MBI

Addendum No. 2 — June 15, 2020

A Renovation for:

Anderson County High School Fire Alarm

To: Prime contractors and all others to whom drawings and specifications have been issued. This Addendum forms part of the Contract Documents. It supplements and modifies them as follows:

A. Bidding: BID FORM IS REVISED
A revised bid form is included with Addendum 2.

Allowances:
Contractor shall include in his bid Allowance No. 2. Fire Penetrations

1. Description: Allowance included in the Base Bid for all materials, labor, equipment, and supervision necessary to provide and install fire rated penetrations at existing rated walls. Allowance shall include 50 rated penetrations. Exact locations to be field verified.

Unit Prices:

1. Definition: Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modifications, if the estimated quantities of Work required by the Contract Documents are increased or decreased.

2. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, profit, and applicable taxes.

3. Contractor shall include in his bid Unit Price No. 1: Rated Penetrations

   Description: Installation of fire rated penetrations at existing rated wall.

   Unit of Measurement: Single Rated Penetration Installed.

B. Drawings:

Drawing sheets CVR, E001, E301, E302, E303, E304, E305, and E501 are revised in response to State Fire Marshal Comments dated 6-11-2020. Revision 2 drawings of the listed sheets are included with Addendum 2.

C. Specifications:

Question: Please clarify the new system will be 100% Voice with Speaker Strobes (no Horn Strobes). The addendum shows several changes to the Fire Alarm Specification that appear to change the system from a Voice System to a non-Voice system (Horn Strobes instead of Speaker Strobes):

1. Page 4 – deletes Item 2.2.B line 5 referring to Voice Communication (in red)
2. Page 5 – deletes Item 2.2.D line 10 referring to Voice Amplifiers (in red)

Job Number: 190042-07

Chattanooga
University Tower
651 E. Fourth Street, Suite 500
Chattanooga, TN 37403
(o) 423.756.5046

Knoxville
299 N. Weisgarber Road
Knoxville, TN 37919
(o) 865. 584.0999

www.mbicompanies.com

Florida
100 Colonial Center Parkway, Suite 230
Lake Mary, FL 32746
(o) 407.585.0330
Architecture: AA26000828
Interiors: IB26000665

3. Page 8 – Item 2.7.B specifies Horns as the Audible device (original)

Sheet E001 has the Device Legend showing a wall mount and ceiling mount Audible Visible device. Both descriptions indicate Speaker Strobes. The reason for our question is the cost difference between a Fire Alarm system with Horn Strobes versus Speaker Strobes. A Voice Fire Alarm system will usually cost 25-30% more than a system with Horns. In the past fire alarm systems were installed with Horn Strobes in the majority of the building and Speaker Strobes only in certain areas (i.e. Auditorium, Gym, Cafeteria). It is our understanding that the current Fire Code requires all new systems in Education to be Voice type systems.

Response:

Specification 28 46 21 Addressable Fire Alarm System is revised. Refer to attached revised section – Revision 2 - for specific changes. New Fire Alarm System must comply with codes applied by Tennessee State Fire Marshal including 2012 International Building Code (excluding chapter 11 and Section 3411) and 2012 International Fire Code. Fire Alarm System must have Emergency Voice Communication.

End of Addendum

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651 E. Fourth Street, Suite 500
Chattanooga, TN 37403
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(o) 407.585.0330
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Bid Form - General Contract – REVISION 2, 6-15-2020

TO: Clay McKamey
Anderson County School Board
101 South Main Street
Suite 500
Clinton, TN 37716

DATED: _____, 2020

ANDERSON COUNTY BID # 2032

Having carefully examined the Invitation and Instructions to Bidders, the General Conditions of the Contract and Specifications entitled "A Renovation for: Anderson County High School Fire Alarm System, 130 Maverick Circle, Clinton, TN" and the Drawings similarly entitled, as well as the premises and conditions affecting the work, the Undersigned proposes to furnish all materials and labor called for by them for the work in accordance with said documents for the sum of:

_____Dollars ($_____).

hereinafter referred to as the Base Bid.

If written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the Undersigned within sixty (60) days after the date of receipt of bids or at anytime thereafter before this bid is withdrawn, the Undersigned agrees that he will execute and deliver a Contract on the forms which will be provided him in accordance with bid as specified; and that he will give performance and payment bonds as specified with good and sufficient surety or sureties all within ten (10) days, unless a longer period is allowed after the prescribed forms are presented to him for signature.

The Bidder sets forth the following Unit Prices, including delivery, installation, insurance, overhead, taxes, profit, etc. as a price per indicated unit of measurement for materials and/or services to be added to or deducted from the Contract Sum by appropriate modifications during construction.

Unit Price on Installation of Fire Rated Penetration at Existing Rated Wall. _____ Per Single Rated Penetration

The Bidder proposes to complete the work within _____ consecutive calendar days from the Notice to Proceed. The Bidder, by submitting this Bid, agrees to furnish labor, materials, equipment, etc., necessary to complete the work by the above stated dates. The above stated dates for completion of this project are of utmost importance to the Owner.

The Undersigned hereby acknowledges receipt of all Contract Documents including all pages of the Specifications, all sheets of the Drawings, and the following Addenda:

Addendum No. ___ Date: _____ Addendum No. ___ Date: _____

Addendum No. ___ Date: _____ Addendum No. ___ Date: _____

Addendum No. ___ Date: _____ Addendum No. ___ Date: _____

Sincerely,

_____
Bidder (If by a Corporation, this Bid must have the Signature Required by its By-Laws)

_____
Title

_____
Firm Name

_____
State of Incorporation

_____
State License No.

_____
Official Address

End of Bid Form

ARCH E1

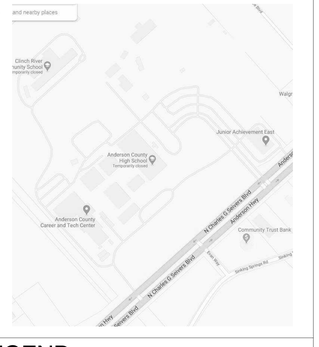
Anderson County High School Fire Alarm Renovation

130 Maverick Circle Clinton, TN 37716

ABBREVIATIONS:

AFF	- ABOVE FINISH FLOOR	MTL	- METAL
ALT	- ALTERNATE	MG	- MANUFACTURING
ALUM	- ALUMINUM	MFR	- MANUFACTURER
ARCH	- ARCHITECTURAL	MIN	- MINIMUM
ACT	- ACOUSTICAL TILE CEILING	MISC	- MISCELLANEOUS
ASPH	- ASPHALT	NIC	- NOT IN CONTRACT
BF	- BOTTOM FACE	NTS	- NOT TO SCALE
BSMT	- BASEMENT	NO. #	- NUMBER
BM	- BENCH MARK	OC	- ON CENTER
BLDG	- BUILDING	OD	- OUTSIDE DIAMETER
BLK	- BLOCK	P	- PLATE
BRG	- BEARING	PLAS	- PLASTIC
CB	- CATCH BASIN	P LAM	- PLASTIC LAMINATE
CJ	- CONTROL JOINT	PLYWD	- PLYWOOD
CHB	- CHALK BOARD	PTD	- PAINTED
CLG	- CEILING	RAD;R	- RADIUS
CLOS, CL	- CLOSET	RD	- ROOF DRAIN
CLR	- CLEAR	REINF	- REINFORCING
COL	- COLUMN	REQ'D	- REQUIRED
COMP	- COMPOSITION	RS	- RISER
CONC	- CONCRETE	RM	- ROOM
CONST	- CONSTRUCTION	RO	- ROUGH OPENING
CMU	- CONCRETE MASONRY UNIT	SCHED	- SCHEDULE
CT	- CERAMIC TILE	SCWD	- SOLID CORE WOOD
DTL	- DETAIL	SECT	- SECTION
D, DIA	- DIAMETER	SHT	- SHEET
DN	- DOWN	SIM	- SIMILAR
DWG	- DRAWING	SPECS	- SPECIFICATIONS
DF	- DRINK FOUNTAIN	SQFT / SF	- SQUARE FEET
DS	- DOWNSPOUT	STD	- STANDARD
EA	- EACH	STL	- STEEL
EF	- EACH FACE	STOR	- STORAGE
ELEC	- ELECTRIC	SD	- STORM DRAIN
EWC	- ELECTRIC WATER COOLER	SUSP	- SUSPENDED
ELEV	- ELEVATION	SQ	- SQUARE
EXIST	- EXISTING	TB	- TACK BOARD
EXT	- EXTERIOR	THOLD	- THRESHOLD
EJ	- EXPANSION JOINT	TLT	- TOILET
FE	- FIRE EXTINGUISHER	TD, TDS	- THREAD (S)
FL	- FLOOR	TF	- TOP FACE
FD	- FLOOR DRAIN	TYP	- TYPICAL
FT	- FOOT	U	- URINAL
FTNG	- FOOTING	VIF	- VERIFY IN FIELD
GALV	- GALVANIZED IRON	VS	- VENT STACK
GA	- GAUGE	VOL	- VOLUME
GYP	- GYPSUM	VT	- VINYL TILE
HB	- HOSE BIB	VERT	- VERTICAL
HCWD	- HOLLOW CORE WOOD	WSCT	- WAINSCOT
HDW	- HARDWARE	WC	- WATER CLOSET
HGT	- HEIGHT	WH	- WATER HEATER
HM	- HOLLOW METAL	WPFG	- WATERPROOFING
ID	- INSIDE DIAMETER	WF	- WIDE FLANGE
IN	- INCH	WDW	- WINDOW
INV.	- INVERT	WD	- WOOD
JAN	- JANITOR	W/	- WITH
JST	- JOIST	WWF	- WELDED WIRE FABRIC
LAV	- LAVATORY	WWM	- WELDED WIRE MESH
lb	- POUND	∠	- ANGLE
MH	- MANHOLE	@	- AT
MAX	- MAXIMUM	C	- CHANNEL
MECH	- MECHANICAL	ø	- DIAMETER

VICINITY MAP:



MATERIALS LEGEND:

PROJECT INFORMATION: (TFM #03970)

PROJECT DESCRIPTION
FIRE ALARM RENOVATION FOR EXISTING HIGH SCHOOL

JURISDICTION
ANDERSON COUNTY
BUILDING CODE ENFORCEMENT
100 N. MAIN STREET
CLINTON, TN. 37716
PHONE: (865)457-6244
CONTACT: DAVID CROWLEY, DIRECTOR
EMAIL: DCROWLEY@ANDERSON COUNTYTN.ORG

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CONTACT: DAVID CROWLEY, DIRECTOR
EMAIL: DCROWLEY@ANDERSON COUNTYTN.ORG

DESIGN CODES
2012 INTERNNATIONAL BUILDING CODE (EXCLUDING CHAPTER 11 AND SECTION 3411)
2012 INTERNATIONAL FUEL GAS CODE
2017 NATIONAL ELECTRICAL CODE, NFPA 70
2012 INTERNATIONAL ENERGY CONSERVATION CODE
2012 INTERNATIONAL FIRE CODE
2012 INTERNATIONAL EXISTING BUILDING CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
2012 NFPA 101 LIFE SAFETY CODE

OCCUPANCY E - EDUCATIONAL

RESPONDING FIRE DEPARTMENT
CHIEF: STEPHANIE FOX
1019 OLIVER SPRINGS HWY.
CLINTON, TN. 37716
PHONE: (865)435-1050
EMAIL: MARLOWF@GMAIL.COM

PROJECT DIRECTORY:

