

**DOCUMENT 00 90 00
ADDENDUM**

ADDENDUM NO. [4] Date: January 7, 2021

**RE: INDEPENDENCE SCHOOL DISTRICT
 EAST ELEMENTARY SCHOOL REMODEL
 1103 1ST ST W
 WEST ELEMENTARY SCHOOL ADDITION
 1301 1ST ST W
 INDEPENDENCE, IOWA 50644
 HSR PROJECT NO. 19045**

**FROM: HSR Associates, Inc
 100 Milwaukee Street
 La Crosse, WI 54603
 (608) 784-1830**

To: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated December 2020. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of [2] pages, [1] specification section and [5] 30 x 42 Drawings.

CHANGES TO SPECIFICATIONS:

1. Section 28 31 00 FIRE DETECTION AND ALARM Revised
 - a. Revised section attached hereto.
 - b. Includes new addressable FACP with future voice EVAC capabilities, Voice EVAC panel for new addition, and speaker strobes in lieu of strobe only devices.

CHANGES TO DRAWINGS:

2. Sheet E000 Electrical Symbols 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Provide audio/visual fire alarm devices in lieu of visual only.
3. Sheet E102 First Floor Segment A Power Plan 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Mechanical 107: Energize new addressable fire alarm control panel/voice EVAC.
4. Sheet E103 First Floor Segment B Power Plan 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Mechanical Equipment 150: Energize new addressable fire alarm control panel/voice EVAC.

5. Sheet E104 First Floor Segment A Systems Plan 30 x 42 attached hereto
 - a. Revisions clouded on Drawing
 - b. Mechanical 107: Provide new fire alarm voice EVAC panel and associated photoelectric smoke detector.

6. Sheet E105 First Floor Segment B Systems Plan 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Mechanical Equipment 150: Provide new addressable fire alarm control panel/voice EVAC and associated photoelectric smoke detector.

END OF DOCUMENT 00 90 00

SECTION 28 31 00

FIRE DETECTION AND ALARM

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Expansion of existing Fire Alarm System as described herein and as shown on Drawings; to be wired, connected, and left in first class operating condition. Include but not limited to sufficient control panels, automatic smoke detectors, duct smoke detectors, heat detectors, manual stations, alarm indicating appliances, system and all other necessary material for complete operating systems. Provide panel upgrade/modifications, new addressable panel with voice evac capabilities next to existing fire alarm panel.
- B. The fire alarm system shall allow for loading and editing special instructions and operating sequences such as cross zoning. as required. The systems shall be capable of on site programming to accommodate system expansion and facilitate changes in operation. All software operations shall be stored in a non-volatile programmable memory within the fire alarm control panel. Loss of primary and secondary power shall not erase the instructions stored in memory.
- C. All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component.
- D. The complete installation shall conform to the applicable sections of NFPA-72, NFPA-70, and National Electrical Code with particular attention to Article 760.
- E. The work covered by this section of the specifications shall be coordinated with the related work as specified elsewhere under the project specifications.

1.02 RELATED SECTIONS

- A. Section 26 05 19 – Low Voltage Electrical Power Conductors and Cables
- B. Section 26 05 34 – Conduits.
- C. Section 26 05 35 - Surface Raceways.
- D. Section 26 05 37 - Boxes

1.03 REFERENCES

- A. NFPA 70 - National Electrical Code.
- B. NFPA 72 - National Fire Alarm Code.
- C. NFPA 101 - Life Safety Code.

1.04 REGULATORY REQUIREMENTS

- A. System: UL listed.
- B. Conform to requirements of NFPA 101.

1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in smoke detection and fire alarm systems with five years documented experience.
- B. Installer: Company specializing in smoke detection and fire alarm systems certified by manufacturer as fire alarm installing contractor.

1.06 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01 30 00.
- B. Provide all information and materials required for state review of fire alarm system: system description, sequence of operation, wiring diagrams, voltage drop calculations, battery calculations, data sheets, equipment ratings, layout, dimensions, and finishes.
- C. Submit documents for state review; and pay all fees required. Include all forms, drawings and documents required as per IBC section 907: Paragraph 907.1.2 Fire alarm Shop Drawings.
- D. Submit manufacturer's installation instructions under provisions of Section 01 30 00.

1.07 PROJECT RECORD DRAWINGS

- A. Submit documents under the provisions of Section 01 70 00.

1.08 OPERATION AND MAINTENANCE DATA

- A. Submit data under provisions of Section 01 70 00.
- B. Include operating instructions, and maintenance and repair procedures.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. Match Existing System

2.02 FIRE ALARM AND SMOKE DETECTION CONTROL PANEL

- A. Control Panel: Modular construction with surface wall-mounted enclosure.
- B. Power Supply: Provide adequate power and wiring to serve control panel modules, remote detectors, relays, door holders and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 24 hours followed by alarm mode for 5 minutes.
- C. Detection Circuits: Supervised with alarm and trouble indication.
- D. Signal Circuits: Supervised signal module(s), sufficient for signal devices connected to system.
- E. Remote Station Signal Transmitter: Electrically supervised, capable of transmitting alarm and trouble signals over telephone lines to remote central station. Provide two telephone lines back to the building main telephone backboard/termination blocks.

- F. Relay Module: Intelligent/Addressable control relay. Provide sufficient contacts to provide elevator recall, Shut down of Air handling units, accessory functions specified and as indicated on drawings.
- G. Input Modules: Addressable type. Provide for sprinkler system flow and tamper switches, Existing (4) initiation zones, Kitchen hood fire suppression system and as indicated on drawings.
- H. Provide TROUBLE ACKNOWLEDGE, DRILL, and ALARM SILENCE switch.
- I. Addressable panel with future voice EVAC capabilities.

2.03 INITIATING DEVICES

- A. Manual Station:
 - 1) Semi-flush mounted, single action addressable manual station with break-glass rod.
- B. Smoke Detector: Intelligent/addressable photoelectric type with plug-in base. Detector has internal self-adjustment and self diagnostic capabilities. Two-wire detector with common power supply and signal circuit.
- C. Duct Mounted Smoke Detector: Intelligent/addressable photoelectric type with plug-in base, auxiliary SPDT relay contact, remote key-operated NORMAL-RESET-TEST switch, duct sampling tubes extending width of duct, and visual indication of detector actuation, in duct-mounted housing. Detector has internal self-adjustment and self diagnostic capabilities. Two-wire detector with common power supply and signal circuit.
- D. Heat Detector: addressable fixed temperature type with plug-in base. Refer to Drawings for fixed temperature setting.
- E. Input Modules: Addressable type. Provide for sprinkler system flow and tamper switches, Fire/Smoke dampers and as indicated on drawings.

