ADDENDUM NO.: 3

Date of Issuance: November 21, 2017

Project: COURTLAND HIGH SCHOOL RENOVATIONS
BID REQUEST NO. 11292017-1400
Project No: 2015.53

The following items represent changes, modifications and/or clarifications to the Contract Documents for this project. This Addendum shall become a part of the Contract Documents and all Bidders shall acknowledge its inclusion in their bid.

This Addendum consists of the following:

6 typed pages (Addendum revisions)
21 typed pages (Specifications)
19 full size drawings

RESPONSES TO PREBID QUESTIONS

1. **QUESTION:** Specification Section 274116.62, Paragraph 2.10 requests sixty assisted listening system receivers.

**RESPONSE:**
Yes, the quantity of assisted listening devices shall be as indicated in the specifications.

2. **QUESTION:** Specification Section 274116.66 calls for a Lowell sectional equipment rack in paragraph 2.2 B 1 and a mobile rack in 2.2 B 12. If one rack is required, which is correct? If two are required, what equipment goes in each?

**RESPONSE:**
Delete Paragraph 2.2 B 12 indicating a mobile rack. The rack provided shall be as indicated in Paragraph 2.2 B 1.

3. **QUESTION:** What is the purpose of the new athletic pad? (Indicated on Sheet C-300)

**RESPONSE:**
This area will be used for general fitness activities such as cardio and strength workouts, and not for a specific sport.

4. **QUESTION:** Specification Section 321823.33 Track & Field Surface references the Track Oval, Runways, High Jump area. Are these supposed to be part of this project?

**RESPONSE:**
No, the Track and Field surface shall be as indicated on Sheet C-300. See attached revised Specification Section 321823.33 Track & Field Surface.

5. **QUESTION:** Specification Section 220700 Plumbing Insulation, paragraph 3.17 A Field Applied Jacket calls for both concealed and exposed piping to have a .020 inch thick aluminum jacket. Is the intent to have all concealed piping receive a .020" thick aluminum jacket?
**RESPONSE:**
Refer to Changes to Project Manual section below for revisions to Specification Section 220700 Plumbing Insulation

6. **QUESTION:** Specification Section 122413 Roller Window Shades Paragraph 2.1.H does not appear to apply to this building. Details 1-4/A520 show roller shades mounted under window heads. Are any manual shades recessed in pocket or are all surface mounted with fascia?

**RESPONSE:**
Refer to Changes to Project Manual section below for clarifications to Specification Section 122413 Roller Window Shades.

7. **QUESTION:** Specification Section 122413 Roller Window Shades Paragraph 2.4 specifies automated shade control. There are (4) dual motorized window shades in the project is Lutron Hyperion Automation required for this small motorized scope of work?

**RESPONSE:**
Delete Paragraph 2.4 Automated Shade Control. Motorized shades shall be as indicated in Paragraph 2.6 Motorized Roller Shade Operators. Refer to Change to Project Manual section below for changes.

8. **QUESTION:** Specification Section 109000 Paragraph 2.1 specifies Door Security Shade. Will products offered on www.schoolsafetysolution.com be acceptable for this bid?

**RESPONSE:**
Per the Instructions to Bidders, Substitutions cannot be considered during the bidding period. As specified, equal products can be submitted for consideration by Architect and Owner after award of Contract.

9. **QUESTION:** Specification Section 088000 Paragraph 2.4 A Item 1 calls for Solarban 60, while Item 2 calls for Solarban 72 on Starphire glass. Paragraph 2.14 B indicates the performance characteristics of Solarban 72 on Starphire glass. Which product is required?

**RESPONSE:**
Solarban 72 on Starphire + Starphire shall be the basis of design. See below for change to Specification Section 088000.

10. **QUESTION:** Please provide elevations for the Acoustical Wall Panels specified in Section 98400.

**RESPONSE:**
Sheets A802 and A803 show Acoustic Wall Panel layouts for rooms Chorus C120, Band C115 and Orchestra C121. Refer to full drawing set for comprehensive scope of work.

11. **QUESTION:** Please provide elevations for the Fabric-Wrapped Wall Panels specified in Section 97723 in order to determine quantity of panels.

**RESPONSE:**
As indicated in the Drawings provide 4’x8’ fabric-wrapped panels, oriented vertically and butted tight together continuously for full length of wall indicated. Refer to Sheet A101D.

12. **QUESTION:** Specification Section 133419 Metal Building Systems call for exposed fastener roofing panels, but also calls for a weather-tightness warranty on standing seam roofing panels. Which type of roof panel is required?

**RESPONSE:**
Metal roof panels shall be a concealed fastener type system. Refer to Changes to Project Manual below for revisions to Specification Section 133419 Metal Building Systems.

13. **QUESTION:** Specification Section 133419 Metal Building Systems: What are the insulation requirements for this storage building?
14. **QUESTION:** Section 263213 Engine Generators: Would Kohler be an acceptable manufacturer of the generator?

**RESPONSE:**
Kohler is an acceptable manufacturer.

15. **QUESTION:** Section 263213 Engine Generators calls for reactive testing. Is reactive testing required for field test?

