:0118	PROVIDE MONITOR MODULE
FLOW SWITCH		—	SYSTEM SENSOR WF DN SERIES	7770-1653:0231	PROVIDE MONITOR MODULE
FIRE ALARM BELL		+90"	COOPER NOTIFICATION 43T-G10-115-R	7135-0785:0108	
ELECTROTROMAGNETIC DOOR HOLDERS		-	NOTIFIER DH24120 SERIES	-	UL LISTED #S2985 PROVIDE RELAY MODULE "FRM-1"

FIRE ALARM VOLTAGE DROP CALCULATIONS

LOCATION	CIRCUIT #	SERVICE TO	DISTANCE (FEET)	CONDUCTOR SIZE (AWG)	LOAD BREAKDOWN	LOAD CIRCUIT TOTAL (AMPS)	VOLTS DROPPED (PERCENT)
1ST FLOOR	V1A	VISUAL DEVICES	250	12	5 @ 0.066 3 @ 0.158 5 @ 0.094 1 @ 0.202	1.476	5.086%
1ST FLOOR	S1A	SPEAKER DEVICES	250	18	0 @ 0.010 5 @ 0.040 6 @ 0.020 0 @ 0.080	0.320	1.524%
1ST FLOOR	V1B	VISUAL DEVICES	300	12	3 @ 0.066 4 @ 0.158 0 @ 0.094 2 @ 0.202	1.234	5.102%
1ST FLOOR	S1B	SPEAKER DEVICES	300	18	0 @ 0.010 7 @ 0.040 2 @ 0.020 0 @ 0.080	0.360	1.1828%
1ST FLOOR	V1C	VISUAL DEVICES	350	12	4 @ 0.066 4 @ 0.158 0 @ 0.094 2 @ 0.202	1.300	6.271%
1ST FLOOR	S1C	SPEAKER DEVICES	350	18	5 @ 0.010 7 @ 0.040 1 @ 0.020 0 @ 0.080	0.330	2.200%
1ST FLOOR	V1D	VISUAL DEVICES	350	12	0 @ 0.066 1 @ 0.158 2 @ 0.094 0 @ 0.202	0.158	0.762%
1ST FLOOR	S1D	SPEAKER DEVICES	350	18	0 @ 0.010 2 @ 0.040 0 @ 0.020 0 @ 0.080	0.080	0.583%
2ND FLOOR	V2A	VISUAL DEVICES	250	12	10 @ 0.066 6 @ 0.158 2 @ 0.094 0 @ 0.202	1.796	6.188%
2ND FLOOR	S2A	SPEAKER DEVICES	250	18	0 @ 0.010 0 @ 0.040 5 @ 0.020 0 @ 0.080	0.100	0.476%
2ND FLOOR	V2B	VISUAL DEVICES	300	12	2 @ 0.066 1 @ 0.158 1 @ 0.094 1 @ 0.202	1.396	5.772%
2ND FLOOR	S2B	SPEAKER DEVICES	300	18	0 @ 0.010 1 @ 0.040 9 @ 0.020 0 @ 0.080	0.220	1.257%
2ND FLOOR	V2C	VISUAL DEVICES	350	12	5 @ 0.066 6 @ 0.158 2 @ 0.094 0 @ 0.202	1.466	7.072%
2ND FLOOR	S2C	SPEAKER DEVICES	350	18	2 @ 0.010 1 @ 0.040 11 @ 0.020 0 @ 0.080	0.280	1.866%
3RD FLOOR	V3A	VISUAL DEVICES	250	12	10 @ 0.066 6 @ 0.158 2 @ 0.094 0 @ 0.202	1.796	6.188%
3RD FLOOR	S3A	SPEAKER DEVICES	250	18	0 @ 0.010 4 @ 0.040 5 @ 0.020 0 @ 0.080	0.260	1.238%
3RD FLOOR	V3B	VISUAL DEVICES	300	12	4 @ 0.066 6 @ 0.158 1 @ 0.094 1 @ 0.202	1.212	5.011%
3RD FLOOR	S3B	SPEAKER DEVICES	300	18	0 @ 0.010 2 @ 0.040 7 @ 0.020 0 @ 0.080	0.220	1.257%
3RD FLOOR	V3C	VISUAL DEVICES	350	12	4 @ 0.066 6 @ 0.158 1 @ 0.094 1 @ 0.202	1.306	6.300%
3RD FLOOR	S3C	SPEAKER DEVICES	350	18	0 @ 0.010 3 @ 0.040 10 @ 0.020 0 @ 0.080	0.280	0.724%

NOTE: WORST CASE

FORMULA: $\frac{\text{AMPS X DISTANCE X 21.6}}{\text{CIRC. MILS}} \times \frac{100}{\text{VOLTS}} =$ % DROPPED

CIRCUIT V2C: $\frac{1.466 \times 350' \times 21.6}{6530} \times \frac{100}{24} = 7.072\%$

CIRCUIT S1C: $\frac{0.330 \times 350' \times 21.6}{1620} \times \frac{100}{70} = 2.200\%$

FIRE ALARM SYSTEM NOTES

FIRE ALARM COMPLETE PLAN SUBMITTAL

1.0 PROJECT INFORMATION

A. OCCUPANCY GROUP

REFER TO ARCHITECTURAL DRAWINGS.