2.04 SIGNALING DEVICES

- A. Alarm Speaker / Strobe: ADA complying strobe lamp, speaker, and flasher.
- B. Alarm Horn: Flush type fire alarm horn. Sound Rating: 87 dB at 10 feet (3 m). Provide ADA complying integral strobe lamp and flasher. Provide 90dB horns for all mechanical rooms. Provide wire guards when mounted in gymnasiums or similar areas.
- C. Alarm Horn – Sprinkler System: Weatherproof housing. Sound Rating: 87 dB at 10 feet (3 m). Provide ADA complying integral strobe lamp and flasher with red lettered FIRE on white lens. Horn to annunciate upon activation of sprinkler system.
- D. Provide synchronization modules.

2.05 REMOTE ANNUNCIATOR

- A. NA

2.06 FIRE ALARM WIRE AND CABLE

- A.** Fire Alarm Power Branch Circuits: Building wire as specified in Section 25 05 19.
- B.** Initiating and Signal Circuits: Building wire as specified in Section 25 05 19.

2.07 Emergency Voice Evacuation Control Panel

A. DESCRIPTION

- 1) This section of the specification includes the furnishing, installation, connection and testing of the microprocessor controlled voice evacuation control panel.
- 2) The voice evacuation panel shall comply with NFPA 72 requirements.
- 3) The installing company shall employ NICET (minimum Level II Fire Alarm Technology) technicians on site to guide the final check-out and to ensure the systems integrity.

B. SCOPE

- 1) A microprocessor-controlled voice evacuation control panel shall be installed in accordance with the project specifications and drawings.

C. Voice Evacuation Control Panel

- 1) The VECP shall be by Simplex and shall contain a microprocessor-based Central Processing Unit (CPU). The CPU shall distribute and control emergency voice messages over the speaker circuits.
- 2) The system shall provide the capability to interface to distributed voice evacuation control panels from the same manufacturer.
- 3) Shall have as minimum requirements: Integral 25 Watt, 25 Vrms audio amplifier with optional converter for 70.7-volt systems. The system shall be capable of expansion to 50 watts total via the insertion of an additional 25-watt audio amplifier module into the same cabinet.
 - a. Speaker circuit that can be wired both Class A or B.
 - b. Integral Digital Message Generator with a memory capacity for up to 60 seconds of messaging. The Digital Message Generator shall be capable of producing five distinct messages (12 seconds each). These messages shall field programmable without the use of additional equipment.
 - c. Built in alert tone generators with steady, slow whoop, high/low and chime tone field programmable.
 - d. The Voice Control Panel will be capable of detecting and annunciating the following conditions: Loss of Power (AC and DC), System Trouble, Ground Fault, Alarm, Microphone Trouble, Message Generator Trouble, Tone Generator Trouble, and Amplifier Fault.
 - e. The Voice Control Panel shall be fully supervised including microphone, amplifier output, message generator, speaker wiring, and tone generation.
 - f. Speaker outputs shall be fully power-limited.
 - g. Amplifiers will be supplied power independently to eliminate a short on one circuit from affecting other circuits.
 - h. The Voice Control Panel will provide full supervision on both active (alarm or music) and standby conditions.

ONE-WAY VOICE COMMUNICATION SUB-SYSTEM

The FACP shall be provided with an Integrated, One-way Emergency Voice Communications (EVAC) sub-system. This EVAC sub-system shall be configured as a single-channel sub-system, with automatic and manual operation as specified within the "Operation" section of this specification section.

The Tone Generators, Microphones, Audio Controls, Selector Switches, LEDs, Amplifiers, and Speaker-Type NACs, which make up this sub-system shall all be modular components of the fire Alarm Control Panel, and shall be listed by UL as modular components of the FACP. The Tone Generator and Audio Controls may share the same "system bus" as the other FACP components. The Primary Microphone and Audio Controls will be built-into the FACP.

FACP on-board diagnostics shall be configured to assist in the identification of individual module faults. Also, the EVAC components may share the FACP Power Supplies and Batteries.

Hand-held, push-to-talk microphones shall be provided within the FACP. Each microphone shall be a dynamic communication type with a frequency range of 200 Hz to 4000 Hz and shall be equipped with a self-winding five-foot coiled cable. An LED indicator shall be provided to indicate microphone push-to-talk button has been pressed and speaker circuits are ready for transmission. All Microphones shall be supervised for disconnection.

Audio control switches shall be furnished to provide manual controls of all audio functions. These switches and associated LED indicators shall be supervised for disarrangement or failure.

Audio power amplifiers shall be furnished with self-contained filtered 24VDC power supply, transformer and amplifier monitoring circuits. Amplifiers shall provide a 25 or 70 VRMS output with a frequency response of 4,000Hz to 14,000Hz. Minimum amplifier sizes shall be determined as follows:

Provide a minimum of:	1	Watt for each Speaker
Provide a minimum of:	10%	Additional Amplifier Capacity

The Fire Alarm System shall include back-up amplifiers within each Amplifier-Equipped FACP or Amplifier-Equipped Remote Equipment Cabinet. When amplifiers are distributed throughout the building in the NAC supply panels, at minimum a back-up amplifier shall be provided for each group of amplifiers within the same equipment closet. These back-up amplifiers shall be configured such that upon failure of any other Fire Alarm Audio Power Amplifier:

A back-up amplifier shall be automatically routed into the signal path, such that the back-up amplifier shall functionally replace the failed amplifier.

A Trouble event shall be logged by the Fire Alarm System. This Trouble event shall indicate that an amplifier failure has occurred. If the system contains multiple amplifiers, the Trouble event message shall indicate which specific amplifier has failed.

Speaker circuits shall be capable of supplying audio signals at 25 or 70 VRMS supplied by the system amplifiers. Supervision for open, short or ground fault conditions shall be provided. Individual and distinct trouble indications shall be provided for each fault.

PART 3: EXECUTION

3.01 INSTALLATION

- A.** Install system in accordance with manufacturer's instructions.
- B.** Install manual pull stations at 46 inches above the floor. Provide box and raceway extensions at existing locations, if required.
- C.** Install audible and visual signal devices at 80 inches above the floor to the bottom of the device, unless noted otherwise. Devices maybe mounted at 96" to the top of the devices to accommodate chalkboards, tack-boards, etc.
- D.** Install all wiring in a metal raceway.

- E. Fire alarm visual (strobe) signals shall be synchronized.
- F. Provide a smoke detector within 5 feet (horizontal distance) of the fire alarm control panel, remote annunciator and power supplies for visual notification. (alarm lights/strobes)
- G. Provide adequate 120 volt branch circuit wiring to each power supply for visual notification devices. Verify locations and quantities of power supplies with fire alarm supplier.
- H. Provide class A wiring when installing system in hospitals, nursing homes or assisted care facilities.
- I. NA
- J. Provide all required wiring and control relays to shut down air handling units; upon initiation of building fire alarm system. Coordinate installation with division 23.