**RESPONSE:**
Field Reactive Testing is required.

16. **QUESTION:** Section 263300 Transfer Switches: calls for reactive testing: Would Kohler be an acceptable manufacturer of the transfer switch?

**RESPONSE:**
Kohler is an acceptable manufacturer.

**CHANGES TO THE PROJECT MANUAL**

1. **Section 088000 - Glazing**

   **Change:** Paragraph 2.4 1 a to read as follows:
   
   a. Exterior Lite: ¼" (6.0mm) Solarban 72 #2

2. **Section 122413 - Roller Window Shades**

   **Change:** Paragraph 2. 1 H to read as follows:
   
   H. Mounting: Surface mounted with fascia and as required by installation condition, refer to Drawings.

   **Delete:** Paragraph 2.4 Automated Shade Controls

3. **Section 133419 - Metal Building Systems**

   **Add:** Paragraph 2.3 K to read as follows:

   K. Provide insulation system complying with applicable energy code requirements for Metal Buildings. Insulation system shall be specially designed by insulation manufacturer for use in Metal Buildings and consist of faced fiberglass insulation and all components of a comprehensives system including but not limited to vapor-resistant facer, thermal spacer blocks, and all associated fasteners, sealers, and other necessary accessories.

   **Thermal Performance for Opaque Elements:** Provide the following maximum U-factors and minimum R-values when tested according to ASTM C 1363 or ASTM C 518:

   a. Roof: R-Value: R-19 + R-19 liner system
   b. Walls: R-Value: R-13 + R-13 continuous insulation
Change: Paragraph 2.5 A to read as follows:

A. Mechanically-seamed, concealed fastener, metal roof panels: Structural metal roof panel consisting of formed metal sheet with vertical ribs at panel edges, installed by lapping and mechanically interlocking edges of adjacent panels, and attaching panels to supports using concealed clips and fasteners in a weathertight installation.
   1. Material: Zinc-coated (galvanized) steel sheet 0.024 inch nominal uncoated steel thickness. Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.
      a. Exterior Finish: two-coat fluoropolymer
      b. Color: As selected by Architect from Manufacturer's full range.

2. Panel Surface: Smooth with striations in pan.
3. Panel width: 18''
4. Panel seam height: 1.75''
5. Joint type: Snap Joint-seamed
6. Uplift rating: UL 90

Change: Paragraph 2.6 A 1 b to read as follows:

b. Color: As selected by Architect from Manufacturer's full range.

4. Section 220700 – Plumbing Insulation

Change: Paragraph 3.17 1 to read as follows:

b. All Service Jacket.

5. Section 273000 – Voice Communications:

Delete: Previous specification section and Replace with attached Section 273000 – Voice Communications

6. Section 275123 – Intercommunications and Program Systems:

Delete: Previous specification section and Replace with attached Section 275123 – Intercommunications and Program Systems

CHANGES TO DRAWINGS

1. Sheet P002: Replace with attached Sheet P002 which includes the following revisions:
   Clarifications to pipe, fixture and equipment tags
   Add: MV-4 basis of design to Mixing Valve Schedule

2. Sheet P003: Replace with attached Sheet P003 which includes the following revisions:
   Add: Washer Extractor Domestic Supply Details
   Delete: Unused details

3. Sheet P301D: Replace with attached Sheet P301D which includes the following revisions:
   Clarifications to pipe, fixture and equipment tags
   Add: TherapyTub Domestic water connections and MV-4 mixing valve

4. Sheet P403: Replace with attached Sheet P403 which includes the following revisions:
Clarifications to pipe, fixture and equipment tags

5. Sheet P404: Replace with attached Sheet A511 which includes the following revisions:

- Clarifications to pipe, fixture and equipment tags, Notes, and washer extractor supply connections.

6. Sheet P407: Replace with attached Sheet P407 which includes the following revisions:

- Clarifications to riser diagram notes

7. Sheet PD101A: Replace with attached Sheet PD101A which includes the following revisions:

- Add limits of demolition tags to existing pipe to remain.

8. Sheet PD101B: Replace with attached Sheet PD101B which includes the following revisions:

- Add limits of demolition tags to existing pipe to remain.

9. Sheet PD101C: Replace with attached Sheet PD101C which includes the following revisions:

- Add limits of demolition tags to existing pipe to remain.
- Add Sheet Note #1

10. Sheet PD201B: Replace with attached Sheet PD201B which includes the following revisions:

- Add Sheet Notes #2 and #3 and tags on plan.

11. Sheet E001: Replace with attached Sheet E001 which includes the following revisions:

- Add ‘duress symbol’ to the symbol list.

12. Sheet E005: Replace with attached Sheet E005 which includes the following revisions:

- Clarifications to data counts for each rack and quantity of patch panels at each rack

13. Sheet E301A: Replace with attached Sheet E301A which includes the following revisions:

- Add: Duress switch at reception desk in main office. Duress switch shall activate the intrusion alarm panel and dial out in alarm mode.

14. Sheet E301B: Replace with attached Sheet E301B which includes the following revisions:

- Clarifications to motion detector and data outlet layouts.