OWNER:	MECHANICAL ENGINEER:	CIVIL ENGINEER:	SURVEYING:
ANDERSON COUNTY SCHOOLS CLAY MCKAMEY 1010 CLINCH AVE. CLINTON, TN. 37716 865-457-2519			

ARCHITECT:	ELECTRICAL ENGINEER:	STRUCTURAL ENGINEER:
	STEVEN V. WALKER MBI COMPANIES INC. 299 N. WEISGARBER ROAD KNOXVILLE, TN. 37919 865-584-0999	

LIST OF DRAWINGS:

SHEET #	DRAWING TITLE	REV #	SHEET #	DRAWING TITLE	REV #
GENERAL					
CVR	COVER SHEET	2			
ELECTRICAL ENGINEERING					
E001	ELECTRICAL LEGEND AND GENERAL NOTES	2			
E301	FLOOR PLANS - FIRE ALARM	2			
E302	FLOOR PLANS - FIRE ALARM	2			
E303	FLOOR PLANS - FIRE ALARM	2			
E304	FLOOR PLANS - FIRE ALARM	2			
E305	1A AND 1B SECOND FLOOR PLAN - FIRE ALARM	2			
E306	FLOOR PLANS - FIRE ALARM				
E501	FIRE ALARM DETAILS				

Grand total: 9

CIVIL:	STRUCTURAL:	MECHANICAL:	ELECTRICAL:

MBI

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT
ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

SEAL

PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

NOTES

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
2	06/152020	REVISION #2

KEY PLAN

SHEET INFORMATION

SHEET ISSUED: 05/22/2020
DESIGNED BY: SVW
DRAWN BY: WAH
REVIEWED BY: SVW
SHEET TITLE:

COVER SHEET

SHEET NO.:

CVR

R:\Revit Projects\2019\190042_Anderson County General Services\190042-07 Fire Alarm Renovation\06_Electrical\190042-07_Electrical_cv03.rvt
6/15/20 2:57:22 PM

ELECTRICAL LEGEND

Symbol	Description
"LP1"	POWER PANELBOARD "LP1" MOUNT TOP 6'-0" ABOVE FINISHED FLOOR. SEE PANELBOARD SCHEDULE FOR EQUIPMENT CONTAINED IN PANELBOARD AND PANELBOARD RATINGS.
"LP1"	DOUBLE SECTION POWER PANELBOARD "LP1" MOUNT TOP 6'-0" ABOVE FINISHED FLOOR. SEE PANELBOARD SCHEDULE FOR EQUIPMENT CONTAINED IN PANELBOARD AND PANELBOARD RATINGS.
J	JUNCTION BOX, SIZE AND USE AS REQUIRED; COVERPLATE SHALL OVERLAP THE BOX EDGE BY 1/2" WHERE RECESSED IN WALL WITH CONCEALED WIRING.
J	4" SQUARE JUNCTION BOX.
	RECESSED FOUR GANG FLOOR BOX. TWO GANGS FOR POWER AND TWO GANGS FOR DATA. PROVIDE TWO DUPLEX RECEPTACLES IN POWER GANGS, FLANGE, AND BRASS COVER PLATE. WALKER OR EQUAL.
	SPECIAL VOLTAGE OUTLET
	SINGLE RECEPTACLE - 125V, 20A, MOUNT 3" ABOVE BACKSPLASH AT WORK COUNTERS AND LAVATORIES AND +18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. HUBBELL OR LEVITION COMMERCIAL SPECIFICATION GRADE, TAMPER PROOF.
IG	DUPLEX RECEPTACLE - 125V, 20A MOUNT 3" ABOVE BACKSPLASH AT WORK COUNTERS AND LAVATORIES AND +18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. IG INDICATES ISOLATED GROUND TYPE WITH ORANGE COLOR. HUBBELL OR LEVITON COMMERCIAL SPECIFICATION GRADE, TAMPER PROOF.
AF	DUPLEX RECEPTACLE - AF INDICATES CIRCUIT FED VIA ARC FAULT CIRCUIT BREAKER. MOUNT 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. PROVIDE HUBBELL OR LEVITON COMMERCIAL SPECIFICATION GRADE, TAMPER PROOF.
WP WPC GFI	DUPLEX RECEPTACLE - 125V, 20A MOUNT 3" ABOVE BACKSPLASH AT WORK COUNTERS AND LAVATORIES AND +18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. GFI INDICATES GROUND FAULT CIRCUIT INTERRUPTER TYPE, WP INDICATES WEATHERPROOF COVER. WPC INDICATES "CLOSED WHILE IN USE" TYPE WEATHERPROOF COVER. HUBBELL OR LEVITON COMMERCIAL SPECIFICATION GRADE, TAMPER PROOF.
WP GFI	QUADRUPLEX CONVENIENCE OUTLET - 125V, 20A MOUNT +18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. HUBBELL OR LEVITON COMMERCIAL SPECIFICATION GRADE, TAMPER PROOF.
WH	MISCELLANEOUS MECHANICAL EQUIPMENT, WH=WATER HEATER, UH=UNIT HEATER
W S D X C	EXIT SIGN, "X" INDICATES FIXTURE TYPE, "C" INDICATES CEILING MOUNTED, "W" INDICATED WALL MOUNTED, "S" INDICATES SINGLE FACE, "D" INDICATES DOUBLE FACE. PROVIDE DIRECTIONAL ARROWS AS INDICATED ON PLANS. UNIT EQUIPED WITH BATTERY BACK-UP.
	EMERGENCY/EXIT LIGHT COMBO UNIT, BATTERY BACK-UP POWERED. WIRE UNIT TO UNSWITCHED HOT ON CIRCUITS SHOWN.
	EMERGENCY LIGHTING UNIT, BATTERY BACK-UP POWERED. WIRE UNIT TO UNSWITCHED HOT ON CIRCUITS SHOWN.
A 3a	DOWNLIGHT. "A" IS THE FIXTURE TYPE IN THE FIXTURE SCHEDULE "a" INDICATES WHICH SWITCH CONTROLS THE FIXTURE; AND "3" INDICATES WHICH PANELBOARD CIRCUIT THE FIXTURE IS FED FROM.
A 3a	DOWNLIGHT WITH BUILT IN EMERGENCY BATTERY PACK TO PROVIDE LIGHTING WHEN NORMAL POWER IS NOT AVAILABLE. PROVIDE UNSWITCHED "HOT" CONDUCTOR (FROM SAME CIRCUIT FIXTURE IS USING) TO BATTERY PACK, IN ORDER TO ALLOW NORMAL SWITCHING OF LIGHT FIXTURE WITHOUT DISCHARGING BATTERY PACK. ANY FIXTURE SYMBOL THAT HAS SHADING INDICATES THAT FIXTURE HAS AN EMERGENCY BATTERY BACK-UP.
NL A 3a	FLUORESCENT LIGHTING FIXTURE. "A" IS THE FIXTURE TYPE IN THE FIXTURE SCHEDULE "a" INDICATES WHICH SWITCH CONTROLS THE FIXTURE; AND "3" INDICATES WHICH PANELBOARD CIRCUIT THE FIXTURE IS FED FROM. "NL" INDICATES NIGHT LIGHT FIXTURE. CONNECT FIXTURE TO AN UNSWITCHED HOT SO THAT LIGHT STAYS ON AT ALL TIMES.
A 3a	FLUORESCENT LIGHTING FIXTURE WITH BUILT IN EMERGENCY BATTERY PACK TO PROVIDE LIGHTING WHEN NORMAL POWER IS NOT AVAILABLE. PROVIDE UNSWITCHED "HOT" CONDUCTOR (FROM SAME CIRCUIT FIXTURE IS USING) TO BATTERY PACK, IN ORDER TO ALLOW NORMAL SWITCHING OF LIGHT FIXTURE WITHOUT DISCHARGING BATTERY PACK. ANY FIXTURE SYMBOL THAT HAS SHADING INDICATES THAT FIXTURE HAS AN EMERGENCY BATTERY BACK-UP.
— — — —	CONDUIT UNDERGROUND, 1"C MINIMUM, UNLESS NOTED OTHERWISE.
LP1-1,3,5	HOMERUN - LP1 INDICATES PANELBOARD 1,3,5 INDICATE CIRCUIT NUMBERS. SEE PANELBOARD DESIGNATION SCHEDULE FOR ADDITIONAL INFORMATION.
	MARKS INDICATE NO. OF #12 CONDUCTORS IN 3/4" CONDUIT =PHASE =NEUTRAL =GROUND NO MARKS INDICATE 2 #12, #12 GROUND. WHEN TWO OR MORE CIRCUITS SHARE A COMMON NEUTRAL THE HOT CONDUCTORS MUST BE CONNECTED TO DIFFERENT PHASES IN THE PANELBOARD.
	CATV OUTLET MOUNT 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. EXTEND 1" EMPTY CONDUIT FROM OUTLET BOX ABOVE CEILING AND TERMINATE WITH BUSHING. PROVIDE NYLON PULL CORD IN EACH CONDUIT. PROVIDE 4" SQUARE BOX WITH SINGLE GANG DEVICE RING.
	TELEPHONE/DATA OUTLET MOUNT 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. EXTEND 1" EMPTY CONDUIT FROM OUTLET BOX ABOVE CEILING AND TERMINATE WITH BUSHING. PROVIDE NYLON PULL CORD IN EACH CONDUIT. PROVIDE 4" SQUARE BOX WITH SINGLE GANG DEVICE RING.
\$3 \$D \$OS	LOCAL 120V WALL SWITCH, SINGLE POLE MOUNT +48" ABOVE FINISHED FLOOR. "3" INDICATES 3-WAY, "D" INDICATES DIMMER SWITCH, "OS" INDICATES OCCUPANCY SENSOR. SPECIFICATION GRADE.
\$LV3 \$LVD \$LVOS	LOCAL LOW VOLTAGE "LV" WALL SWITCH, MOUNT +48" ABOVE FINISHED FLOOR. "3" INDICATES 3-WAY, "D" INDICATES DIMMER SWITCH, "OS" INDICATES OCCUPANCY SENSOR. SPECIFICATION GRADE.
PP	POWER PACK RELAY MODULE WITH 0-10V DIMMING FOR LIGHTING CONTROL.
OS	DUAL TECHNOLOGY OCCUPANCY SENSOR FOR LIGHTING CONTROL.
30/60	FUSED DISCONNECT SWITCH. "60" INDICATES SWITCH SIZE, "30" INDICATES FUSE SIZE. HEAVY DUTY "HP" RATED, PROVIDE NEMA 3R ENCLOURES OUTDOORS. FUSE PER NAMEPLATE OF EQUIPMENT.
30	NON-FUSED DISCONNECT SWITCH. "30" INDICATES SWITCH SIZE. HEAVY DUTY "HP" RATED, PROVIDE NEMA 3R ENCLOSURE OUTDOORS.
	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION SAME MOUNTING HEIGHT ABOVE FINISHED FLOOR AS WALL SWITCH.
1/3	A.C. MOTOR "1/3" INDICATES HORSEPOWER.
TBB	TELEPHONE BACKBOARD 4' X 4' X 3/4" THICK FIRE RESISTIVE PLYWOOD. MOUNT TOP OF THE PLYWOOD 6'-0" ABOVE FINISHED FLOOR. INSTALL #6 SOLID COPPER GROUND TO NEAREST BUILDING STEEL. PROVIDE 1-120V, 20A, DUPLEX RECEPTACLE ON DEDICATED CIRCUIT. PAINT WITH 2 COATS OF FIRE RESISTIVE PAINT.
D	DUCT SMOKE DETECTOR. 1-SUPPLY AIR DUCT, 1-RETURN AIR DUCT, SUPPLIED AND INSTALLED BY FIRE ALARM CONTRACTOR. ELECTRICAL CONTRACTOR TO WIRE THE DUCT SMOKE DETECTORS TO SHUT DOWN THE HVAC UNIT IN THE EVENT EITHER THE SUPPLY OR THE RETURN DUCT SMOKE DETECTOR GOES INTO ALARM. PROVIDE REMOTE TEST STATION IN AN ACCESSIBLE LOCATION, MOUNTED BELOW UNIT AT 48" A.F.F.
F	FIRE ALARM PULL STATION MOUNT 48" AFF.
L 75/110 WG	WALL MOUNTED FIRE ALARM COMBINATION AUDIO/VISUAL SPEAKER STROBE DEVICE. MOUNT 80" A.F.F. 75 INDICATES dBA AT 10', 110 INDICATES CANDLE LTD. WG MEANS PROVIDE WITH WIRE GUARD.
L 75cd	CEILING MOUNTED FIRE ALARM COMBINATION AUDIO/VISUAL SPEAKER STROBE DEVICE. MOUNT 80" A.F.F. 75cd INDICATES 75 CANDELAS
S	CEILING MOUNTED FIRE ALARM SMOKE DETECTOR.
H	CEILING MOUNTED FIRE ALARM HEAT DETECTOR.
V	CEILING MOUNTED FIRE ALARM VISUAL ONLY STROBE DEVICE. MOUNT 80" A.F.F.
V 15	WALL MOUNTED FIRE ALARM VISUAL ONLY, 15 INDICATES CANDELAS.
DC	DOOR CONTACT
TS	FIRE ALARM TAMPER SWITCH.
FS	FIRE ALARM FLOW SWITCH.
FACP	FIRE ALARM CONTROL PANEL, MOUNT TOP 6'-0" A.F.F. PROVIDE TWO DEDICATED PHONE LINES FOR FIRE ALARM CONTROL PANEL.
RAP	REMOTE ANNUNCIATOR PANEL - FIRE ALARM, MOUNT TOP 6'-0" A.F.F.