3.02 FIELD QUALITY CONTROL

- A. Test in accordance with NFPA 72 and local fire department requirements.

3.03 MANUFACTURER'S FIELD SERVICES

- A. Provide manufacturer's field services.
- B. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.

3.04 WORK BY OWNER

- A. Contracting with a company for remote monitoring of the fire alarm system.
- B. Cross connections between owners' telephone demarcation blocks and incoming telephone service.

3.05 DEMONSTRATION

- A. Demonstrate normal and abnormal modes of operation and required response to each.

END OF SECTION



Consultant:

INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL

700 20th AVE SW
INDEPENDENCE, IA 50644

ELECTRICAL SYMBOLS

SYMBOLS LIST:

LIGHTING:

- RECESSED CEILING MOUNTED LIGHTING FIXTURE
- CIRCUIT SWITCH LEG. NO DESIGNATION INDICATES PORTION OF CIRCUIT SWITCHED FROM LOCAL SWITCH OR OCCUPANCY SENSOR
- FIXTURE DESIGNATION (SEE SCHEDULE)
- CIRCUIT NUMBER. SEE PLANS FOR PANEL DESIGNATION.
- SHADING INDICATES FIXTURE ON EMERGENCY BATTERY.
- SHADING INDICATES FIXTURE ON EMERGENCY BATTERY / NIGHT LIGHT
- NLEM
- CABLE HUNG LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- LED STRIP LIGHTING FIXTURE
- RECESSED CAN LIGHTING FIXTURE
- SINGLE LIGHTING FIXTURE - POLE MOUNTED
- EXTERIOR LIGHTING FIXTURE - WALL BRACKET
- EXTERIOR LIGHTING FIXTURE - WALL BRACKET - EMERGENCY LIFE SAFETY CIRCUIT
- EXIT LIGHT. SHADING INDICATES FACE OF EXIT.
- SINGLE POLE SWITCH - TOGGLE TYPE - MOUNT AT 48" AFF, UNLESS NOTED OTHERWISE
- SWITCH DESIGNATION
- SWITCH TYPE
 - (3) 3 WAY
 - (4) 4 WAY
 - (P) WITH PILOT LIGHT INDICATION
 - (D) DIMMER
 - (K) KEYED
- A LIGHTING CONTROL INFRARED OCCUPANCY SENSOR. WALL MOUNTED AT 48" AFF. EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- B LIGHTING CONTROL ULTRASONIC OCCUPANCY SENSOR. CEILING MOUNTED EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- C LIGHTING CONTROL DUAL TECHNOLOGY ULTRASONIC/INFRARED OCCUPANCY SENSOR. 300 DEGREE. CEILING MOUNTED. EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- DAYLIGHT SENSOR - LOCATION OF SENSOR SHOWN FOR SCHEMATIC PURPOSES ONLY. CONSULT MANUFACTURERS RECOMMENDATIONS FOR EXACT PLACEMENT LOCATION.
- FIXTURE TYPES CONTROLLED BY DLT

LIGHTING:

- A LIGHTING CONTROL ULTRASONIC/INFRARED VACANCY SENSOR. WALL MOUNTED AT 48" AFF. EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- B LIGHTING CONTROL ULTRASONIC/INFRARED VACANCY / DIMMING SENSOR. WALL MOUNTED AT 48" AFF. EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- C LIGHTING CONTROL DUAL TECHNOLOGY ULTRASONIC/INFRARED VACANCY SENSOR. 300 DEGREE. CEILING MOUNTED. EQUIPPED WITH AUXILIARY CONTACTS FOR HVAC EQUIPMENT.
- SENSOR TYPE
- LIGHTING RELAY CONTROLLER
- DIMMING / RELAY ZONE
- TIME CLOCK
- CONTACTOR
- PHOTO-CONTROL

POWER:

- DUPEX RECEPTACLE - MOUNTED 18" AFF UNLESS NOTED OTHERWISE
- CIRCUIT NUMBER (SEE PLAN FOR PANEL BOUNDARIES) - TYPICAL RECEPTACLE TYPE OR EQUIPMENT SERVED.
 - (GFI) GROUND FAULT INTERRUPTING
 - (WR) WEATHER RESISTANT
 - (WP) WEATHERPROOF
 - (IG) ISOLATED GROUND
 - (USB) DUPEX WITH USB PORT
- DOUBLE DUPEX RECEPTACLE - MOUNTED 18" AFF UNLESS NOTED OTHERWISE
- CIRCUIT NUMBER (SEE PLAN FOR PANEL BOUNDARIES) - TYPICAL RECEPTACLE TYPE OR EQUIPMENT SERVED.
 - (GFI) GROUND FAULT INTERRUPTING
 - (WR) WEATHER RESISTANT
 - (WP) WEATHERPROOF
 - (IG) ISOLATED GROUND
 - (USB) DUPEX WITH USB PORT
- SPECIAL POWER RECEPTACLE
- NUMBER INDICATES NEMA CONFIGURATION - SEE PLANS
- FLOOR MOUNTED ELECTRICAL BOX SEE DRAWINGS FOR TYPES OF OUTLETS REQUIRED AT EACH BOX.
- SPECIAL PURPOSE OUTLET EQUIPMENT CONNECTION-SEE SCHEDULE ON SHEET #E000
- MOTOR CONNECTION
- MOTOR DESIGNATION AND PANEL FEEDING MOTOR. REFER TO SHEET #E000.
- DISCONNECT SWITCH - MOUNT AT 60" AFF UNLESS NOTED OTHERWISE
- JUNCTION BOX
- PANELBOARD, TERMINAL BOX
- TRANSFORMER
- FLOOR BOX
- GROUND CONNECTION
- EMERGENCY POWER OFF PUSH BUTTON STATION

FIRE ALARM:

SEE SHEET E104, E105, E202 FOR LOCATIONS OF FIRE ALARM DEVICES

- FIRE ALARM CONTROL PANEL
- NEW FIRE ALARM PULL STATION 48" AFF
- FIRE ALARM AUDIO / VISUAL (SPEAKER / STROBE) DEVICE - CEILING MOUNTED UNLESS OTHERWISE NOTED
- 15 CANDELA INTENSITY, UNLESS OTHERWISE NOTED
- WALL MOUNTED (8" AFF UNLESS OTHERWISE NOTED)
- FIRE ALARM AUDIO / VISUAL (SPEAKER / STROBE) DEVICE - CEILING MOUNTED UNLESS OTHERWISE NOTED
- 15 CANDELA INTENSITY, UNLESS OTHERWISE NOTED
- WALL MOUNTED (8" AFF UNLESS OTHERWISE NOTED)
- NEW INTELLIGENT PHOTOELECTRIC SMOKE DETECTOR
- NEW INTELLIGENT HEAT DETECTOR 158F FIXED & RATE OF RISE 15F/M UNLESS NOTED ON THE PLANS
- NEW INTELLIGENT SMOKE DETECTOR AIR SAMPLING
- REMOTE TEST SWITCH AND/OR INDICATOR
- FIRE ALARM DOOR HOLDER - DEVICES FURNISHED BY GENERAL CONTRACTOR. PROVIDE FIRE ALARM RELAY PER.