15. Sheet E301D: Replace with attached Sheet E301D which includes the following revisions:

- Add data and phone outlets, wireless access points, call-back stations in various locations.
- Add note describing scope of fiber optic cable relocations from building entry point to MDF room.

16. Sheet E301E: Replace with attached Sheet E301E which includes the following revisions:

- Add wireless access points to various locations

17. Sheet E302F: Replace with attached Sheet E302F which includes the following revisions:
Add: Duress switch at library circulation desk. Duress switch shall activate the intrusion alarm panel and dial out in alarm mode.

18. **Sheet E302G**: Replace with attached Sheet E302G which includes the following revisions:
   - **Delete** wireless outlet from RoomG236

19. **Sheet ED201**: Replace with attached Sheet ED201 which includes the following revisions:
   - **Clarifications** to Note 10 regarding fiber optic line and related conduit.
   - **Add** Note 13 regarding underground fiber optic cable between High School and adjacent Tech Center

End of Addendum No.: 3
SECTION 27 30 00 – VOICE COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 WORK INCLUDED
   A. Provide all fire retardant plywood panels in all IDFs and the MDF. The Owner shall provide VoIP Telephone System. Section 27 20 00 shall provide vertical and horizontal copper cabling, supports, patch panel, jumpers, jacks, faceplates and cable testing. The Electrical Trade Division 26 shall provide conduit, boxes, raceways and install special boxes as indicated in Section 27 20 00.

1.3 RELATED WORK
   A. Division 26 - Electrical
   B. Section 27 05 53 – Identification for Communications Systems
   C. Section 27 20 00 – Data Communications

1.4 GENERAL OPERATION AND DESCRIPTION
   A. It is the purpose of this specification to require the furnishing of the highest quality materials, equipment, and workmanship available, to fulfill the requirements of the work specified herein.
   B. General: Provide all fire retardant plywood panels in all IDFs and the MDF for Division 27 and 28 systems and the Owner's VoIP telephone system. Section 27 20 00 shall provide vertical and horizontal copper cabling, supports, patch panel, jumpers, jacks, faceplates and cable testing.

1.5 REFERENCES
   A. The complete installation, including additions and modifications, shall be in accordance with the following:
      1. National Electrical Code Article 800.
      2. TIA/EIA Standards to their latest revisions:
         d. UL – Underwriters’ Laboratories, Inc,
e. All references in Section 27 20 00.

1.6 SUBMITTALS (Not Required)

1.7 QUALITY ASSURANCE

A. General - All equipment and materials required for installation under these specifications shall be new (less than 3 months from date of manufacture) and without blemish or defect.

B. Warranty: The panel installation shall be warranty for a period of one year from the date of acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fire retardant plywood panels, unpainted, each 8' x 4' surrounding the walls each IDF and MDF with the panels install with the 8' length running vertically. The fire retardant panels shall be Class A on front side and Class B on the back side. The back side shall face the wall. The fire retardant label shall be read and clearly visible.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that panels have been neatly installed and are hanging plumb and securely to the wall.

3.2 INSTALLATIONS OF SYSTEMS

A. Fire retardant plywood panels, unpainted, each 8' x 4' surrounding the walls each IDF and MDF with the panels installed with the 8' length running vertically. The fire retardant panels shall be Class A on front side and Class B on the back side. The back side shall face the wall. The fire retardant label shall be read and clearly visible.

END OF SECTION 273000
SECTION 275123 - INTERCOMMUNICATIONS AND PROGRAM SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 WORK INCLUDED:

A. Furnish and install all equipment, accessories, and materials in accordance with these specifications and drawings to provide a complete and operating Intercommunications and Program Paging System.

B. The Intercommunications and Program Paging System provider shall conduct a Needs Assessment Analysis with the owner’s designated representative prior to providing the final programming for the system’s operation. The Needs Assessment Analysis shall be the owner’s opportunity to inform the contractor as to which of the system’s programmable features and functions they want activated for specific spaces. Within sixty (60) days of this final system programming, if requested by the owner’s designated representative, the contractor shall provide one (1) return trip for system reprogramming at no additional charge to the owner. This shall not include adding or moving system devices or components.

C. Allow connection for auxiliary sound systems for muting auxiliary sound systems to all intercom pages to be heard.

D. Integrate Owners Admin VoIP phone system to access system for all-calls and room pages.

E. Allow the system to be access school wide via Tele-center U

1.3 RELATED SECTIONS

A. Section 27 05 00 – Common Work Results For Communications

B. Section 27 05 26 – Grounding And Bonding For Communication Systems

C. Section 27 05 53 – Identification For Communication Systems

D. Section 27 20 00 – Data Communications

E. Section 27 30 00 – Voice Communications

F. Section 27 40 00 – Audio-Video Communications

G. Section 27 41 16.62 – Integrated Audio-Video Systems and Equipment for Auditoriums

H. Section 27 41 16.64 – Commons Sound Systems

I. Section 27 41 16.65 – Auxiliary Gymnasium Sound System

J. Section 27 41 16.66 – Gymnasium Sound System
K. Section 27 41 16.67 – Band Sound System
L. Section 27 41 16.68 – Chorus Sound System
M. Section 27 53 13 – Clock Systems
N. Section 27 53 13.01 – Wireless Clock and Tone Generation System

1.4 GENERAL OPERATION, DESCRIPTION AND SYSTEM REQUIREMENTS:

A. General:
1. The system provided shall be an integrated VoIP-based headend Intercommunications unit with standard amps and communication equipment (speakers and call-in stations) with standard speaker wiring or data wiring providing all the functionality described herein.