ELECTRICAL LEGEND CONT.

Symbol	Description
DH	DOOR HOLDER - OPERATED THROUGH FIRE ALARM SYSTEM. DOORS REMAIN OPEN UNTIL SMOKE ISDETECTED BY SMOKE DETECTORS ADJACENT TO THE DOORS OR LOSS OF POWER.
CR	SECURITY SYSTEM CARDREADER.
KP	SECURITY SYSTEM KEYPAD.
	SECURITY SYSTEM CAMERA.
	CLOCK: CLOCK SYSTEM SHALL BE PRIMEX OR EQUAL AS FOLLOWS: TRANSMITTER PRIMEX 14000 OR EQUAL, 1 WATT MINIMUM WITH ATTACHED INTERNAL ANTENNA CLOCKS PRIMEX 14155 OR EQUAL, ANALOG, 12.5" DIAMETER, BLACK, 5 YEAR MAINTENANCE FREE BATTERY OPERATED
	PA SPEAKER. FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
	EXTERIOR PA SPEAKER. FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

ELECTRICAL ABBREVIATIONS

A	AMPERES	FWE	FURNISHED WITH EQUIPMENT	N.C.	NORMALLY CLOSED
AC	ALTERNATING CURRENT	G	GROUNDING CONDUCTOR	N.I.C.	NOT IN CONTRACT
AF	ARC FAULT	GFI	GROUND FAULT INTERRUPTER	N.O.	NORMALLY OPEN
A.F.F.	ABOVE FINISHED FLOOR	HP	HORSEPOWER	NEC	NATIONAL ELECTRIC CODE
AWG	AMERICAN WIRE GAUGE	JB	JUNCTION BOX	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CKT	CIRCUIT	KCM	THOUSANDS OF CIRCULAR MILS	PH	PHASE
DC	DIRECT CURRENT	KV	KILOVOLTS	TYP.	TYPICAL
DISC	DISCONNECT	KVA	KILOVOLT-AMPERES	V	VOLT
DWG.	DRAWING	KW	KILOWATTS	W	WATT
ELEC.	ELECTRICAL/ELECTRIC	LTG	LIGHTING	WP	WEATHERPROOF
EWC	ELECTRIC WATER COOLER	N	NEUTRAL CONDUCTOR	WPC	"CLOSED WHILE IN USE" TYPE WEATHERPROOF COVER

FIRE ALARM SYSTEM NOTES

1. A) FURNISH AND INSTALL A COMPLETE ADDRESSABLE FIRE DETECTION AND EVACUATION SYSTEM. THE ENTIRE INSTALLATION SHALL CONFORM TO THE APPLICABLE SECTIONS OF NFPA-72, NATIONAL FIRE ALARM CODE, NFPA-101 LIFE SAFETY CODE, N.E.C. ARTICLE 760, THE AMERICANS WITH DISABILITIES ACT, AND LOCAL AUTHORITIES HAVING JURISDICTION. SUBSTITUTES FOR APPROVAL MUST MEET THE COMPLETE FUNCTIONALITY REQUIREMENTS AS SET FORTH IN THESE SPECIFICATIONS.

   B) DUE TO THE NATURE OF FIRE MARSHALL ACTIONS, INCLUDE AN ALLOWANCE OF AN ADDITIONAL 10% OF THE ORIGINAL JOB A/V DEVICE QUANTITIES TO BE INSTALLED AT THE DISCRETION OF THE LOCAL FIRE MARSHALL.

2. THE FIRE ALARM EQUIPMENT SUPPLIER SHALL BE AN ALARM SYSTEMS CONTRACTOR LICENSED BY THE STATE OF TENNESSEE AND SHALL INCLUDE A COPY OF THE LICENSE IN THE EQUIPMENT SUBMISSIONS. THE CONTRACTOR SHALL HAVE NICET CERTIFIED EMPLOYEES FOR THE SALE, SUPERVISION AND FINAL TESTING OF THE EQUIPMENT AND SHALL INCLUDE A COPY OF THE CERTIFICATE OF AT LEAST ONE EMPLOYEE IN THE EQUIPMENT SUBMISSIONS.

3. THE FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE NEED FOR ADDITIONAL CABINETS, BATTERIES, POWER SUPPLIES, PROGRAMMING, AND ANY ADDITIONAL HARDWARE OR SOFTWARE FOR A COMPLETE INSTALLATION AND EXPANSION. INCLUDE ALL COST IN ORIGINAL BID.

GENERAL ELECTRICAL NOTES

1. ELECTRICAL DRAWINGS ARE PARTIALLY DIAGRAMMATIC. IN THE EVENT THAT THERE IS A DISCREPANCY OR THERE ARE ITEMS THAT ARE UNCLEAR, IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT THE ENGINEER FOR CLARIFICATION. INSTALL THE ELECTRICAL SYSTEMS WITHOUT INTERFERING WITH DUCTS, PIPES, STRUCTURAL STEEL OR OTHER SYSTEMS.
2. SCOPE: FURNISH ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO INSTALL ALL ELECTRICAL WORK INDICATED ON DRAWINGS, AS SPECIFIED HEREIN, AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND ALL STATE, AND CITY CODES.
3. PROVIDE ADDITIONAL SUPPORTS ELECTRICAL EQUIPMENT WHERE THE BUILDING STRUCTURE IS NOT SUITABLE FOR DIRECT MOUNTING. ALL OTHER SUPPORTS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. 2
4. SYMBOLS IN THE LEGENDS ARE APPLICABLE GENERALLY. FOR EXACT REQUIREMENTS REFER TO THE SCHEDULES, LAYOUTS, DETAILS AND SPECIFICATIONS SINCE THE APPEARANCE OF A PARTICULAR SYMBOL IN THE LEGEND DOES NOT NECESSARILY IMPLY THAT THE ITEM IS INCLUDED IN THE CONTRACT.
5. PROVIDE SEAL FITTINGS IN CONDUITS THAT ENTER CONDITIONED AREA FROM NON-CONDITIONED AREAS.
6. ANY CONDUIT AND/OR CABLE TRAY PENETRATIONS THROUGH ANY FIRE WALL OR FLOOR SHALL BE FIRESTOPPED EQUAL TO OR GREATER THAN THE RATING OF THE FIRE WALL OR FLOOR THAT THEY PASS THROUGH. USE ONLY UL APPROVED METHODS AND ASSEMBLIES. RECEPTACLES LOCATED ON OPPOSITE SIDES OF A FIRE BARRIER SHALL BE SEPERATED BY A MINIMUM HORIZONTAL DISTANCE OF 2'0".
7. PERMITS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, FEES INSPECTIONS, AND POWER COMPANY AID TO COMPLETE WORK SHOWN. INCLUDE ALL POWER COMPANY COSTS IN BID.
8. CUTTING AND PATCHING: PROVIDE ALL CUTTING REQUIRED TO DO THE WORK. DO NOT CUT ANY STRUCTURAL ELEMENT WITHOUT APPROVAL. PATCHING SHALL BE OF QUALITY EQUAL TO AND MATCHING APPEARANCE OF EXISTING CONSTRUCTION. DO NOT CUT ANY STRUCTURAL ELEMENT WITHOUT APPROVAL. 2
9. GROUNDING: AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 250.
10. RECORD DRAWINGS: MAINTAIN A RECORD SET OF ALL CHANGES DURING CONSTRUCTION. RECORD CHANGES ON A CLEAN SET OF CONTRACT CONSTRUCTION DOCUMENTS WHICH SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT.
11. ALL WIRING INSIDE BUILDING SHALL BE INSTALLED IN METALLIC CONDUIT. ALL CONDUIT SHALL BE CONCEALED UNLESS LOCATED IN ELECTRICAL AND MECHANICAL ROOMS. IF CONDUIT AND BOXES CANNOT BE CONCEALED, SURFACE MOUNT ON FACE OF BLOCK WALL.
12. COMPLETELY DISCONNECT AND DEMOLISH ALL EXISTING FIRE ALARM EQUIPMENT AND WIRING AFTER NEW SYSTEM BEEN COMPLETELY INSTALLED, TESTED AND APPROVED. PAINT AND PATCH WALLS AND CEILINGS AND REPLACE CEILING TILES WHERE DEVICES HAVE BEEN REMOVED. COVER OPENINGS IN EXISTING BLOCK WALLS WHERE DEVICES WERE REMOVED WITH STAINLESS STEEL BLANK COVER PLATES. EXISTING FIRE ALARM EQUIPMENT IS SHOWN HALF TONED ON FIRE ALARM PLANS. 2
13. ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM, AND COMMUNICATION SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION, AND TESTING OF FIRE DETECTION ALARM AND COMMUNICATION SYSTEMS SHALL BE MAINTAINED AT AN APPROVED. SECURED LOCATION FOR THE LIFE OF THE SYSTEM.
14. MAINTAIN FIRE RATING OF ALL EXISTING WALLS IF PENETRATED WITH NEW CONDUIT. SEAL PENETRATIONS PER DETAIL 4/E501. VERIFY FIRE RATING OF WALLS DURING CONSTRUCTION IN FIELD.