B. CONSTRUCTION TYPE

REFER TO ARCHITECTURAL DRAWINGS.

C. 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 CORRIDOR(S), OCCUPANCY SEPARATION(S) AND AREA SEPARATION WALL(S).

D. UPON COMPLETION OF SYSTEM INSTALLATION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO THE ENFORCING AGENCY.

E. PROVIDE A STATEMENT OF COMPLIANCE WHEN REQUESTING INSPECTION CFC 901.2.1

F. THE FIRE ALARM SYSTEM DESIGN FOR THIS PROJECT IS ADDRESSABLE AND FULLY AUTOMATIC.

2.0 APPLICABLE CODES AND STANDARDS

A. APPLICABLE CODES AS OF JANUARY 1, 2014

2013 BUILDING STANDARDS ADMINISTRATIVE CODE,
PART 1, TITLE 24 C.C.R.
2013 CALIFORNIA BUILDING CODE (CBC),
PART 2, TITLE 24 C.C.R.;
(2012 INTERNATIONAL BUILDING CODE VOLUMES 1-2 AND 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA ELECTRICAL CODE (CEC),
PART 3, TITLE 24 C.C.R.;
(2011 NATIONAL ELECTRICAL CODE AND 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA MECHANICAL CODE (CMC), PART 4,
TITLE 24 C.C.R.;
(2012 UNIFORM MECHANICAL CODE AND 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA PLUMBING CODE (CPC),
PART 5, TITLE 24 C.C.R.;
(2012 UNIFORM PLUMBING CODE AND 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA FIRE CODE (CFC), PART 9,
TITLE 24 C.C.R.:
(2012 INTERNATIONAL FIRE CODE AND 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA REFERENCED STANDARDS CODE,
PART 12, TITLE 24 C.C.R.
TITLE 19, CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
2013 CALIFORNIA ENERGY CODE (CEC),PART 6, TITLE 24 C.C.R.
2007 ASME A17.1 (W/A17.1A/CSA B44A-08 ADDENDA) SAFETY CODE FOR
ELEVATORS AND ESCALATORS

PARTIAL LIST OF APPLICABLE STANDARDS:

NFPA 13 AUTOMATIC SPRINKLER SYSTEMS 2013 EDITION
NFPA 14 STANDPIPE SYSTEMS 2013 EDITION
NFPA 17 DRY CHEMICAL EXTINGUISHING SYSTEMS 2013 EDITION
NFPA 17A WET CHEMICAL SYSTEMS 2013 EDITION
NFPA 20 STATIONARY PUMPS 2013 EDITION
NFPA 24 PRIVATE FIRE MAINS (INCLUDED IN 2002 NFPA 13) 2013 EDITION
NFPA 72 NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED) 2013 EDITION
(NOTE SEE UL STANDARD 1971 FOR "VISUAL DEVICES")
NFPA 80 FIRE DOOR AND OTHER OPENING PROTECTIVES 2013 EDITION
NFPA 253 CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS 2006 EDITION
NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS 2012 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS-2013 CBC (SFM) CHAPTER 35.
SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

3.0 UPON RECEIPT OF THE CERTIFICATE OF COMPLIANCE, THE INSTALLER SHALL SUPPLY THE OWNER WITH A WRITTEN OPERATING, TESTING AND MAINTENANCE INSTRUCTIONS, POINT-TO-POINT AS BUILD DRAWINGS AND EQUIPMENT SPECIFICATIONS.

4.0 NFPA 72 CHAPTER 10,14 INSPECTION TESTING AND MAINTENANCE (2013) COMPLETE THE INSPECTION AND TESTING FORM IN ITS ENTIRETY SUBMIT A COPY TO THE DISTRICT, ARCHITECT AND DSA DIVISION OF FIRE AND LIFE SAFETY.

5.0 MANUAL FIRE ALARM BOXES SHALL COMPLY WITH CBC SECTIONS 907.4.2, 1117B.6 & 1118B.

FIRE ALARM GENERAL NOTES

1. THE FIRE ALARM SHALL CONFORM TO ARTICLE 760 OF THE CALIFORNIA ELECTRICAL CODE.

2. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESCENCE OF THE AUTHORITY HAVING JURISDICTION (FIRE MARSHAL). THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEST EQUIPMENT (e.g. DIGITAL AMMETER, DECIBEL METER) AND VERIFY THAT THE GROUND FAULT DETECTION FOR THE FIRE ALARM SYSTEM IS OPERATIONAL DURING TESTING AND REMAINS SO ONCE THE SYSTEM IS APPROVED. UPON APPROVAL OF THE FIRE ALARM SYSTEM, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH COMPLETE SET OF OPERATING INSTRUCTIONS FOR THE SYSTEM.

3. A MINIMUM OF 48 HOURS NOTICE SHALL BE REQUIRED PRIOR TO ANY INSPECTION AND/OR TEST.

4. AN APPROVED, STAMPED SET OF THE FIRE ALARM PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATIONS FROM THE APPROVED PLANS, INCLUDING SUBSTITUTION OF DEVICES, SHALL BE APPROVED BY THE INSPECTOR OF RECORD.

5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OF RECORD.

6. ALL DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.

7. A "RECORD OF COMPLETION" SHALL BE PREPARED BY THE INSTALLER AND GIVEN TO THE FIRE MARSHAL UPON COMPLETION OF THE INSTALLATION.