2. This specification establishes a minimum level of quality, features, and performance for individual components as well as the integrated system and will be enforced by the Owner. It is the responsibility of the contractor to ensure that the proposed product meets or exceeds every standard set forth in these specifications.

3. The functions and features specified herein are vital to the operation of the Schools' Life Safety and Internal Communications requirements and have been standardized by this school system. Therefore, the acceptance of alternate manufacturers does not release the contractor from strict compliance with every requirement of this specification.

4. This section includes an Integrated School Life Safety system, which shall provide state of the art technology for all features, including, but not limited to (features shall be accessible from the local facility and for district-wide access from any phone or computer with authorized access);
   a. Administrative Telephone Operations (phones provided by the Owner)
   b. Classroom (Analog Slim Line Wall Phone Back Lighted Key Pad and Message Light) Telephone Operations (phones provided by Rauland)
   c. All-Call Paging and Zone Paging
   d. Two-Way Intercommunications
   e. Emergency call-in notification
   f. Secondary Clock Correction
   g. NTP (network time protocol) synchronization
   h. The following features shall be accessed via a live voice or from a pre-recorded source, which is part of this system:
      1) Life Safety Paging
      2) Evacuation tones
      3) Announcements
      4) Class Change Tones with multiple schedules.
      5) Play recorded music during class changes.

5. This section includes requirements for Integrated Electronic Communications Network system components as indicated including, but not limited to, the following:
   a. Ceiling and Wall Mounted Speaker Assemblies
b. Ceiling and Wall-mounted Paging Horns

c. Administrative Telephones (phones provided by the Owner)

d. Classroom Telephones (Analog Slim Line Wall Phone Back Lighted Key Pad and Message Light) Telephone Operations (phones provided by Rauland)

e. One-Touch Emergency Call-In Switches

f. Normal and Normal/Emergency Call-In Switches

g. Class Change Signaling System

h. Public Address and Intercommunication System

i. Controls, Amplifiers, and Terminal Equipment

j. Power Supplies

k. Wiring

l. Master Clock System (See clock system specification for integration)

m. Secondary Clock Synchronization and Correction

n. Microphone and Program Input Panel

o. District-Wide Master Clock Scheduler

p. Telecenter U controller

q. Integrate with Owner's VoIP telephone system for admin phones and Rauland analog classroom phones.

6. This system shall be a VoIP-based headend system with analog communication and analog 25 volt speakers.

7. Features offered by this system shall be implemented and controlled by software that can be changed and expanded as customer needs evolve.

8. The system shall lend itself to expansion by simple addition of hardware modules.

9. The system shall allow system monitoring and administration from a local Windows PC, networked Windows PC over the LAN, WAN or remote Windows PC connection.

10. The system shall support all analog slim line wall phone back lighted key pad and message light telephone operations (phones provided by Rauland).

11. Provide the system with the ability to access or initiate any of the following features from any phone, whether tied directly into the system via trunk ports from any telephone or telephone system within the facility or outside the facility or any computer with a sound card, USB microphone and Web access (local or remotely located) to any other location within the facility:

a. Initiate live or pre-recorded life-safety and normal paging announcements, evacuation tones, pre-recorded messages, music during class changes and take cover tones.

b. Selectively communicate or monitor individual classrooms in normal or emergency situations. All communication from the classroom shall be hands free and shall not require any interaction by the end-user to answer.

c. Establish amplified two-way voice communication through any classroom speaker in the system. This shall allow hands-free communication to any classroom or any individual loudspeaker unit. A programmable pre-announce tone shall sound
immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when speaker monitoring is active, complying fully with all privacy legislation.


13. Provide a web access interface that allows for a live page to this facility from any PC/MAC/Tablet device that has a USB microphone.

14. Provide a web access interface allowing the system to be accessed via a multi-user single facility interface application and a district-wide Enterprise Solution. Provide the single facility license and software with this system. An Enterprise Solution option, providing all the features in this specification, shall be available that shall allow the ability to group school buildings together for group paging via a web interface. This function shall not be limited to any one system manufacturer or intercom. The system shall be capable of interfacing to any intercom or paging system and shall be capable of grouping these locations in its software system. The system shall have the capability of grouping up to 1000 facilities.

15. Room speakers, call switches and classroom telephones shall be programmable and may be assigned any two, three, four or five digit room number. Any room number designation may be reassigned at any time, and it shall not be dependent on wiring or circuit numbers. Coordinate dialing plan with Owner.