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

SEAL

PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

NOTES

ACTIVE DESIGN PHASE

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- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
2	06/152020	REVISION #2

KEY PLAN

SHEET INFORMATION

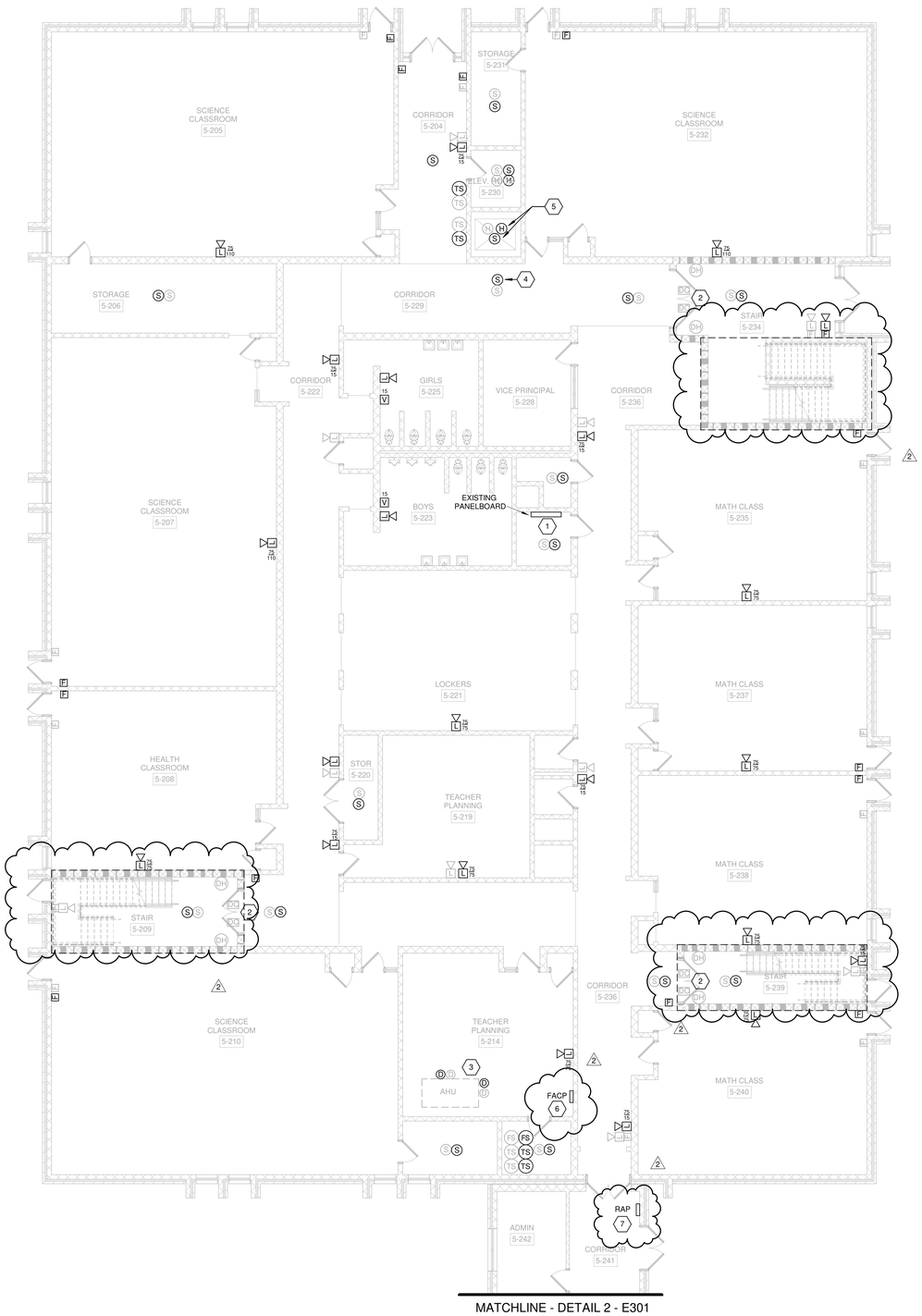
SHEET ISSUED:	05/22/2020
DESIGNED BY:	SVW
DRAWN BY:	WAH
REVIEWED BY:	SVW

SHEET TITLE:

ELECTRICAL LEGEND AND GENERAL NOTES

SHEET NO.:

E001



BUILDING 1A FIRST FLOOR PLAN - FIRE ALARM

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

1

GENERAL SHEET NOTES

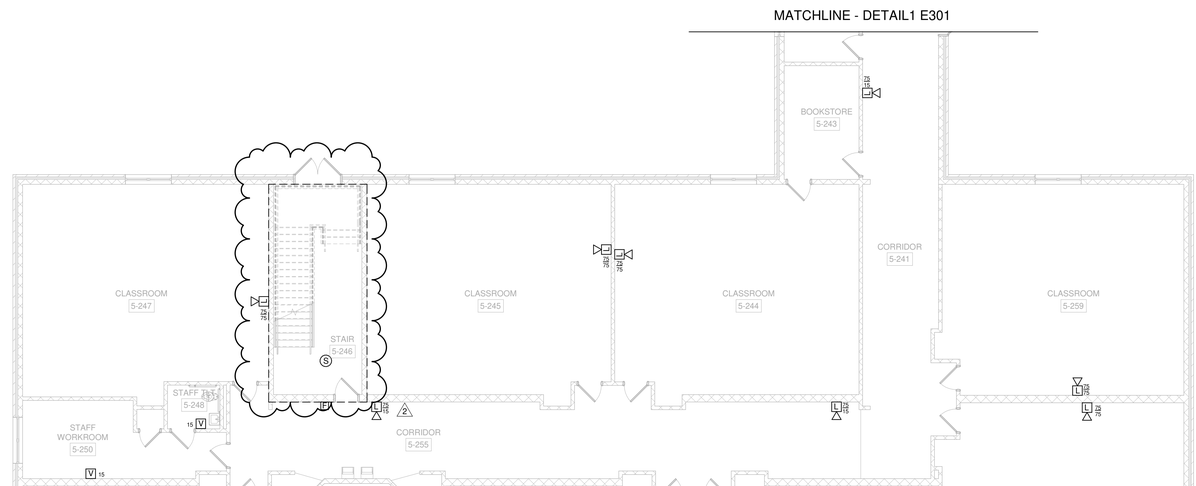
1. SEE SHEET E0.1 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL HALF TONED FIRE ALARM DEVICES ARE EXISTING FIRE ALARM DEVICES TO BE DEMOLISHED.
3. ALL HALF TONED EXISTING DOOR HOLDERS AND DOOR CONTACTS TO REMAIN.

KEYED SHEET NOTES

1. CONNECT SHUNT TRIP ON EXISTING 50/3 POLE BREAKER TO NEW FACP.
2. PROVIDE NEW SMOKE DETECTORS ON BOTH SIDES OF DOOR AND CONNECT TO NEW FIRE ALARM SYSTEM. CONNECT EXSITING DOORS CONTACTS AND EXISTING DOOR HOLDERS TO DOOR TO RELEASE DOOR AND VERIFY CLOSING UPON SENSING OF SMOKE.
3. PROVIDE NEW DUCT DETECTORS. ONE IN SUPPLY AND ONE IN RETURN. CONNECT AUX CONTACTS ON DETECTORS TO SHUT DOWN UNIT UPON ALARM.
4. SMOKE DETECTOR FOR ELEVATOR RECALL. CONNECT FIRE ALARM SYSTEM WITH ELEVATOR CONTROLS FOR CODE COMPLIANT OPERATION.
5. DEVICES IN ELEVATOR (TYP.)
6. LOCATION FOR BUILDING NETWORK FIRE ALARM CONTROL UNIT FOR FIRE ALARM SYSTEM. PROVIDE POWER TO PANEL BY ADDING NEW 20A LOCKABLE CIRCUIT BREAKER IN NEAREST EXISTING 120V PANEL IN BUILDING. BREAKER SHALL BE RED MARKING, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
7. REMOTE ANNUNCIATOR PANEL FOR FIRE ALARM SYSTEM AT BUILDING ENTRANCE.

WALL LEGEND

– – – – – EXISTING TWO HOUR WALL



BUILDING 1B FIRST FLOOR PLAN - FIRE ALARM

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

2

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

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PROJECT ADDRESS:

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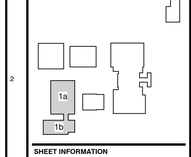
KEY PLAN



SHEET INFORMATION

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SHEET TITLE:

FLOOR PLANS - FIRE ALARM

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E301

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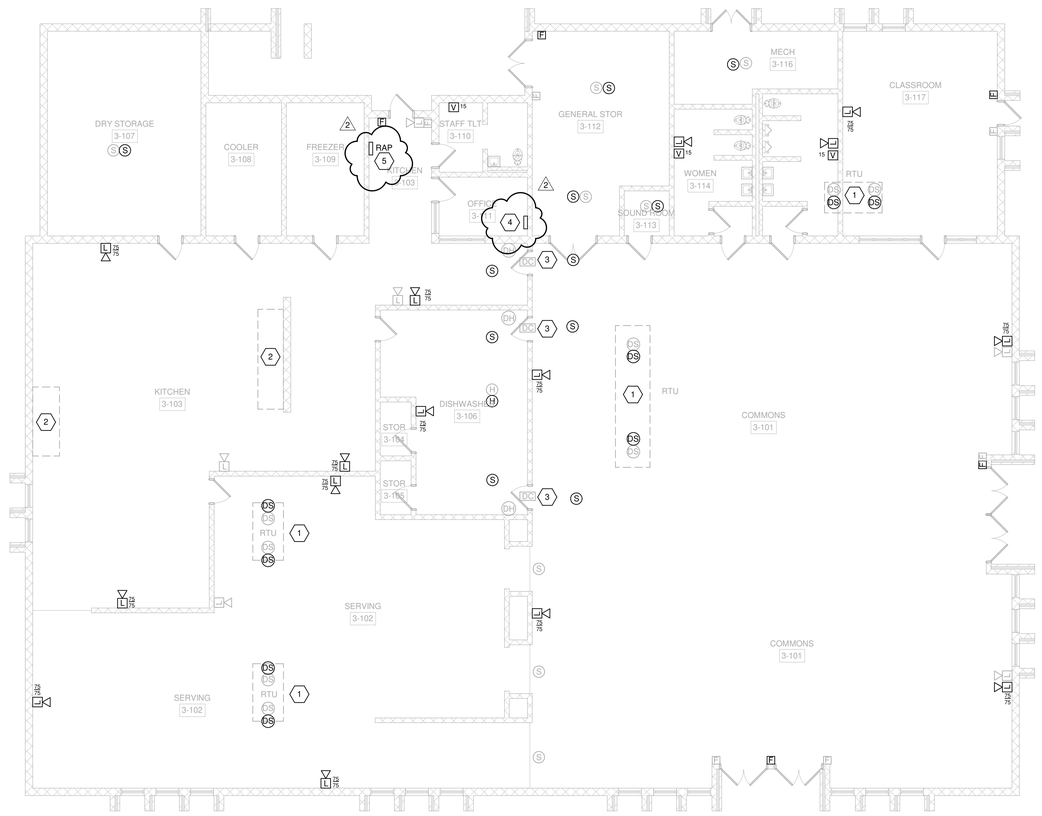
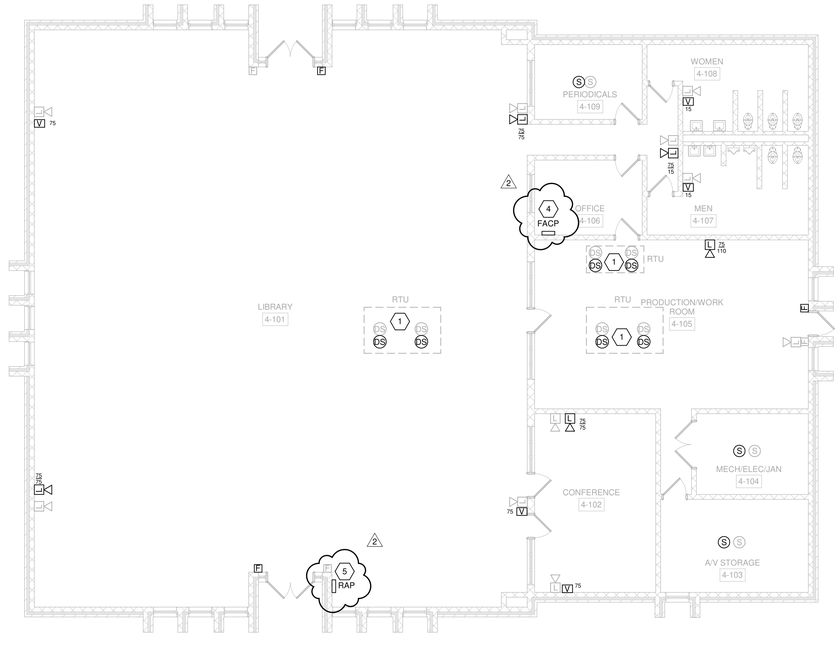