8. ALL TERMINAL CABINETS AND JUNCTION BOXES SHALL BE CLEARLY MARKED THAT THE ENCLOSURE IS PART OF THE FIRE ALARM SYSTEM.

9. THE CONTRACTOR SHALL LOCATE ALL SMOKE DETECTION DEVICES A MINIMUM OF 36" FROM ANY MECHANICAL REGISTERS.

10. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. WIRE LENGTHS USED TO CALCULATE VOLTAGE DROPS REPRESENT ESTIMATES BASED ON MEASUREMENTS OF SCALED FLOOR PLAN DRAWINGS. CONTRACTOR TO ROUTE CONDUIT AS FIELD CONDITIONS REQUIRE. CONTRACTOR TO INSTALL ALL DEVICES ACCORDING TO MANUFACTURERS INSTRUCTIONS AND IN COMPLIANCE WITH ALL APPLICABLE CODES.

11. CONTRACTOR SHALL VERIFY LOCATION OF POST INDICATOR VALVES (PIV's) AND/OR OUTSIDE STEM & YOKE (OS&Y) VALVES INSTALLED ON FIRE SPRINKLER SERVICE. CONTRACTOR SHALL PROVIDE AND INSTALL TAMPER SWITCH(ES) AT EACH OF THESE VALVES AND INTERCONNECT TAMPER SWITCH(ES) TO THE FIRE ALARM CONTROL PANEL (FACP).

12. ALL WIRING TO BE IN CONDUIT. ALL CONDUIT IS TO BE A 3/4" MINIMUM. IF FLEX CONDUIT IS USED TO TRANSITION DOWN TO CEILING DEVICE THE FLEX CAN BE NO LONGER THAN 5 FEET.

13. CONTRACTOR SHALL EXTEND AND MAKE ALL FINAL CONNECTIONS TO EXISTING FIRE ALARM AND CENTRAL MONITORING FOR A COMPLETE AND FULLY CAMPUS WIDE FIRE ALARM NETWORK SYSTEM. 5

14. VISIT THE SITE PRIOR TO BID AND INVESTIGATE THE EXISTING FIRE ALARM SYSTEM EQUIPMENT. COORDINATE WITH THE EXISTING SYSTEMS MANUFACTURERS FOR ALL REQUIRED EQUIPMENT MODIFICATIONS, CONDUITS, WIRING AND UPGRADING REQUIRED TO EXTEND/NETWORK THE EXISTING SYSTEM TO THE NEW BUILDINGS. INCLUDE ALL COSTS IN BID. ALL NEW COMPONENTS SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.

15. FIRE ALARM SYSTEM SPLICES ARE NOT PERMITTED IN UNDERGROUND PULLBOXES.

SEQUENCE OF OPERATION

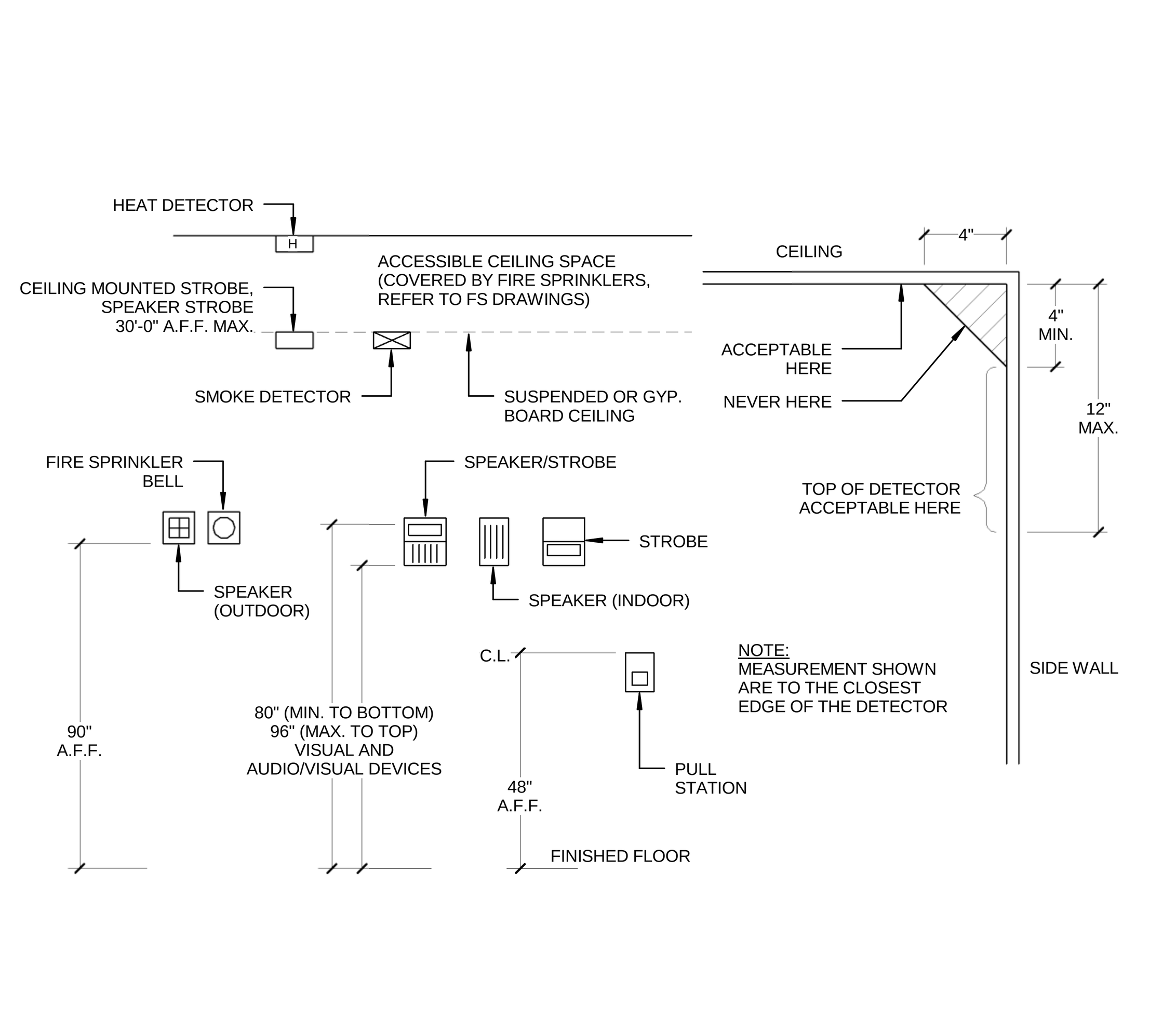
FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