16. System shall be compatible with a structured cable plant with MDF and IDF located equipment connected over an Ethernet LAN consisting of fiber and 6e cabling to allow the headend and amps to communicate if necessary. To allow connections to the end system. All speaker and call-in switches shall be homerun cabling back to the headend.

17. The system shall require dedicated copper or trunk cabling between MDF and IDF locations for connections to speakers and call-in switches.

18. Classroom components (including a speaker and cable) shall be capable of being connected to the system via a CAT6e cabling or standard speaker cabling.

19. The system shall provide an Integrated Master Clock with 16 schedules, 1000 events, and automatic Daylight Savings time correction. See clock system specification for integration.

20. The system shall integrate with the NTP Wireless Clock system specified in section 27 53 13.

21. The Integrated Communications Network shall, at a minimum, provide:

   a. Provide basic speaker wiring homerun from devices back to the headend.

   b. An Ethernet port for the connection of on-site or off-site diagnostics by distributor or factory-trained personnel. The gateways shall have the option to tie directly into the facility’s Ethernet LAN/WAN (depending on firewall access) or to interconnect over their own Ethernet network.

   c. The system shall operate from a VX Works-based Operating System and the system’s programming database shall be stored in non-volatile flash memory. The Operating System shall be easily upgraded through a configuration program without requiring replacement of any chips. The system programming database shall be easily archived.
d. The system shall be able to dial in, integrate to and provide all system features including call-in information on associated telephone displays with any other phone system via all of the following:

1) Standard telephony CO port interface with or without caller-ID.
2) Standard telephony analog station ports.
3) VoIP based SIP trunk ports.
4) Single stand-alone analog telephone instrument.

e. Dialing to any remote telephone, telephone system or location. The system shall be capable of connecting to other phone systems or the Public Switched Telephone Network (PSTN) via all of the following:

1) Standard telephony CO port interface with or without caller-ID.
2) Standard telephony analog station ports.
3) VoIP based SIP trunk ports.
4) Single stand-alone analog telephone instrument.

f. Provide Direct Inward System Access (DISA) to all system features/functions (including, but not limited to paging, intercom, evacuation tones, toll access, class tone schedule selection, etc.) from any onsite or offsite DTMF dialing telephone via an incoming trunk line. Only authorized individuals shall have access to this feature by dialing into the system through this dedicated trunk number and then dialing a system function. The system shall be able to allow:

1) Unrestricted access through this port without an access code.
2) Restricted access through this port with an access code.

g. The system shall support a flexible numbering plan allowing two, three, four, or five digit room numbers. The two, three, four, and/or five digit room numbers shall be able to be intermixed within the same facility. Each extension shall be able to include leading or trailing alpha digits to match a facility’s room numbering scheme.

h. The system shall support multiple administrative consoles capable of answering internal intercom call-ins and performing all other system functions including but not limited to Emergency Page, all page, program distribution, active class change schedule selection and active system configuration selection.

i. The system shall support up to ten (10) two-way amplified voice intercom paths between any telephone and intercom speaker without the use of a press-to-talk or talk-listen switches.

j. The system shall support the ability to place multiple levels of call-in and remote cancel from any call switch where indicated.

k. Provide the ability to answer intercom call-ins registered at any administrative console by merely pressing a user definable single response button.

l. Provide universal wiring utilizing data network topology for the intercom speakers, call switches using standard speaker wiring or category 6 cable. All cables shall be homerun to headend via trunk cables from IDFs.
m. Provide the ability to change system configurations either manually or automatically based on time of day, day of week and calendar date. The system shall store up to four (4) different system configurations at any time.

n. Provide pre-announce tone prior to connecting any intercom conversation to alert the user to the call and prevent unauthorized monitoring. A tone shall be automatically repeated at regular intervals for the duration of the intercom call.

o. Provide audio paging access from any telephone to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns and analog Rauland classroom phones throughout the entire facility. Owner provided VoIP Admin Phones.

p. Provide single button access from Administrative Console to distribute emergency announcements within the facility to all or select locations equipped with speakers. Emergency announcements originating from any assigned administrative console shall have priority over all regular system functions. Owner provided VoIP Admin Phones. System provided analog phones.

q. Provide single button access from any administrative console on the system to initiate alarm signals within the facility to all or select locations equipped with speakers. Up to nine (9) separate distinct alarm signals shall be provided. Owner VoIP Admin provide phones. System provided analog phones.

r. Provide automatic broadcasting of emergency instructions throughout an entire school when an alarm (e.g. security, fire) is activated. The emergency instructions are prerecorded by the user and require no user intervention. The system shall provide redundant alarm annunciation over intercom/paging speakers. This feature is not meant to replace primary fire alarm or security system notifications.

s. Multilevel call-ins shall be placed from a call-in switch. Call-ins shall be routed within the system to administrative consoles and answered by a single button press on the console, connecting the user to the speaker. Alternately, call-ins will be displayed via caller-ID on any phone by ringing that phone. Once the “call” has been answered, the user will hear a recording and can press a single button to connect to the speaker.

t. Call-ins shall be ordered for answer according to priority and length of time in system so that the most urgent, oldest call-in is answered first.