BUILDING 4 FLOOR PLAN - FIRE ALARM

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

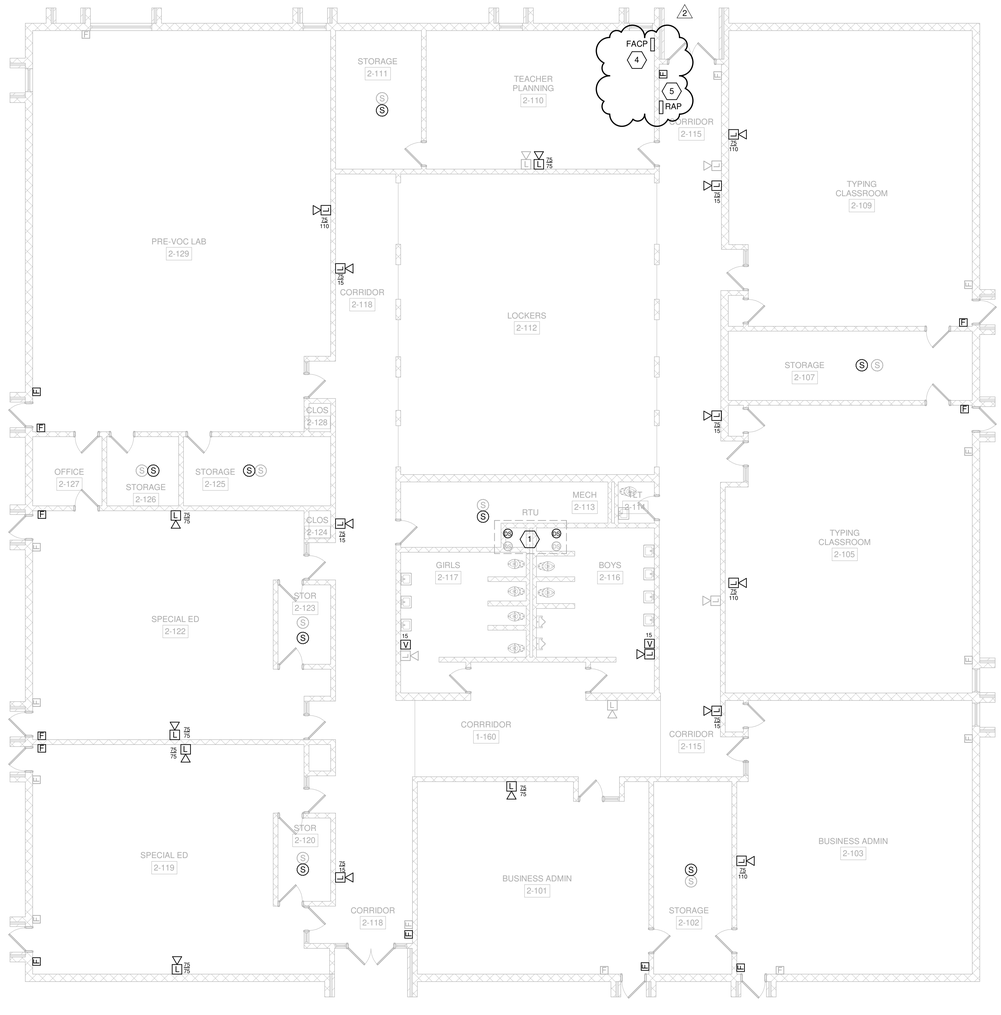
3



BUILDING 3 FLOOR PLAN - FIRE ALARM

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

2



BUILDING 2 FLOOR PLAN - FIRE ALARM

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

1

GENERAL SHEET NOTES

1. SEE SHEET E0.1 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL HALF TONED FIRE ALARM DEVICES SHALL BE DEMOLISHED.
3. ALL HALF TONED EXISTING DOOR HOLDERS AND DOOR CONTACTS TO REMAIN.

KEYED SHEET NOTES

2

1. PROVIDE NEW DUCT DETECTORS. ONE IN SUPPLY AND ONE IN RETURN. CONNECT AUX CONTACTS ON DETECTORS TO SHUT DOWN UNIT UPON ALARM.
2. CONNECT FIRE ALARM SYSTEM TO MONITOR EXISTING HOOD EXTINGUISING SYSTEMS AT THE THESE LOCATIONS.
3. PROVIDE SMOKE DETECTOR AT DOOR AND CONNECT TO NEW FIRE ALARM SYSTEM. CONNECT EXISTING DOOR CONTACT AND EXISTING DOOR HOLDER TO RELEASE DOOR AND VERIFY CLOSING UPON SENSING SMOKE.
4. LOCATION FOR BUILDING NETWORK FIRE ALARM CONTROL UNIT FOR FIRE ALARM SYSTEM. PROVIDE POWER TO PANEL BY ADDING NEW 20A LOCKABLE CIRCUIT BREAKER IN NEAREST EXISTING 120V PANEL IN BUILDING. BREAKER SHALL BE RED MARKING, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
5. REMOTE ANNUNCIATOR PANEL FOR FIRE ALARM SYSTEM AT BUILDING ENTRANCE.

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

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PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

NOTES

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- ■ CONSTRUCTION DOCUMENTS
- ☐ AS BUILT RECORD SET

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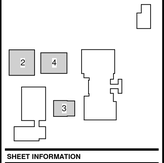

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SHEET TITLE:

FLOOR PLANS - FIRE ALARM

SHEET NO.:

E302

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GENERAL SHEET NOTES

1. SEE SHEET E0.1 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL HALF TONED FIRE ALARM DEVICES SHALL BE DEMOLISHED.

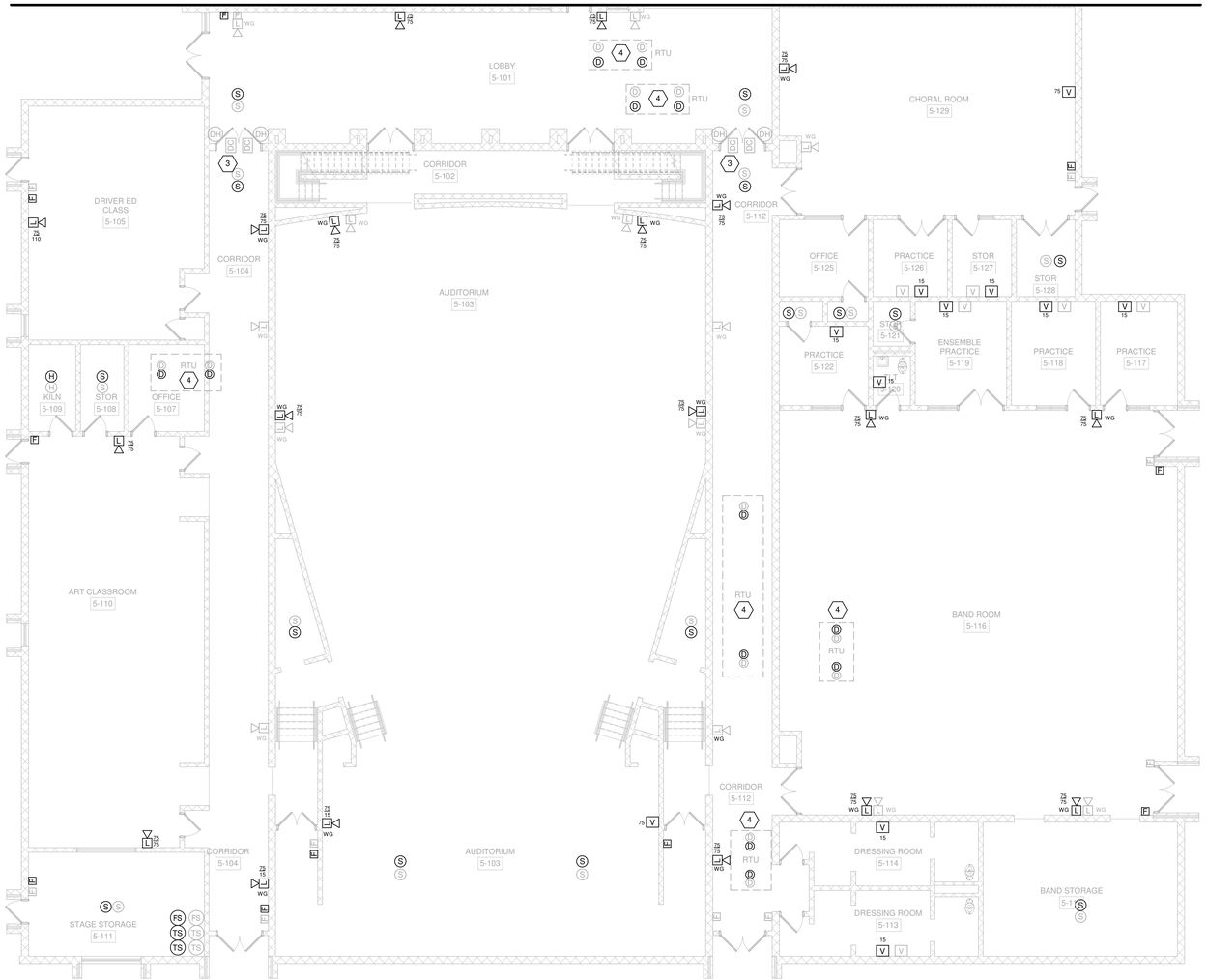
KEYED SHEET NOTES

1. EXISTING FIRE ALARM CONTROL PANEL.
2. PROPOSED LOCATION FOR NEW MAIN FIRE ALARM CONTROL PANEL AND ASSOCIATED EQUIPMENT. COORDINATE LOCATION WITH OWNER.
3. PROVIDE NEW SMOKE DETECTORS ON BOTH SIDES OF DOOR AND CONNECT TO NEW FIRE ALARM SYSTEM. CONNECT EXISTING DOORS CONTACTS AND EXISTING DOOR HOLDERS TO DOOR TO RELEASE DOOR AND VERIFY CLOSING UPON SENSING OF SMOKE.
4. PROVIDE NEW DUCT DETECTORS. ONE IN SUPPLY AND ONE IN RETURN. CONNECT AUX CONTACTS ON DETECTORS TO SHUT DOWN UNIT UPON ALARM.
5. REMOTE ANNUNCIATOR PANEL FOR FIRE ALARM SYSTEM AT BUILDING ENTRANCE.