SYSTEM OUTPUTS: FACP ANNUNCIATION | NOTIFICATION | REQUIRED FIRE SAFETY CONTROL

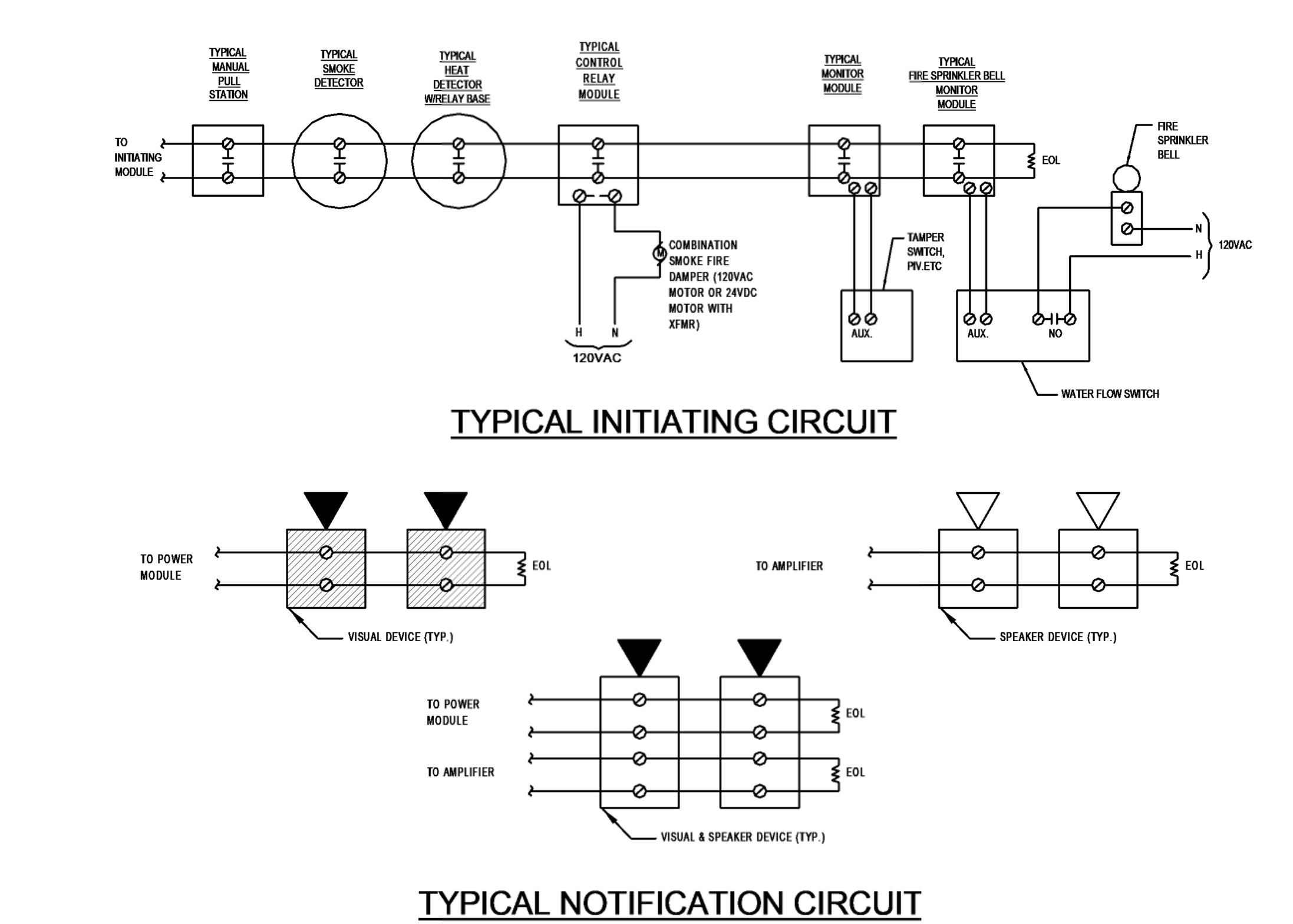
A. ACTUATE COMMON ALARM SIGNAL INDICATOR
B. ACTUATE AUDIBLE ALARM SYSTEM
C. ACTUATE FIRE ALARM BELL
D. ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR
E. ACTUATE AUDIBLE SUPERVISORY SIGNAL
F. ACTUATE COMMON TROUBLE SIGNAL INDICATOR
G. ACTUATE AUDIBLE TROUBLE SIGNAL
H. ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR
I. ACTUATE GENERAL EVACUATION SIGNAL
J. DISPLAY CHANGE OF STATUS
K. TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION
L. TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION
M. TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
N. RECALL ELEVATOR TO RECALL FLOOR
O. RECALL ELEVATOR TO ALTERNATE RECALL FLOOR
P. ACTUATE WARNING TO ELEVATOR CABS
Q. DELAYED REMOVAL OF POWER FROM ELEVATOR
R. SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT

	SYSTEM INPUTS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	FIRE ALARM SYSTEM AC POWER FAILURE				●	●							●														
2	FIRE ALARM SYSTEM LOW BATTERY						●	●						●													
3	OPEN CIRCUIT						●	●						●													
4	GROUND FAULT						●	●						●													
5	NOTIFICATION APPLIANCE CIRCUIT SHORT						●	●						●													
6	BUILDING MANUAL PULL STATIONS	●	●						●	●	●	●															
7	AREA SMOKE AND HEAT DETECTORS	●	●						●	●	●	●			●												
8	RELAY MODULES				●	●			●				●						●								
9	SPRINKLER TAMPER SWITCH			●	●	●			●				●														
10	SPRINKLER WATER FLOW IN BUILDING	●	●						●	●	●	●			●		●	●									
11	SPRINKLER WATER FLOW IN ELEV EQUIPMENT ROOM OR SHAFT	●	●						●	●	●	●			●		●										
12	ELEV EQUIPMENT ROOM AREA SMOKE DETECTORS	●	●						●	●	●	●			●		●	●									
13	ELEV EQUIPMENT ROOM HEAT DETECTORS	●	●						●	●	●	●			●												
14	ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS	●	●						●	●	●	●			●												
15	ELEV LOBBY SMOKE DETECTORS - RECALL FLOORS	●	●						●	●	●	●				●	●										
16	ELEV CONTROLLER POWER SHUNT TRIP STATUS				●	●			●				●														

PULL STATION / HORN / STROBE ELEVATION



FIRE ALARM WIRING DIAGRAM



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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF CA

LICENSED ARCHITECT JAMES G. MATSON C13036 SEPTEMBER 30, 2017 RENEWAL DATE STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER STEPHEN R. ZA[illegible] No. E 10372 Exp. 09-30-18 ELECTRICAL STATE OF CALIFORNIA

NAME: JAMES G. MATSON
DATE: MAY 16, 2017
REGISTRATION NUMBER: C13036

NO	DESCRIPTION	DATE
5	ADDENDUM 5	10/04/17

ISSUANCE HISTORY - THIS SHEET

DRAWN BY: FBA | REVIEW BY: R. Rogers

HGA NO: 3584-001-00

FIRE ALARM NOTES AND DETAILS

DATE: JULY 06, 2017

EF4.0

ADDENDA PACKAGE

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FIRE ALARM BATTERY CALCULATIONS

DIGITAL AUDIO AMPLIFIER "AMP1"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.400	0.500
(0)	0.25W SPEAKER	———	0.000
(13)	0.50W SPEAKER	———	0.260
(21)	1W SPEAKER	———	0.840
(0)	2W SPEAKER	———	0.000
	TOTAL	0.400	1.600

TOTAL STANDBY CURRENT X 60 HOURS = 0.400 A x 60 HOURS = 24.000 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 1.600 A x 0.25 HR = 0.400 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 24.400 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 40 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

DIGITAL AUDIO AMPLIFIER "AMP2"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.400	0.500
(2)	0.25W SPEAKER	———	0.020
(25)	0.50W SPEAKER	———	0.500
(6)	1W SPEAKER	———	0.240
(0)	2W SPEAKER	———	0.000
	TOTAL	0.400	1.260

TOTAL STANDBY CURRENT X 60 HOURS = 0.400 A x 60 HOURS = 24.000 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 1.260 A x 0.25 HR = 0.315 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 24.315 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 40 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

DIGITAL AUDIO AMPLIFIER "AMP3"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.400	0.500
(0)	0.25W SPEAKER	———	0.000
(22)	0.50W SPEAKER	———	0.440
(8)	1W SPEAKER	———	0.320
(0)	2W SPEAKER	———	0.000
	TOTAL	0.400	1.260

TOTAL STANDBY CURRENT X 60 HOURS = 0.400 A x 60 HOURS = 24.000 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 1.260 A x 0.25 HR = 0.315 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 24.315 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 40 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