u. Provide ability for automatic class change tones to be sent through all or selected intercom/paging speakers and/or horns. Any combination of up to nine (9) tones shall be sounded to indicate different events. Up to sixteen (16) different class change schedules shall be stored in the system and selected manually from an administrative telephone or selected automatically based on time, day of the week, and date. Tone type and duration shall be selectable for each class change event. A total of one thousand (1000) class change events shall be stored on the system.

v. Programmable “Music-on-Class-Change.” A program source shall be automatically routed to select zones of paging speakers or all speakers within the facility during each class change period. System shall be provided with play back system such as and I-Pod that can be loaded with music by the Owner to allow music during class changes.

w. The system shall provide facilities to distribute program material I-Pod or (owner-provided audio source, i.e. CD, radio broadcasts) in the following manner:
   1) The user shall cue remotely located music source or select radio station.
2) From a telephone the user shall select the room(s) or areas to distribute program.
3) Automated distribution based on event schedule.
4) The input device shall be located in the main office reception area as coordinated with the end user.

x. The system shall provide for secondary clock correction with the following features and functions:
1) User programmable Automatic Daylight Savings Time Change.
2) Interface with most types of secondary slave clocks whether synchronous wired or electronic.
3) User-programmable custom slave clock correction. Output relays rated at 5 amperes shall be provided on all zone circuits as necessary.
4) See clock system specification for integration.

y. Provide the ability to synchronize this system’s time to the National Atomic Clock Signal or to the school’s or districts network time server.

z. The Administrative Telephone System shall serve as Administrative Console where Administrative Console functionality is mentioned in this specification. Owner provide VoIP telephone system shall be used as Administrative Telephone System. Classroom analog telephones are provided by the Rauland.

1.5 QUALITY ASSURANCE:

A. Source Quality Control: Materials and equipment shall be new, unused and UL listed (UL Standard 1459).

B. The system and components shall be supplied by one manufacturer of established reputation and experience who shall have produced similar apparatus for period of at least ten (10) years and who shall be able to refer to similar installations rendering satisfactory service.

C. The Intercommunications and Program Paging System shall be installed by the manufacturer’s authorized distributor and installation contractor for the specified system. The installation shall include wiring, components, connections, adjustment, testing, training and certification. The Electrical Trade shall provide conduit junction boxes and pull boxes as indicated and required by the Intercommunications and Program Paging System manufacturer’s drawings or Trade instructions. The Communication Trade shall furnish any special boxes, cabinets, enclosures and similar items to the Electrical Trade for installation by the Electrical Trade in accordance with the manufacturer’s drawings, Trade instructions, and as indicated on drawings.

D. The Intercommunications and Program Paging System Trade shall furnish a list of similar or equal installations (a minimum of ten) and show at least ten (10) years of company experience in this type of work.

1.6 REFERENCES:

A. The complete installation, including additions and modifications, shall be in accordance with:
1. National Electrical Code Article 800 (Communications Systems)
3. Meet Part 68 of FCC rules and regulations for direct interconnect to the public utility systems.

1.7 SUBMITTALS

A. Submit shop drawings, analysis and product data.
   1. Shop Drawings for the Intercommunications and Program Paging System shall include:
      a. A one-line riser diagram indicating route and conduit size, external wiring and connections of the proposed system.
      b. Furnish complete operating instructions, including schematic and wiring diagrams of the system, engineering data sheets on each component and complete servicing data including part numbers of the various components. A schematic diagram of the complete system is not shown on the contract documents.

B. Submit Operation and Maintenance Manuals at project closeout.

C. Substitutions
   1. The functions and features specified herein are vital to the operation of this School’s Life Safety and Internal Communications requirements and have been standardized by this school system. Therefore, the acceptance of alternate manufacturers does not release contractor from strict compliance with every requirement of this specification section.
   2. Substitute for the system is not allowed due to standardization of intercommunication systems in the county school system.

1.8 WARRANTY, SERVICES:

A. The Intercommunications and Program Paging System manufacturer and Trade shall warrant the System against defective parts for a minimum of five (5) years and the installation workmanship for a minimum of two (2) years from the date of acceptance by Owner. The contractor shall provide parts and labor to fulfill this warranty at no cost to Owner.

B. Contractor shall have a facility staffed with qualified service technicians and parts located within 150 miles of the installed facility.

C. The Intercommunications and Program Paging System Trade shall include in his quotation the cost of three (3) inspections of the system during the two (2) years subsequent to the installation. The Trade installing this equipment shall be prepared to offer the Owner a service contract after the guarantee period has ended. On-the-premises service furnished at other than normal working hours shall also be available and shall be charged at current labor rates. Sub-leasing of this service shall not be acceptable and shall disqualify the bidder.

D. Provide a sample warranty statement with the submittal, and a signed warranty statement with O&M Manuals.

PART 2 - PRODUCTS [S] & [O/M]

2.1 MANUFACTURERS:
A. The system manufacturer shall be Rauland-Borg Corporation whose numbers are used herein.

B. No substitute allowed due to intercommunication system standardization in the county school system.

2.2 MATERIALS AND EQUIPMENT:

A. General: All materials, equipment, accessories, devices and appurtenances shall be new, best suited for its intended use and shall conform to applicable and recognized standards for their use. All equipment shall be the standard cataloged products of the manufacturers shown.