WALL LEGEND

—— – —— EXISTING FOUR HOUR WALL

MATCHLINE - DETAIL 2 - E303



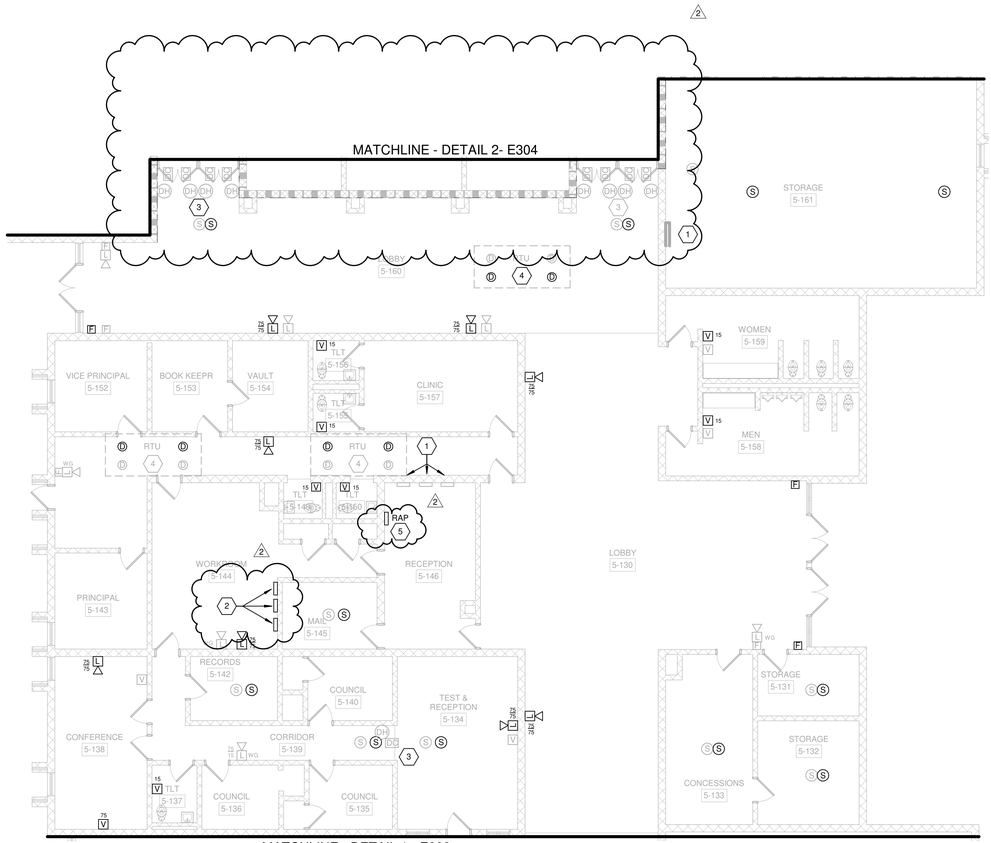
BUILDING 5 FLOOR PLAN - FIRE ALARM

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

1

MATCHLINE - DETAIL 2- E304

MATCHLINE - DETAIL 1 - E303



BUILDING 6 FLOOR PLAN - FIRE ALARM

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

2

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

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PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

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NO.	DATE	DESCRIPTION
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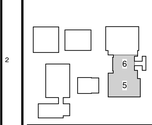
KEY PLAN



SHEET INFORMATION

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REVIEWED BY:	SVW

SHEET TITLE:

FLOOR PLANS - FIRE ALARM

SHEET NO.:

E303

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GENERAL SHEET NOTES

1. SEE SHEET E0.1 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL HALF TONED FIRE ALARM DEVICES SHALL BE DEMOLISHED.

KEYED SHEET NOTES

2

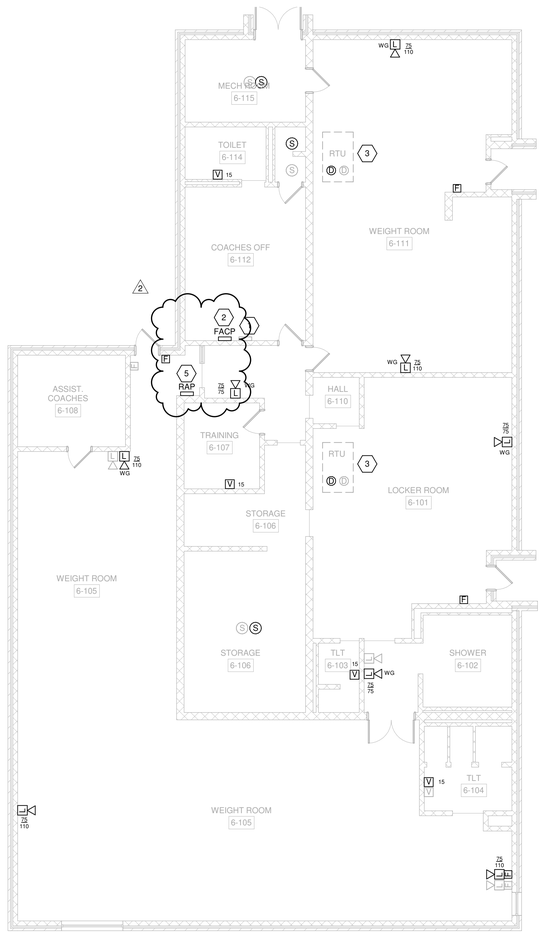
1. EXISTING FIRE ALARM CONTROL PANEL.
2. LOCATION FOR BUILDING NETWORK FIRE ALARM CONTROL UNIT FOR FIRE ALARM SYSTEM. PROVIDE POWER TO PANEL BY ADDING NEW 20A LOCKABLE CIRCUIT BREAKER IN NEAREST EXISTING 120V PANEL IN BUILDING. BREAKER SHALL BE RED MARKING, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
3. PROVIDE NEW DUCT DETECTORS, ONE IN SUPPLY AND ONE IN RETURN. CONNECT AUX CONTACTS ON DETECTORS TO SHUT DOWN UNIT UPON ALARM.

2

4. REMOTE ANNUNCIATOR PANEL FOR FIRE ALARM SYSTEM AT BUILDING ENTRANCE.

WALL LEGEND

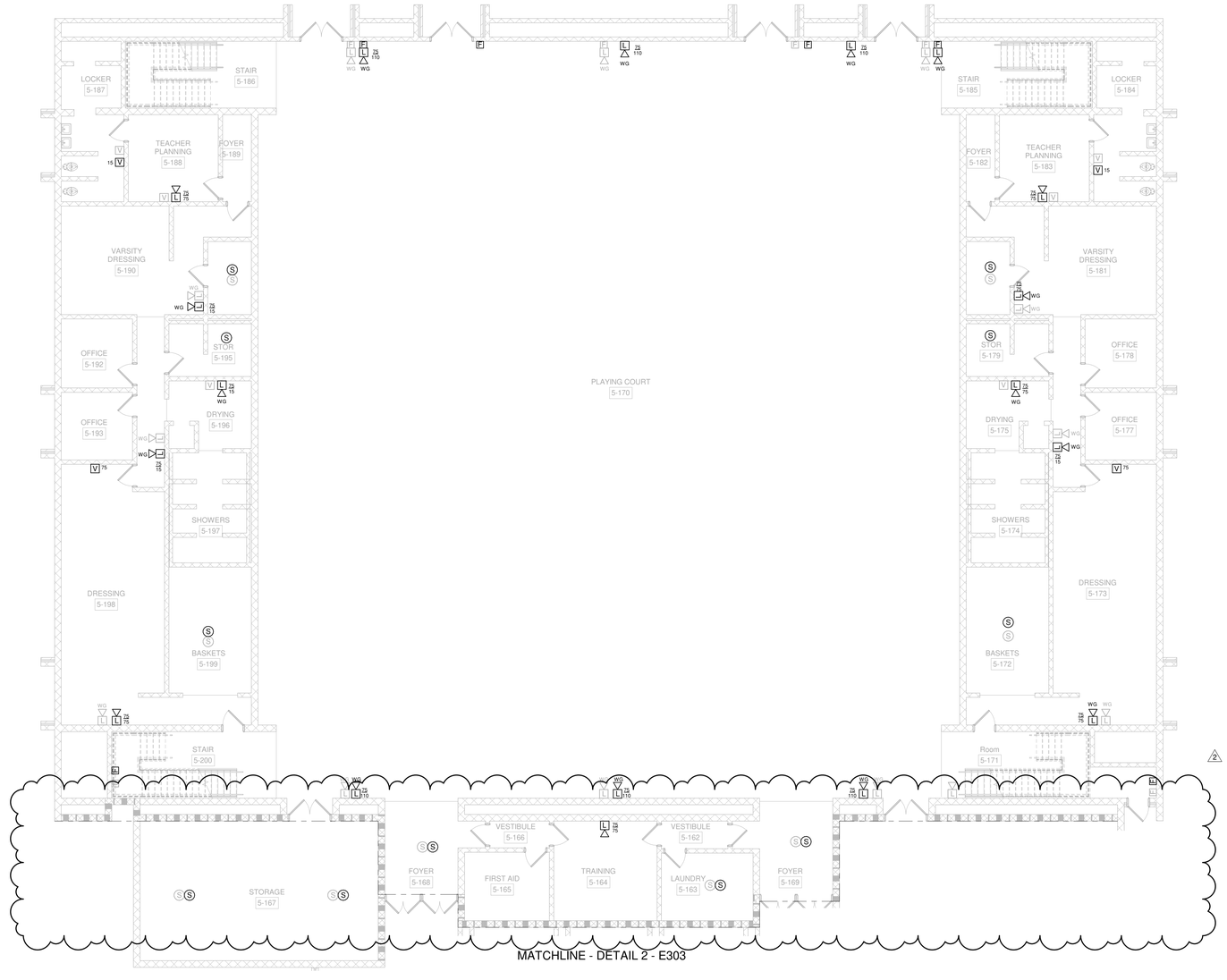
—— – —— EXISTING FOUR HOUR WALL



ATHLETIC BUILDING FLOOR PLAN - FIRE ALARM

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

1



MATCHLINE - DETAIL 2 - E303

BUILDING 7 FLOOR PLAN - FIRE ALARM

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

2

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MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

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PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

NOTES

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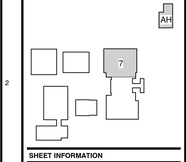
KEY PLAN



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FLOOR PLANS - FIRE ALARM

SHEET NO.:

E304

GENERAL SHEET NOTES

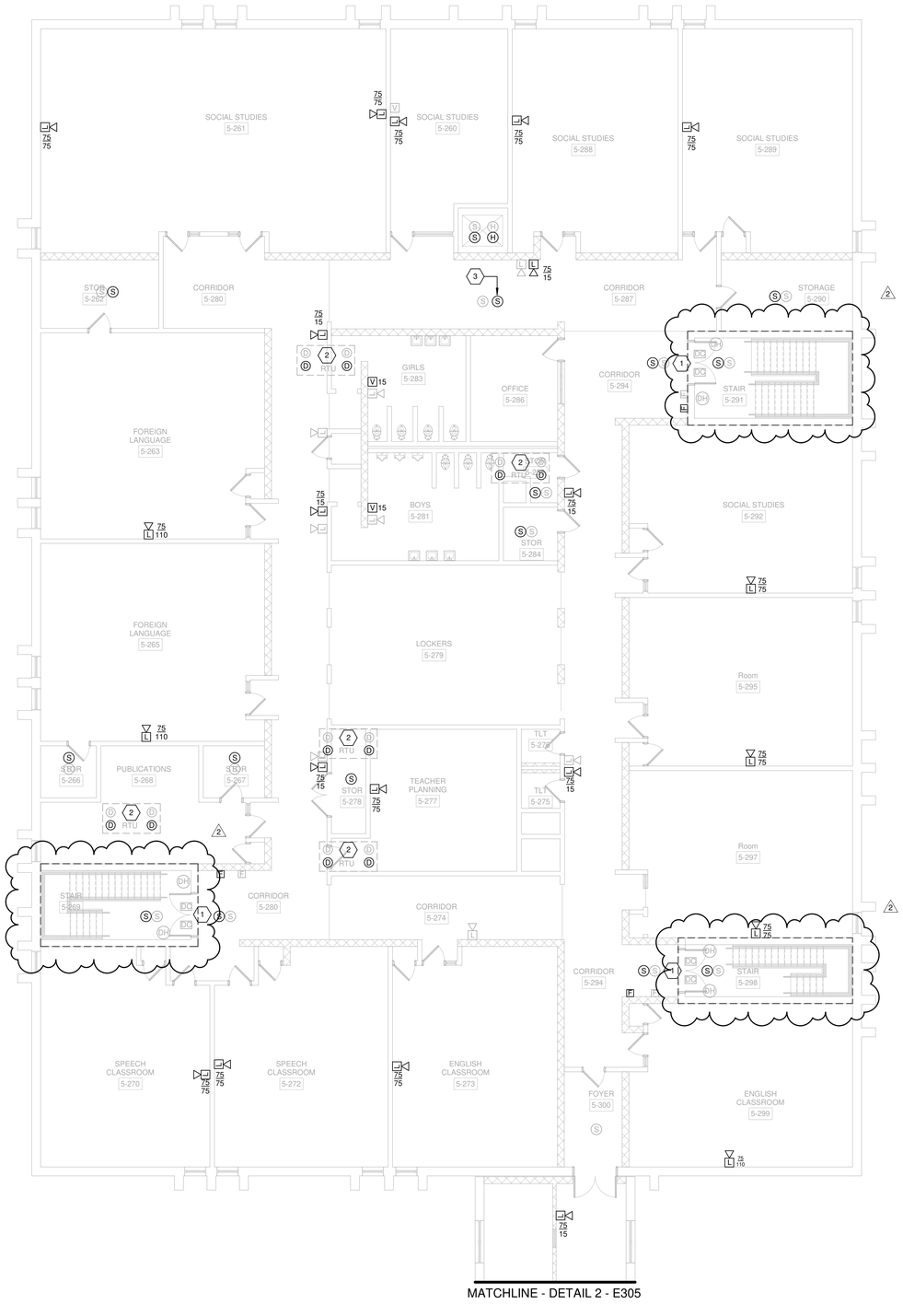
1. SEE SHEET E0.1 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL HALF TONED FIRE ALARM DEVICES SHALL BE DEMOLISHED.

KEYED SHEET NOTES

1. PROVIDE NEW SMOKE DETECTORS ON BOTH SIDES OF DOOR AND CONNECT TO NEW FIRE ALARM SYSTEM. CONNECT EXSITNG DOORS CONTACTS AND EXISTING DOOR HOLDERS TO DOOR TO RELEASE DOOR AND VERIFY CLOSING UPON SENSING OF SMOKE.
2. PROVIDE NEW DUCT DETECTORS. ONE IN SUPPLY AND ONE IN RETURN. CONNECT AUX CONTACTS ON DETECTORS TO SHUT DOWN UNIT UPON ALARM.
3. SMOKE DETECTORS FOR ELEVATOR RECALL. CONNECT FIRE ALARM SYSTEM WITH ELEVATOR CONTROLS FOR CODE COMPLIANT OPERATION.

WALL LEGEND

– – – – – EXISTING TWO HOUR WALL

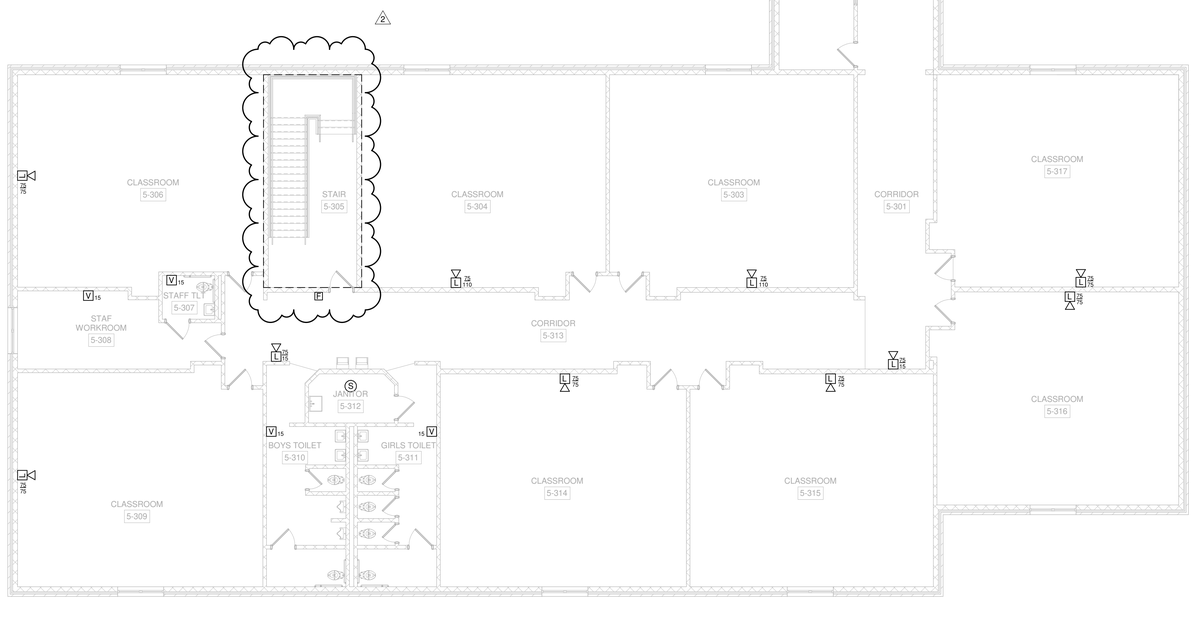


BUILDING 1A SECOND FLOOR PLAN - FIRE ALARM

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

1

MATCHLINE - DETAIL 1 - E305



BUILDING 1B SECOND FLOOR PLAN - FIRE ALARM

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

2

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

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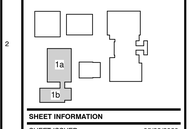
2	06/15/2020	REVISION #2

KEY PLAN



SHEET INFORMATION

SHEET ISSUED:	05/22/2020
DESIGNED BY:	SVW
DRAWN BY:	WAH
REVIEWED BY:	SVW

SHEET TITLE:

1A AND 1B SECOND FLOOR PLAN - FIRE ALARM

SHEET NO.:

E305

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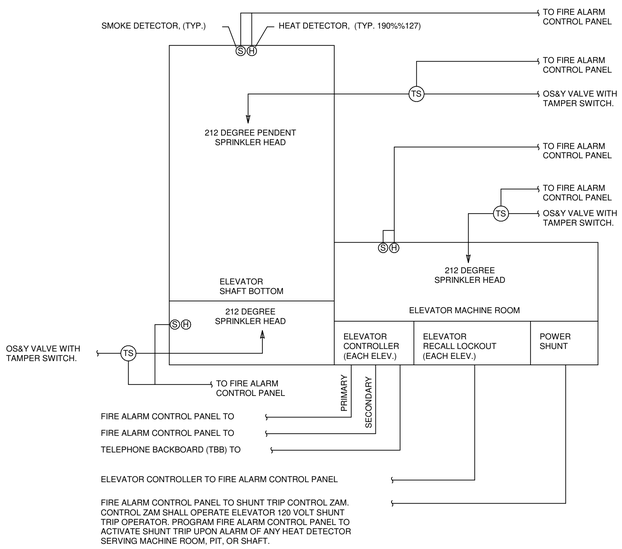
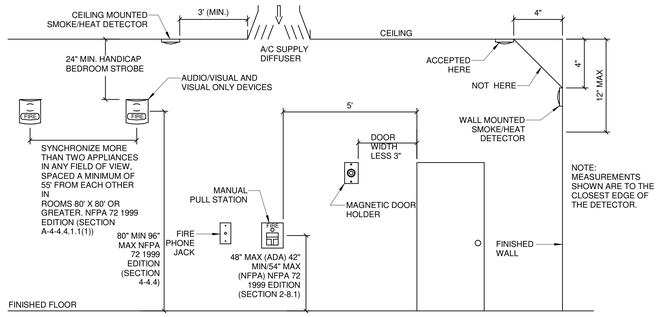


ELEVATOR DETAIL

SCALE: 12" = 1'-0"

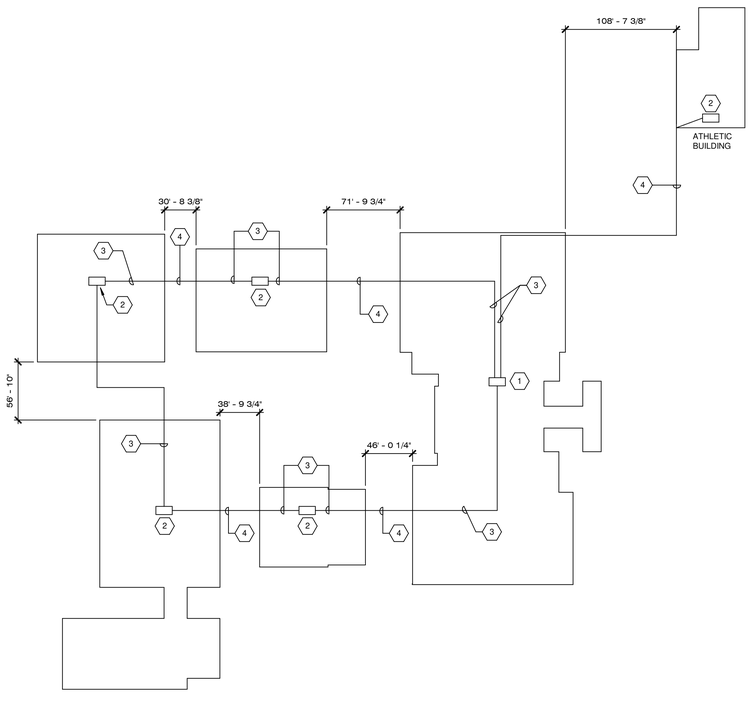
1



FIRE ALARM - DEVICE DETAIL

SCALE: 12" = 1'-0"

2



KEYED NOTES

1. MAIN FACP ON DETAIL 1/E303.
2. NETWORK CONTROL PANEL FOR FIRE ALARM SYSTEM IN BUILDING. COORDINATE LOCATION WITH OWNER AND PROVIDE 120V POWER SERVICE FROM NEAREST PANEL. PAINT BREAKER RED AND EQUIP WITH LOCK ON DEVICE.
3. 1" EMT CONDUIT ROUTED INSIDE BUILDING WITH FIBER OPTIC NETWORK CABLE FOR FIRE ALARM SYSTEM. CABLE TO BE 6" FIBER BUNDLE 62.5/125 MICRON MUITIMODE SUITABLE FOR EXTERIOR USE.
4. 1" SCHEDULE 40 PVC CONDUIT BURIED 30" BELOW FINISHED GRADE. ROUTED BETWEEN BUILDINGS WITH FIBER OPTIC NETWORK FOR FIRE ALARM. CABLE TO BE 6" FIBER BUNDLE 62.5/125 MICRON MULTIMODE SUITABLE FOIR EXTERIOR USE. TRENCH AND/OR BORE TO INSTALL CONDUIT BETWEEN BUILDINGS. REPAIR ALL SURFACES ALTERED TO MATCH EXISTING AND SEED AND STRAW ALTERED GRASSY AREAS.