FIRE ALARM CONTROL PANEL "FACP"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.340	0.340
(1)	REMOTE ANNUCIATOR	0.100	0.225
(1)	REMOTE MICROPHONE	0.040	0.160
(175)	SMOKE DETECTOR	0.053	1.050
(97)	HEAT DETECTOR	0.020	0.582
(2)	PULLSTATION	0.001	0.001
(13)	MONITOR MODULE	0.004	0.004
(0)	CONTROL MODULE	0.000	0.000
(16)	RELAY MODULE	0.005	0.005
	TOTAL	0.563	2.367

TOTAL STANDBY CURRENT X 60 HOURS = 0.563 A x 60 HOURS = 33.78 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 62.367 A x 0.25 HR = 0.592 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 34.372 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 60 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

FIRE ALARM POWER SUPPLY "PS1"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.091	0.145
(12)	15cd STROBE	———	0.792
(5)	30cd STROBE	———	0.470
(11)	75cd STROBE	———	1.738
(5)	110cd STROBE	———	1.010
	TOTAL	0.091	4.155

TOTAL STANDBY CURRENT X 60 HOURS = 0.091 A x 60 HOURS = 5.460 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 4.155 A x 0.25 HR = 1.039 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 6.499 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 10 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

FIRE ALARM POWER SUPPLY "PS2"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.091	0.145
(17)	15cd STROBE	———	1.122
(5)	30cd STROBE	———	0.470
(20)	75cd STROBE	———	3.160
(1)	110cd STROBE	———	0.202
	TOTAL	0.091	5.099

TOTAL STANDBY CURRENT X 60 HOURS = 0.091 A x 60 HOURS = 5.460 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 5.099 A x 0.25 HR = 1.275 A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 6.735 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 10 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

FIRE ALARM POWER SUPPLY "PS3"

DEVICE		STAND-BY CURRENT	ALARM CURRENT
(1)	CONTROLS	0.091	0.145
(19)	15cd STROBE	———	1.254
(3)	30cd STROBE	———	0.282
(17)	75cd STROBE	———	2.686
(2)	110cd STROBE	———	0.404
	TOTAL	0.091	4.771

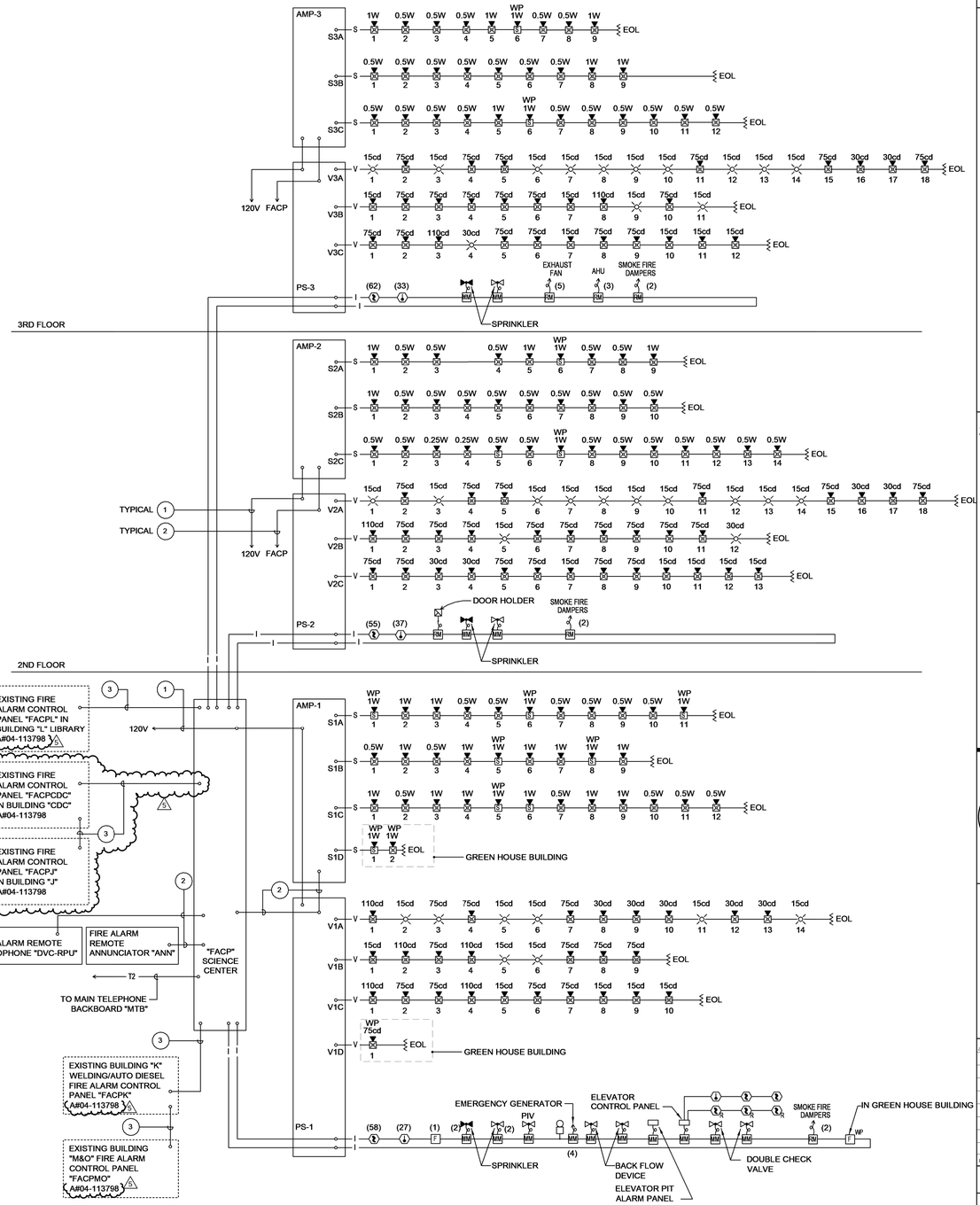
TOTAL STANDBY CURRENT X 60 HOURS = 0.091 A x 60 HOURS = 5.460 A-HR
TOTAL NEW ALARM CURRENT X 10 MINUTES = 4.771 A x 0.25 HR = 1.193A-HR