CIRCUITING LEGEND

- FIXTURE TYPE PER LIGHTING FIXTURE SCHEDULE.
- DESIGNATION OF SWITCH CONTROLLING FIXTURE (NO LIGHT SWITCH) = ROOM
- CIRCUIT NUMBER WITH PANELBOARD DESIGNATION (LOCAL NORMAL POWER PANELBOARD IF NOT DESIGNATED)

SYSTEMS:

THE DRAWINGS DO NOT SHOW PHYSICAL ROUTING OF CONDUIT OR REQUIRED WIREWAYS, JUNCTION OR PULLBOXES AS MAY BE NECESSARY TO FACILITATE INSTALLATION OF WIRING. ACTUAL ROUTINGS AND LOCATIONS ARE TO BE DETERMINED BY THE ELECTRICAL CONTRACTOR IN COORDINATION WITH DIV. 27 CONTRACTOR.

IN THE EVENT THAT PATHWAY SIZE IS NOT QUANTIFIED, THE CONTRACTOR SHALL SIZE SAID PATHWAY TO 20% WHERE 40% FULL IS FULL. FURTHERMORE, CONDUITS SHALL NOT EXCEED 150' WITHOUT A JUNCTION BOX OR EXCEED 24 90 DEGREE BENDS WITHOUT A JUNCTION BOX.

WET LOCATION CABLING SHALL BE INSTALLED IN PATHWAY IN COMPLIANCE WITH NEC ARTICLE 300.5 (B). WET LOCATION PER NEC DEFINITION.

- WIRELESS ACCESS POINT - (1) OR 54. DATA CONTRACTOR TO MOUNT OWNER PROVIDED ACCESS POINTS.
- TELECOM OUTLETS, WALL MOUNTED AT 18" AFF UNLESS NOTED OTHERWISE. PROVIDE ROUGH-IN BOX AND 1" CONDUIT TO NEAREST ACCESSIBLE CEILING
- TELECOM OUTLET BOX
- TELECOM OUTLET BOX
- CABLE TRAY - WIRE MESH TRAY PER 26 05 36 SPECIFICATION.
- SPEAKER

SECURITY:

ELECTRICAL CONTRACTOR RESPONSIBLE FOR ROUGH-IN. DOOR ACCESS SHALL BE BY OTHERS.

- CARD READER STATION - MOUNT AT 48" AFF. CARD READER BY OTHERS.
- ELECTRIC STRIKE
- MAGNETIC DOOR CONTACT SWITCH
- REQUEST TO EXIT MOTION SENSOR
- DOOR POSITION SWITCH

ELECTRICAL SHEET INDEX	
SHEET #	SHEET NAME
E000	ELECTRICAL SYMBOLS
E001	ELECTRICAL SITE PLAN
E002	ELECTRICAL DEMO PLAN
E100	FIRST FLOOR SEGMENT A LIGHTING PLAN
E101	FIRST FLOOR SEGMENT B LIGHTING PLAN
E102	FIRST FLOOR SEGMENT A POWER PLAN
E103	FIRST FLOOR SEGMENT B POWER PLAN
E104	FIRST FLOOR SEGMENT A SYSTEMS PLAN
E105	FIRST FLOOR SEGMENT B SYSTEMS PLAN
E200	SECOND FLOOR LIGHTING PLAN
E201	SECOND FLOOR POWER PLAN
E202	SECOND FLOOR SYSTEMS PLAN
E500	ELECTRIC RISER DIAGRAM
E600	ELECTRICAL SCHEDULES
E700	ELECTRICAL DETAILS
E701	LIGHTING CONTROLLER DETAILS

ABBREVIATIONS	
ABBREV.	DEFINITION
A	AMPS, AMPERE, AMPERAGE
AC	ABOVE COUNTER
AF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
B	BONDING (BONDED)
BJ	BONDING JUMPER
BLDG.	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
D	DIMMING
DIS. SW.	DISCONNECT SWITCH
DL	DAY-LIGHTING
EC	EMERGENCY, CRITICAL
EG	ENGINE GENERATOR
EGG	EQUIPMENT GROUNDING CONDUCTOR
EL	EMERGENCY, LIFE SAFETY
ELEV	ELEVATOR
EM	EMERGENCY
EX	EXISTING
F	FUTURE
FDR	FEEDER
FLA	FULL LOAD AMPS
GC	GROUND CONDUCTOR
GE	GROUNDING ELECTRODE
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFEP	GROUND FAULT EQUIPMENT PROTECTION
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
Kcmil	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPS
KVAR	KILOVOLT AMPS REACTIVE
KW	KILOWATT
MBJ	MAIN BONDING JUMPER
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
MOP	MAXIMUM OVERCURRENT PROTECTION
N	NEW
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NFS	NON-FUSED SWITCH
NL	NIGHT LIGHT
NTS	NOT TO SCALE
P	POLE
PC	PHOTOCELL
PH	PHASE
PNL	PANEL
R	REMOVED/REMOVAL
RM	ROOM
SBJ	SYSTEM BONDING JUMPER
SDS	SEPARATELY DERIVED SYSTEM
SEC	SECURITY
SPD	SURGE PROTECTIVE DEVICE
SSBJ	SUPPLY SIDE BONDING JUMPER
SW	SWITCH
TEMP	TEMPORARY
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP.	TYPICAL
UC	UNDER COUNTER
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLTS, VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
WG	WIRE GUARD
WP	WEATHERPROOF COVER
WR	WEATHER RESISTANT
XFMR	TRANSFORMER

Project Title: INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL

Project Location: 700 20th AVE SW
INDEPENDENCE, IA 50644

Sheet Title: ELECTRICAL SYMBOLS

HSR Project Number: 19045

Project Date: JANUARY 2021

Drawn By: MSV

Key Plan:

Revisions:

No.	Description	Date
A4	ADDENDUM 4	1-7-21

Graphic Scale:

Last Update: 1/7/2021 1:30:38 PM

E000



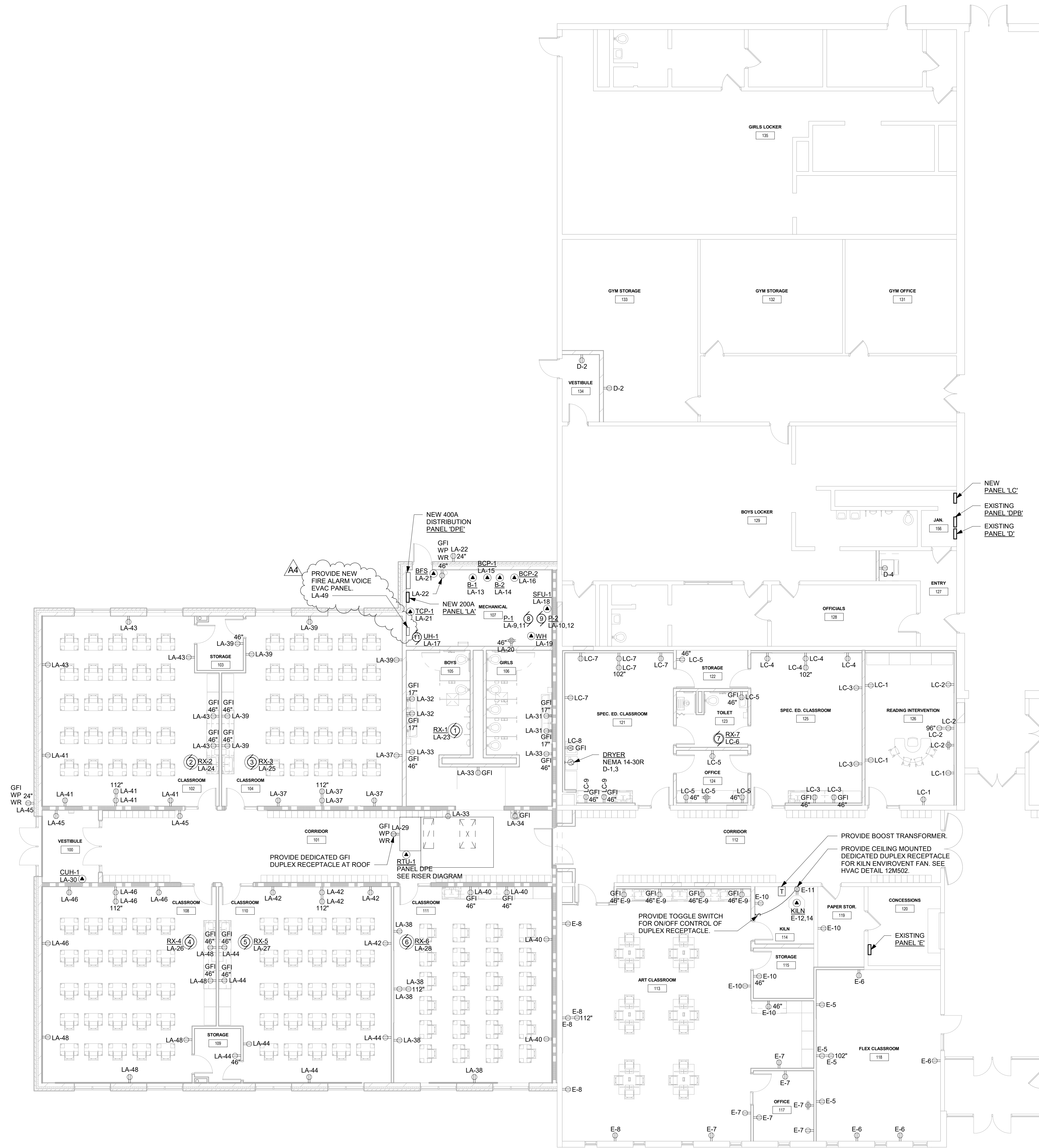
Consultant:

GENERAL NOTES POWER:

- PROVIDE GROUND CONDUCTOR IN ALL CONDUITS.
- PROVIDE SEPARATE NEUTRAL CONDUCTORS FOR EACH RECEPTACLE BRANCH CIRCUIT. (NO COMMON NEUTRALS)
- THE WORD "PROVIDE" MEANS TO FURNISH AND INSTALL.
- PROVIDE FIRE STOPPING AND SMOKE DRAFT STOPPING AT ALL CONDUIT PENETRATIONS. REFER TO SPECIFICATION SECTION 07 84 00 FOR FIRE RESISTIVE AND NON-FIRE RESISTIVE ASSEMBLIES.
- PROVIDE DRAWSTRINGS IN ALL CONDUITS.
- SEE ARCHITECTURAL SHEETS FOR RELEVANT INTERIOR ELEVATIONS, SECTIONS, AND MISCELLANEOUS BUILDING INFORMATION REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION.
- "EX" INDICATES EXISTING TO REMAIN. REWIRE TO NEW BRANCH CIRCUIT BREAKER.

KEY NOTES POWER

- REFEED EXISTING RECEPTACLES EXTEND CONDUIT AND WIRING. PROVIDE HOMERUNS WHERE REQUIRED TO EXITING PANELBOARD.
- TIE EXISTING GYMNASIUM DUPLEX RECEPTACLE TO NEW BRANCH CIRCUIT BREAKER.



1 FIRST FLOOR SEGMENT A POWER
1/8" = 1'-0"

**INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL
FIRST FLOOR SEGMENT A POWER PLAN**

Project Title: INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL
Project Location: 700 20th AVE SW
INDEPENDENCE, IA 50644
Sheet Title: FIRST FLOOR SEGMENT A POWER PLAN

HSR Project Number: 19045
Project Date: JANUARY 2021
Drawn By: MSV

Key Plan:

No.	Description	Date
A4	ADDENDUM 4	1-7-21

Graphic Scale:
0' 2' 4' 8' 12'

Last Update: 1/7/2021 1:30:39 PM

E102



Consultant:

INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL
FIRST FLOOR SEGMENT A SYSTEMS PLAN

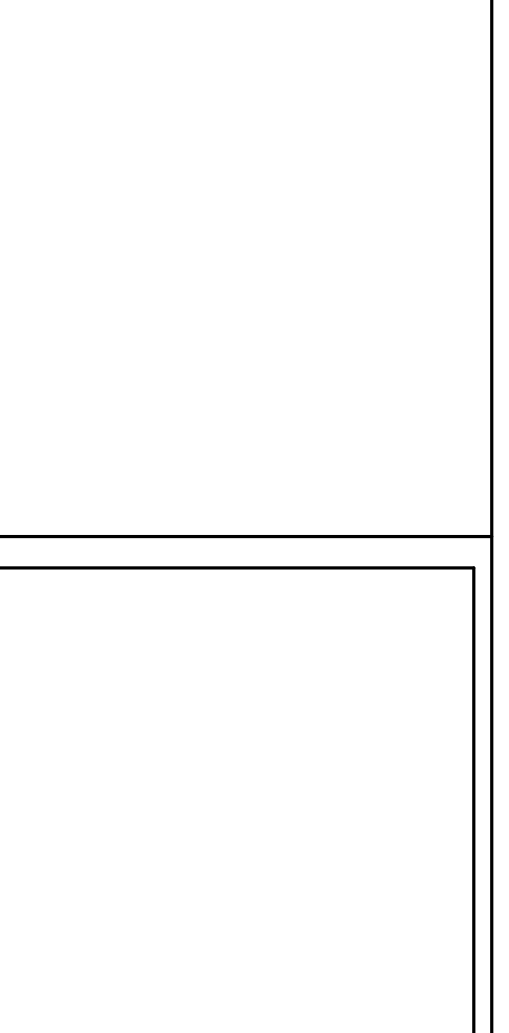
Project Title:
Project Location: 700 20th AVE SW
INDEPENDENCE, IA 50644