B. Equipment

1. VoIP-Based Controller - Provide a VoIP-based integrated system for individual room intercommunications, all page and zone page, evacuation tones, multilevel call-in, secondary clock correction and class change tones. Provide Rauland TC2000 Series Controller and Gateway Components, providing all the features and functionality as outlined herein. The system supports all of the following ways to allow access including (a "telephone" in this specification is defined as any telephone connected to the system):
   a. Telephones on associated enterprise voice system such as a PBX or KTS (key).
   b. A networked VoIP system
   c. Cell phones
   d. Remote telephone access through a DISA (direct inbound system access) line connected to the system.
   e. An administrative console connected directly to the system.
   f. All non admin phones are provided by Rauland. The Owner has a VoIP admin telephone system for this facility. Classroom phones shall analog slim line wall phone back lighted key pad and message light for telephone operations (phones provided by Rauland)

2. Web Access Portal and Interface – Provide Web Access Portal and Interface unit(s) as required to meet these specifications. Provide Rauland model # TCU1000PM with the following features and functionality;
   a. Works in conjunction with Telecenter U software to provide the features and functions as set forth in these specifications.
   b. Line audio output, 1.2V.
   c. Microphone audio output, 0.2 mV.
   d. Eight (8) separately addressable relay outputs.
   e. Six (6) separately monitored contact inputs.
   f. Standard Network POE compliancy 48VDC.
   g. Network Interface Card 10/100 Mb.
   h. Two (2) GB onboard memory storage.
   i. Wall and Rack mountable.

3. Software – Provide operating software as required to meet these specifications. Provide Rauland model # TCU2000SW with the following feature functions and capabilities:
   a. Networks up to 1000 web access units together for district-wide access.
b. Allows up to five (5) system access users.
c. Web Browser based user interface for all functions.
d. Manages live voice interface to communications system.
e. Executes live and recorded audio sequences as outlined in specifications above.
f. Integrates with Windows Active Directory for system login.
g. Provides permission based access controlled via system administrator.
h. Manages and Implements Music Distribution.
i. Manages and Implements emergency macro initiation.
j. Manages and Implements Bell and Tone Schedules.

4. Administrative Telephones/Consoles indicated on the drawings shall provide the following functions and features:
   a. Seven-Line by Twenty-Four Character Backlit Liquid Crystal Display
   b. Oversized incoming call / message waiting indicator lamp
   c. Capability to add an optional Bluetooth Headset
   d. Full Duplex Speakerphone
   e. Three position station pedestal with integrated wall mount.
   f. Black Matte Finish
   g. Standard twelve (12) key dial pad and hook switch.
   h. Ten Self-Labeling Feature Keys with Red and Green LEDs
   i. Sixteen programmable feature keys with Red and Green LEDs, expandable to Twenty Four via the use of an expansion module. The following programmable functions can be selectively programmed at each administrative console:
      1) Speed Dial – one touch dialing of any other administrative console.
      2) DSS (Direct Station Select) – one touch dialing of any intercom speaker.
      3) Night Mode – place the system in and out of night answer mode.
      4) Call-in Answer – one touch answering of any call-in queued to the administrative console.
      5) System Configuration Select – manually select among one (1) to four (4) available system configurations.
      6) Class Tone Schedule Select - manually select among one (1) to sixteen (16) available class change tone schedules.
      7) Evacuation Tones – initiate evacuation tones to selected areas within the facility or throughout the entire facility. While tones are sounding it is possible to make a voice page interrupting the tones.
      8) Zone Page – initiate pages to any combination of one (1) to sixteen (16) paging zones and the ability to combine these zones into user defined paging groups using speed dial buttons.
      9) Mute - one touch ability to mute audio to distant party
     10) Page – all page over all intercom/paging speakers and horns within the facility.
11) Volume Up/Down – while the console is ringing the volume up and volume down keys change the level of the ring volume. During a conversation the volume up and volume down keys change the level of the listen back audio.

12) Each administrative console in the system shall be assigned, through software, the following individually programmable (allowed or restricted) features/options using the class of service attribute:
   a) Initiating zone page announcements
   b) Initiating emergency all page with override
   c) Initiating all page announcements
   d) Initiating emergency/evacuation tones
   e) Initiating class change tones
   f) Receipt of class change tones and/or zone pages
   g) Door access control during intercom conversation

5. Analog Classroom Phone System
   a. Provide chassis (as many as required), analog voice cards and analog classroom phone.

6. Normal Call Switches shall provide the following functions and features:
   a. One (1) “Normal” call switch that shall activate a distinctive “NORM” level call from a single button activation. The button shall be clearly marked “NORM” and will route the call-in to any one or more Telephones. In accordance with the Americans with Disabilities Act (ADA), the “Normal” call will provide a steady call assurance LED confirming that the call has been placed in the system. Two-way communication shall be allowed by this call-in switch.