TOTAL MINIMUM AMPERE - HOUR RATING OF BATTERIES = 6.653 A-HR

NOTES:
1. BATTERY CALCULATION SHALL BE BASED ON A MINIMUM OF 60.0 HOURS STANDBY AND 10 MINUTES ALARM.
2. PROVIDE A MINIMUM OF 10 A-HR OF TOTAL BATTERY STANDBY POWER FOR FIRE ALARM CONTROL PANEL.

FIRE ALARM RISER DIAGRAM

	PLAN NOTES:
1	120V DEDICATED CIRCUIT WITH "LOCK-ON" DEVICE.
2	INTERFACE CABLING PER MANUFACTURE'S REQUIREMENTS.
3	FIBER OPTIC NETWORK CABLING PER MANUFACTURER'S REQUIREMENTS.



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NAME: JAMES G. MATSON
DATE: MAY 16, 2017
REGISTRATION NUMBER: C13036

NO	DESCRIPTION	DATE
5	ADDENDUM 5	10/04/17

ISSUANCE HISTORY - THIS SHEET

DRAWN BY: FBA | REVIEW BY: R. Rogers

HGA NO: 3584-001-00

FIRE ALARM RISER DIAGRAM

DATE: JULY 06, 2017

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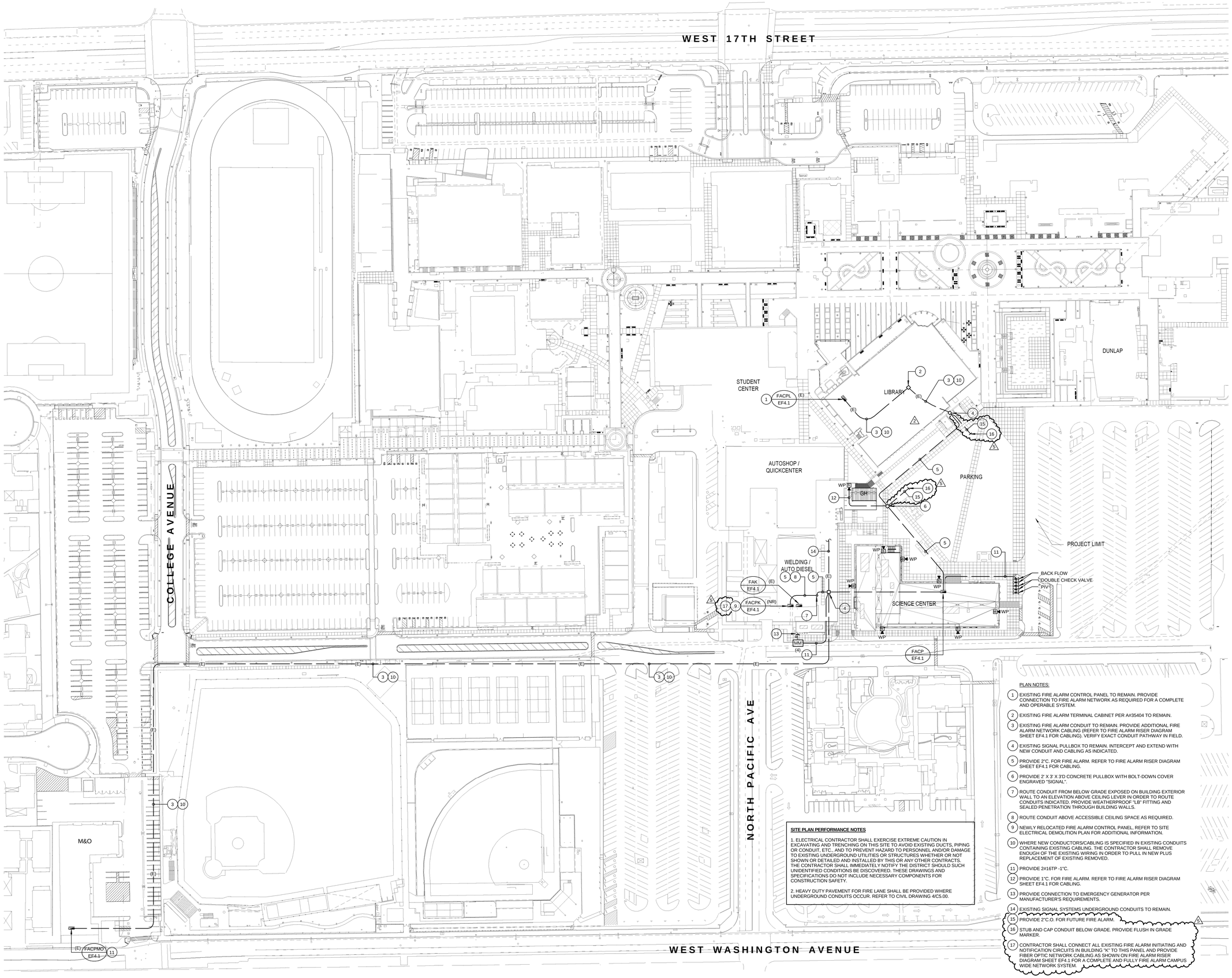