HSR Project Number:
19045

Project Date:
JANUARY 2021

Drawn By:
MSV

Key Plan:



No.	Description	Date
A4	ADDENDUM 4	1-7-21

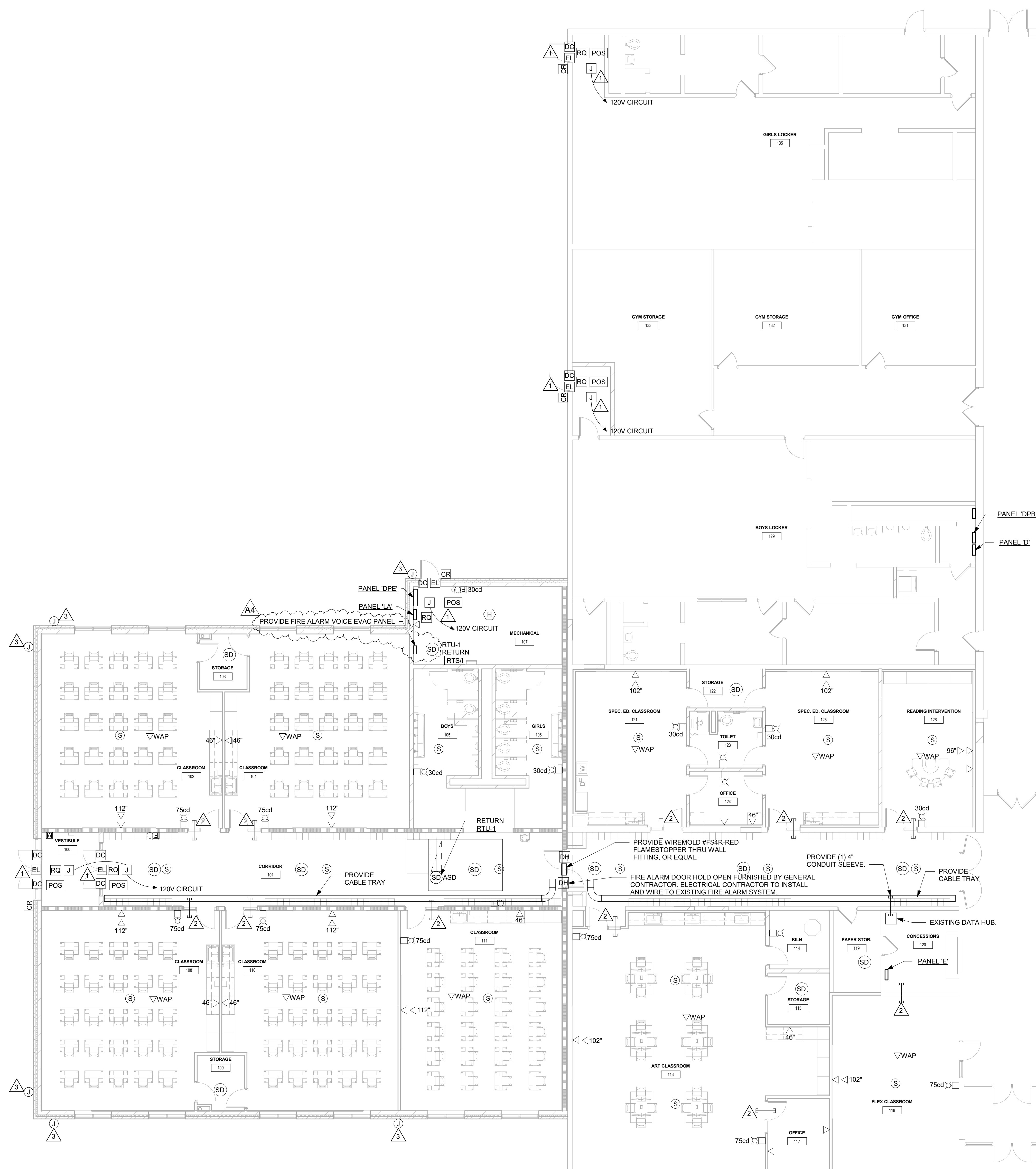
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E104

- GENERAL NOTES SYSTEMS:**
- A PROVIDE GROUND CONDUCTOR IN ALL CONDUITS
 - B PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.
 - C THE WORD "PROVIDE" MEANS TO FURNISH AND INSTALL.
 - D PROVIDE FIRE STOPPING AND SMOKE DRAFT STOPPING AT ALL CONDUIT PENETRATIONS. REFER TO SPECIFICATION SECTION 07 84 00 FOR FIRE RESISTIVE AND NON-FIRE RESISTIVE ASSEMBLIES.
 - E ACCESS CONTROL SYSTEM SHALL BE PROVIDED BY OWNER. ELECTRICAL CONTRACTOR SHALL ROUGH-IN CONDUIT AND BOXES FOR ACCESS CONTROL DOORS. E.C. TO COORDINATE WITH ACCESS CONTROL INSTALLER/PROVIDER.
 - F TIE ALL NEW CEILING MOUNTED SPEAKERS TO EXISTING SCHOOL PA SYSTEM.
 - G TIE ALL NEW FIRE ALARM DEVICES TO EXISTING SCHOOL FIRE ALARM SYSTEM.
 - H NOTE THAT ELECTRICAL CONTRACTOR SHALL BE ONLY RESPONSIBLE FOR ROUGH-IN BOXES AND RACEWAY FOR DATA/COMMUNICATIONS DEVICES, AND ASSOCIATED CABLING SHALL BE BY OWNER.