FIRE ALARM SITE DETAIL

SCALE: 1" = 60'-0"

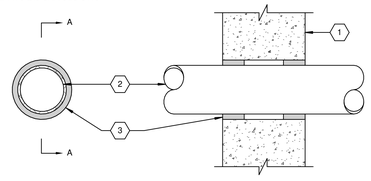
3

2

CLASSIFIED C UL US

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

SYSTEM NO. W-J-1042
F RATING - 4 HR
T RATING - 0 HR



SECTION A-A

1. WALL ASSEMBLY - MIN 7-5/8 IN. THICK WALL ASSEMBLY CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MIN 4 HR FIRE RATED WALL. MAX DIAM OF OPENING IS 13-5/8 IN.

   SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY NAMES OF MANUFACTURERS.

2. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED CONCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND THE PERIPHERY OF THE OPENING SHALL BE MIN 3/8 IN. TO 1/2 IN. MAXIMUM. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

   A. STEEL PIPE - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 IN. DIAM STEEL CONDUIT.
   C. COPPER TUBING - NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING
   D. COPPER PIPE - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. FILL, VOID OR CAVITY MATERIAL* - SEALANT - MIN 2 IN. THICKNESS APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.

   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT

*BEARING THE UL CLASSIFICATION MARKING

Hilti Firestop Systems

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Courtesy of
Underwriters Laboratories, Inc.
December 4, 2002

PENETRATION DETAIL - CONCRETE WALL

SCALE: 12" = 1'-0"

4

MBI

ARCHITECT:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

CONSULTANT

ELECTRICAL ENGINEER:

MBI COMPANIES INC.
299 N. WEISGARBER ROAD
KNOXVILLE, TN 37919

PHONE: (865) 584-0999
FAX: (865) 584-5213
WEB: mbicompanies.com

SEAL

PROJECT INFORMATION

PROJECT:

Anderson County High School Fire Alarm Renovation

PROJECT ADDRESS:

130 Maverick Circle
Clinton, TN 37716

PROJECT NO.: 190042.07

NOTES

ACTIVE DESIGN PHASE

☐	FOR REVIEW ONLY
☐	FOR PERMITTING ONLY
☐	SCHEMATIC DESIGN
☐	DESIGN DEVELOPMENT
☐	CONSTRUCTION BIDDING
■	CONSTRUCTION DOCUMENTS
☐	AS BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
2	06/152020	REVISION #2

KEY PLAN

SHEET INFORMATION

SHEET ISSUED:	05/22/2020
DESIGNED BY:	SVW
DRAWN BY:	WAH
REVIEWED BY:	SVW

SHEET TITLE:

FIRE ALARM DETAILS

SHEET NO.:

E501

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SECTION 284621.11 - ADDRESSABLE FIRE-ALARM SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Air-sampling smoke detectors.
5. Heat detectors.
6. Notification appliances.
7. Device guards.
8. Addressable interface device.
9. Digital alarm communicator transmitter.
10. Radio alarm transmitter.
11. Network communications.
12. System printer.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. HLI: High Level Interface.

D. NICET: National Institute for Certification in Engineering Technologies.

E. PC: Personal computer.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.
2. Include rated capacities, operating characteristics, and electrical characteristics.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

2. Include annunciators.
3. Manufacturer's data sheets indicating model numbers and listing information for equipment, devices and materials.
~~2.~~4. Include plans, elevations, sections, details, and attachments to other work.
~~3.~~5. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate power connections, conductor types and sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
~~4.~~6. Detail assembly and support requirements.
~~5.~~7. Include voltage drop calculations for notification-appliance circuits.
~~6.~~8. Include battery-size calculations.
~~7.~~9. Include input/output matrix.
~~8.~~10. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
~~9.~~11. Include performance parameters and installation details for each detector.
~~10.~~12. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
~~11.~~13. Include alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.
14. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams. Include details of ceiling height and construction.
15. Include the interface of fire safety control functions.
16. Include classification of the supervising station.
17. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.
~~12.~~

C. General Submittal Requirements:
1. Shop Drawings shall be prepared by persons with the following qualifications:
a. NICET-certified, fire-alarm technician; ~~[Level III]~~ [Level IV~~]~~ minimum.

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Rev 1

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. Include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.

d. Riser diagram.
e. Device addresses.
f. Record copy of site-specific software.
g. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

h. Manufacturer's required maintenance related to system warranty requirements.
i. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Lamps for Strobe Units: Quantity equal to 10 percent of amount installed, but no fewer than one unit.
2. Smoke Detectors: Quantity equal to 10 percent of amount of each type installed, but no fewer than one unit of each type.
3. Detector Bases: Quantity equal to two percent of amount of each type installed, but no fewer than one unit of each type.
4. Keys and Tools: One extra set for access to locked or tamperproofed components.
5. Audible and Visual Notification Appliances: One of each type installed.
6. Fuses: Two of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level IV technician.

B. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL (nationally recognized testing laboratory).

1.9 PROJECT CONDITIONS

A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.
2. Do not proceed with interruption of fire-alarm service without Owner's written permission.

C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.10 SEQUENCING AND SCHEDULING

A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Noncoded, UL-certified addressable system, with multiplexed signal transmission and ~~horn~~voice/strobe evacuation. Rev 2

B. Automatic sensitivity control of certain smoke detectors.

C. All components provided shall be listed for use with the selected system.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Automatic sprinkler system water flow.

B. Fire-alarm signal shall initiate the following actions: Rev 2

1. Continuously operate alarm notification appliances~~.~~, including voice evacuation notices.

2. Identify alarm and specific initiating device at fire-alarm control unit and connected network control panels
3. Transmit an alarm signal to the remote alarm receiving station.
4. Release fire and smoke doors held open by magnetic door holders.
5. Activate voice/alarm communication system.
~~4.~~6.
~~5. Activate voice/alarm communication system.~~
~~6.~~7. Recall elevators to primary or alternate recall floors.
~~7.~~8. Activate elevator power shunt trip.
~~8.~~9. Record events in the system memory.
~~9.~~10. Record events by the system printer.

Rev 2

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.
2. Elevator shunt-trip supervision.
3. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. ~~Break in standby battery circuitry.~~
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
~~9.~~10. Voice signal amplifier failure.
~~0. Voice signal amplifier failure.~~

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~~F.~~E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and connected network control panels.
3. Record the event on system printer.
4. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.

a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.

b. Include a real-time clock for time annotation of events on the event recorder and printer.
c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.
d. The FACP shall be listed for connection to a central-station signaling system service.
e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.

2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

C. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: NFPA 72, Class B.
2. Install no more than 50 addressable devices on each signaling-line circuit.
3. Serial Interfaces:

a. One dedicated RS 485 port for remote station operation using point ID DACT.
b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).
c. One USB port for PC configuration.
~~c.~~ d. One RS232 port for voice evacuation interface.

Rev 2

D. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

E. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
2. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

F. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:

   a. Elevator lobby detectors except the lobby detector on the designated floor.
   b. Smoke and heat detector in elevator machine room.
   c. Smoke and heat detectors in elevator hoistway.

2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.

   a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

G. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in ~~smoke-barrier walls shall be connected to fire-alarm system.~~ Rev 2

H. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

I. Voice/Alarm Signaling Service: Central emergency communication system with redundant microphones, preamplifiers, amplifiers, and tone generators provided as a special module that is part of fire-alarm control unit.

1. Indicate number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the central-control microphone. Amplifiers shall comply with UL 1711.

   a. Allow the application of, and evacuation signal to, indicated number of zones and, at the same time, allow voice paging to the other zones selectively or in any combination.
   b. Programmable tone and message sequence selection.
   c. Standard digitally recorded messages for "Evacuation" and "All Clear."
   d. Generate tones to be sequenced with audio messages of type recommended by NFPA 72 and that are compatible with tone patterns of notification-appliance circuits of fire-alarm control unit.

2. Status Annunciator: Indicate the status of various voice/alarm speaker zones and the status of firefighters' two-way telephone communication zones.

~~H.~~3. Preamplifiers, amplifiers, and tone generators shall automatically transfer to backup units, on primary equipment failure.

~~I.~~J. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also, print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

~~J.~~K. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory signals , supervisory and digital alarm communicator transmitters and digital alarm radio transmitters shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

~~K.~~L. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed lead calcium.

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
   1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
5. Integral Visual-Indicating Light: LED type, indicating detector has operated .

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

   a. Primary status.
   b. Device type.
   c. Present average value.
   d. Present sensitivity selected.
   e. Sensor range (normal, dirty, etc.).

C. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

   a. Primary status.
   b. Device type.
   c. Present average value.

d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
4. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C)~~]~~ or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.

1. Mounting: Adapter plate for outlet box mounting.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level as indicated on drawigns, measured 10 feet (3 m) from the horn, using the coded signal prescribed in UL 464 test protocol.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.

1. Rated Light Output:
   a. As indicated on drawings.

2. Mounting: Wall mounted unless otherwise indicated.
3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
4. Flashing shall be in a temporal pattern, synchronized with other units.
5. Strobe Leads: Factory connected to screw terminals.
6. Mounting Faceplate: Factory finished, red.

D. Voice/Tone Notification Appliances:

1. Comply with UL 1480.

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2. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
3. High-Range Units: Rated 2 to 15 W.
4. Low-Range Units: Rated 1 to 2 W.
5. Mounting: Flush.
6. Matching Transformers: Tap range matched to acoustical environment of speaker location.

2.8 ADDRESSABLE INTERFACE DEVICE

Rev 2

A. General:

1. Include address-setting means on the module.
2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

2.9 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.

B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture one telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

C. Local functions and display at the digital alarm communicator transmitter shall include the following:

1. Verification that both telephone lines are available.
2. Programming device.
3. LED display.
4. Manual test report function and manual transmission clear indication.
5. Communications failure with the central station or fire-alarm control unit.

D. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.
2. Address of the supervisory signal.
3. Address of the trouble-initiating device.
4. Loss of ac supply.
5. Loss of power.
6. Low battery.
7. Abnormal test signal.
8. Communication bus failure.

E. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.10 NETWORK COMMUNICATIONS

A. Provide network communications for fire-alarm system according to fire-alarm manufacturer's written requirements.

2.11 SYSTEM PRINTER

A. Printer shall be listed and labeled as an integral part of fire-alarm system.

2.12 DEVICE GUARDS

A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.

1. Factory fabricated and furnished by device manufacturer.
2. Finish: Paint of color to match the protected device.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches (1980 mm) above the finished floor.

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches (1520 mm) of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches (1060 mm) and 48 inches (1220 mm) above floor level. All devices shall be mounted at the same height unless otherwise indicated.
4. HVAC: Locate detectors not closer than 36 inches (910 mm) from air-supply diffuser or return-air opening.
5. Lighting Fixtures: Locate detectors not closer than 12 inches (300 mm) from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

D. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

E. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches (9100 mm) long shall be supported at both ends.

F. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.

G. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

H. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches (150 mm) below the ceiling. Install all devices at the same height unless otherwise indicated.

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3.3 PATHWAYS

~~A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.~~

~~2.~~1. ~~Exposed pathways located less than 96 inches (2440 mm) above the floor shall be installed in EMT~~All pathways shall be installed in EMT.

~~B. Exposed EMT shall be painted red enamel.~~

3.4 CONNECTIONS

A. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
1. Magnetically held-open doors.
2. Alarm-initiating connection to elevator recall system and components.
3. Supervisory connections at valve supervisory switches.
4. Supervisory connections at elevator shunt-trip breaker.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 284621.11