PLAN NOTES:

1. EXISTING FIRE ALARM CONTROL PANEL TO REMAIN. PROVIDE CONNECTION TO FIRE ALARM NETWORK AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
2. EXISTING FIRE ALARM TERMINAL CABINET PER A#/35404 TO REMAIN.
3. EXISTING FIRE ALARM CONDUIT TO REMAIN. PROVIDE ADDITIONAL FIRE ALARM NETWORK CABLING (REFER TO FIRE ALARM RISER DIAGRAM SHEET EF4.1 FOR CABLING). VERIFY EXACT CONDUIT PATHWAY IN FIELD.
4. EXISTING SIGNAL PULLBOX TO REMAIN. INTERCEPT AND EXTEND WITH NEW CONDUIT AND CABLING AS INDICATED.
5. PROVIDE 2"C. FOR FIRE ALARM. REFER TO FIRE ALARM RISER DIAGRAM SHEET EF4.1 FOR CABLING.
6. PROVIDE 2' X 3' X 3'D CONCRETE PULLBOX WITH BOLT-DOWN COVER ENGRAVED "SIGNAL".
7. ROUTE CONDUIT FROM BELOW GRADE EXPOSED ON BUILDING EXTERIOR WALL TO AN ELEVATION ABOVE CEILING LEVER IN ORDER TO ROUTE CONDUITS INDICATED. PROVIDE WEATHERPROOF "LB" FITTING AND SEALED PENETRATION THROUGH BUILDING WALLS.
8. ROUTE CONDUIT ABOVE ACCESSIBLE CEILING SPACE AS REQUIRED.
9. NEWLY RELOCATED FIRE ALARM CONTROL PANEL, REFER TO SITE ELECTRICAL DEMOLITION PLAN FOR ADDITIONAL INFORMATION.
10. WHERE NEW CONDUCTORS/CABLING IS SPECIFIED IN EXISTING CONDUITS CONTAINING EXISTING CABLING. THE CONTRACTOR SHALL REMOVE ENOUGH OF THE EXISTING WIRING IN ORDER TO PULL IN NEW PLUS REPLACEMENT OF EXISTING REMOVED.
11. PROVIDE 2#16TP -1"C.
12. PROVIDE 1"C. FOR FIRE ALARM. REFER TO FIRE ALARM RISER DIAGRAM SHEET EF4.1 FOR CABLING.
13. PROVIDE CONNECTION TO EMERGENCY GENERATOR PER MANUFACTURER'S REQUIREMENTS.
14. EXISTING SIGNAL SYSTEMS UNDERGROUND CONDUITS TO REMAIN.
15. PROVIDE 2"C.O. FOR FUTURE FIRE ALARM.
16. STUB AND CAP CONDUIT BELOW GRADE. PROVIDE FLUSH IN GRADE MARKER.
17. CONTRACTOR SHALL CONNECT ALL EXISTING FIRE ALARM INITIATING AND NOTIFICATION CIRCUITS IN BUILDING "K" TO THIS PANEL AND PROVIDE FIBER OPTIC NETWORK CABLING AS SHOWN ON FIRE ALARM RISER DIAGRAM SHEET EF4.1 FOR A COMPLETE AND FULLY FIRE ALARM CAMPUS WIDE NETWORK SYSTEM.

1 OVERALL SITE FIRE ALARM PLAN
1" = 60'-0"

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LOS ANGELES, CA 90017
213-418-0201

LANDSCAPE ARCHITECT
LYNN CAPOUYA, INC.
17992 MITCHELL SOUTH, #110
IRVINE, CA 92614
949-756-0150

LABORATORY CONSULTANT
RESEARCH FACILITIES DESIGN
3965 FIFTH AVE. #400
SAN DIEGO, CA 92103
619-297-0159

SCIENCE CENTER
SANTA ANA COLLEGE

RANCHO SANTIAGO COMMUNITY COLLEGE DISTRICT

1530 W. 17TH ST.
SANTA ANA, CA 92706

SANTA ANA COLLEGE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF CALIFORNIA

NAME: JAMES G. MATSON
DATE: MAY 16, 2017
REGISTRATION NUMBER: C13036

NO	DESCRIPTION	DATE
2	ADDENDUM 2	9/1/17
5	ADDENDUM 5	10/04/17

ISSUANCE HISTORY - THIS SHEET

DRAWN BY: FBA | REVIEW BY: R. Rogers

HGA NO: 3584-001-00

OVERALL SITE FIRE ALARM PLAN

DATE: JULY 06, 2017

EF4.5 ADDENDA PACKAGE

FBA 10/2/2017 9:18:03 AM C:\Users\Samuel\Desktop\REVIT PROJECTS\SAC SCIENCE CENTER\SAC_Science Center_E_19_Local.rvt