- KEY NOTES SYSTEMS**
- 1 ELECTRICAL CONTRACTOR SHALL PROVIDE ROUGH-IN FOR CARD READER, ELECTRONIC STRIKE, DOOR CONTACT, MECHANICAL CLOSER, REQUEST TO EXIT, AND DOOR POSITION SWITCH. SEE TYPICAL DOOR ACCESS DETAIL 2570.
 - 2 PROVIDE A 2" CONDUIT SLEEVE THROUGH WALL ABOVE CEILING. PROVIDE A BUSHING ON EACH END. SEE DETAIL 1E700.
 - 3 PROVIDE A FLUSH 1-GANG BOX AT 12'-0" AFF FOR CCTV SECURITY CAMERA BY OTHERS. STUB RACEWAY TO CORRIDOR 101 CEILING SPACE.
 - 4 LOCATION OF RELOCATED SPEAKER CABLE. RUN CABLING UP TO JOIST ABOVE. VERIFY WITH OWNER FOR EXACT RELOCATION OF SPEAKER CABLE.



1 FIRST FLOOR SEGMENT A SYSTEMS
1/8" = 1'-0"



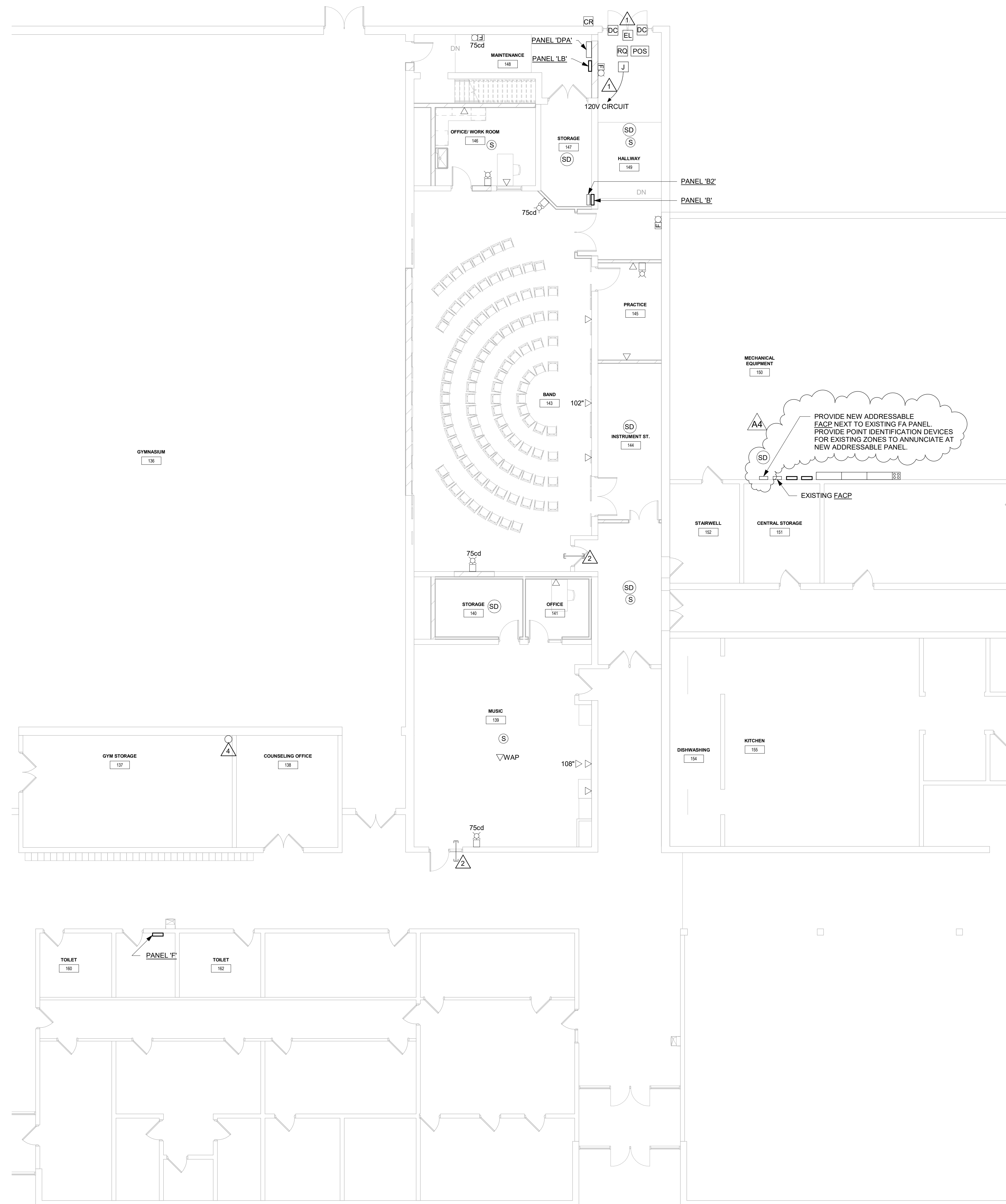
Consultant:

GENERAL NOTES SYSTEMS:

- A PROVIDE GROUND CONDUCTOR IN ALL CONDUITS
- B PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.
- C THE WORD "PROVIDE" MEANS TO FURNISH AND INSTALL.
- D PROVIDE FIRE STOPPING AND SMOKE DRAFT STOPPING AT ALL CONDUIT PENETRATIONS. REFER TO SPECIFICATION SECTION 07 84 00 FOR FIRE RESISTIVE AND NON-FIRE RESISTIVE ASSEMBLIES.
- E ACCESS CONTROL SYSTEM SHALL BE PROVIDED BY OWNER. ELECTRICAL CONTRACTOR SHALL ROUGH-IN CONDUIT AND BOXES FOR ACCESS CONTROL DOORS, E.C. TO COORDINATE WITH ACCESS CONTROL INSTALLER/PROVIDER.
- F TIE ALL NEW CEILING MOUNTED SPEAKERS TO EXISTING SCHOOL PA SYSTEM.
- G TIE ALL NEW FIRE ALARM DEVICES TO EXISTING SCHOOL FIRE ALARM SYSTEM.
- H NOTE THAT ELECTRICAL CONTRACTOR SHALL BE ONLY RESPONSIBLE FOR ROUGH-IN BOXES AND RACEWAY FOR DATA/COMMUNICATIONS DEVICES, AND ASSOCIATED CABLING SHALL BE BY OWNER.

KEY NOTES SYSTEMS

- 1 ELECTRICAL CONTRACTOR SHALL PROVIDE ROUGH-IN FOR CARD READER, ELECTRONIC STRIKE, DOOR CONTACT, MECHANICAL CLOSER, REQUEST TO EXIT, AND DOOR POSITION SWITCH. SEE TYPICAL DOOR ACCESS DETAIL 2E700.
- 2 PROVIDE A 2" CONDUIT SLEEVE THROUGH WALL ABOVE CEILING. PROVIDE A BUSHING ON EACH END. SEE DETAIL 1E700.
- 3 PROVIDE A FLUSH 1-GANG BOX AT 12-0" AFF FOR CCTV SECURITY CAMERA BY OTHERS. STUB RACEWAY TO CORRIDOR 101 CEILING SPACE.
- 4 LOCATION OF RELOCATED SPEAKER CABLE. RUN CABLING UP TO JOIST ABOVE. VERIFY WITH OWNER FOR EXACT RELOCATION OF SPEAKER CABLE.



1 FIRST FLOOR SEGMENT B SYSTEMS
1/8" = 1'-0"

Project Title: **INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL**
 Project Location: **700 20th AVE SW
INDEPENDENCE, IA 50644**
 Sheet Title: **FIRST FLOOR SEGMENT B SYSTEMS PLAN**

Project Number: **19045**

Project Date: **JANUARY 2021**

Drawn By: **MSV**

Key Plan:

No.	Description	Date
A4	ADDENDUM 4	1-7-21

Graphic Scale:
0' 2' 4' 8' 12'

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Consultant:

Project Title: **INDEPENDENCE COMMUNITY SCHOOL DISTRICT
WEST ELEMENTARY SCHOOL ADDITION/ REMODEL**
Project Location: 700 20th AVE SW
INDEPENDENCE, IA 50644
Sheet Title: **FIRST FLOOR SEGMENT B POWER PLAN**

HSR Project Number: **19045**
Project Date: **JANUARY 2021**
Drawn By: **MSV**

Key Plan:

No.	Description	Date
A4	ADDENDUM 4	1-7-21

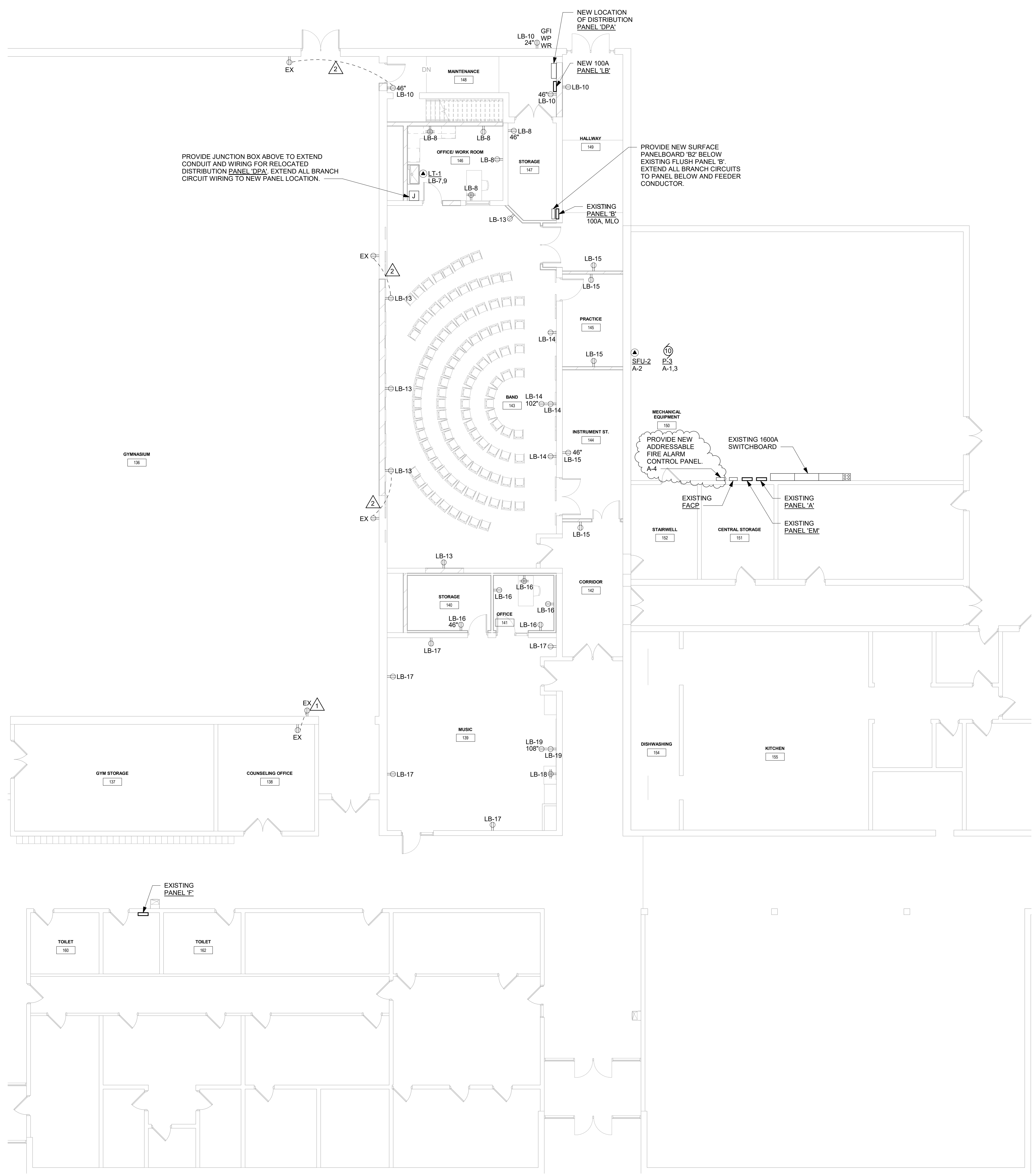
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- GENERAL NOTES POWER:**
- A PROVIDE GROUND CONDUCTOR IN ALL CONDUITS.
 - B PROVIDE SEPARATE NEUTRAL CONDUCTORS FOR EACH RECEPTACLE BRANCH CIRCUIT. (NO COMMON NEUTRALS)
 - C THE WORD "PROVIDE" MEANS TO FURNISH AND INSTALL.
 - D PROVIDE FIRE STOPPING AND SMOKE DRAFT STOPPING AT ALL CONDUIT PENETRATIONS. REFER TO SPECIFICATION SECTION 07 84 00 FOR FIRE RESISTIVE AND NON-FIRE RESISTIVE ASSEMBLIES.
 - E PROVIDE DRAWSTRINGS IN ALL CONDUITS.
 - F SEE ARCHITECTURAL SHEETS FOR RELEVANT INTERIOR ELEVATIONS, SECTIONS, AND MISCELLANEOUS BUILDING INFORMATION REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION.
 - G 'EX' INDICATES EXISTING TO REMAIN. REWIRE TO NEW BRANCH CIRCUIT BREAKER.

- KEY NOTES POWER**
- 1 REFEED EXISTING RECEPTACLES EXTEND CONDUIT AND WIRING. PROVIDE HOMERUNS WHERE REQUIRED TO EXISTING PANELBOARD.
 - 2 TIE EXISTING GYMNASIUM DUPLEX RECEPTACLE TO NEW BRANCH CIRCUIT BREAKER.



1 FIRST FLOOR SEGMENT B POWER
1/8" = 1'-0"