7. Power amplifier(s) shall be provided to provide a minimum of 1 watt of power to all intercom speakers, ½ watt of power to all paging speakers, and up to 5 watts of power to all paging horns. The maximum load on the paging/program amplifiers shall be 80% of the rated maximum output of the amplifiers.

8. Battery Back-up Units: Provide MinuteMan E1500RM2U for battery back-up power output and line conditioning for power losses and surges. Regulation range is 89 to 138 volts with full noise and spike suppression. Provide one (1) UPS unit per MDF and IDF that houses a VoIP gateway for this system.

9. All system cabling station lines and outlets shall be installed under this Section and use standard plenum rated speaker wiring.

10. The Intercommunications and Program Paging System Trade shall provide and install all trunk cabling between MDF and IDFs for speaker wiring.

11. Microphones: Provide one (1) Rauland 1295 paging microphone at the Communications Console complete with 7’ of shielded cable and Switchcraft A3M connector. Cable shall plug into Switchcraft D3F microphone receptacle connecting to the system program and microphone input panel.

12. Speakers (Provide quantities as indicated herein and on the drawings):
   a. Recessed ceiling: Rauland #BAFKIT
   b. Recessed ceiling speaker with built-in volume control for Office, waiting rooms and conference type spaces: Rauland Ceiling speaker with build-in volume control.
c. Wall mounted interior or exterior weather protected horn: Rauland #ACC1411

d. Surface wall mounted loud speaker horn: Rauland #3601.

e. Room call-in switch/speaker combination: Rauland #TCC2211PB, a momentary contact pushbutton with speaker, allowing 2-way communication into this space.

13. Wires and cables in metal raceways or plenums above ceiling.


b. All classroom speakers: 2-conductor 18 AWG, plenum rated.

c. All Corridor and paging speakers: 2-conductor 18 AWG, plenum rated.

d. Call-In switches: 2-conductor 24 AWG, plenum rated.

e. Display at Administrative Telephone: 2-conductor 22 AWG shielded.

f. Administrative Telephone system interconnect to this system: Plenum rated Category 6 UTP eight (8) pair 24 AWG solid copper. Provide the necessary quantity to handle the trunking required by this system.

C. Miscellaneous: One line diagram of conduits is shown on drawings. Conduits, boxes, plates, etc., as specified hereinbefore. All boxes, etc., shall be of proper size, as determined by the VoIP Intercommunications Network System Trade.

D. Patton SN4520 VoIP / SiP Trunk Interface between Owner's VoIP telephone system the intercom system. The device shall provide eight trunk lines into the intercom system from one data connection to the Owner's VoIP system via IP addressing and SiP trunking. Coordinate connection with Owner for IP address and SiP programming.

E. Provide a Telecenter U chassis for this intercom system.

PART 3 - EXECUTION

3.1 INSPECTION

A. The Intercommunications and Program Paging System Trade shall be responsible for all arrangements for testing and approval of the System before the System is accepted by the Owner and Architect/Engineer.

3.2 INSTALLATION

A. General: Provide the integrated Intercommunications and Program Paging System with all speaker-related wire, outlets and equipment as indicated on the drawings and as specified herein. Conduit shall be provided for this system by the Division 26 00 00 contractor. Phone cabling shall be provided and installed under this section per Section 27 20 00 specification requirements. All material and/or equipment necessary for the proper operation of the system, even though not specifically mentioned in the Contract Documents, shall be deemed part of this Contract. All equipment shall be installed and connected in strict accordance with the manufacturer's recommended instructions. All central processing equipment shall be furnished by one equipment supplier so as to provide for matched systems for service maintenance from one source.

B. Wiring:
1. Partial Conduit Raceway System specified and provided in Division 26 00 00: All wiring methods shall be in accordance with NFPA-70, Article 800, and all other codes specified herein. Provide proper number, size of wires and conduit as required for operation of the system in accordance with the manufacturer’s instructions.

2. Plenum Rated Shielded Power Limited Cable System: All wiring methods on the system’s load side shall be shielded power limited type as specified in NEC Article 800 and Division 26. All wiring shall be installed under this Section.

3. No wiring other than that directly associated with the system shall be permitted in these conduits.

4. Wiring splices are to be avoided to the extent possible, and if needed they must be made only in junction boxes and shall be crimp connected.

5. Transposing or changing of wiring color codes shall not be permitted.

6. Wire nut-type connections are not acceptable.

7. All conductors shall be labeled on each end with “E-Z markers” or equivalent.

8. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its termination point.

9. Cabinet terminals shall be numbered and coded. All controls, function switches, etc., shall be clearly labeled on all equipment panels.

10. All connections to panels, devices and equipment shall be made with crimp type terminal connections, or resin core solder method approved by manufacturer.

11. All wiring shall be checked and tested to ensure that there are no grounds, opens or shorts.

12. Microphone line shields are to be grounded only at the microphone connector and at the mixer-preamp input connectors. Shields on cables between accessory items of equipment are to be grounded at one end only. All cable shields are to be insulated at the “floating” end. Continuity of shield is to be preserved at all connecting points. All audio grounds in any equipment rack, as well as the racks themselves, are to be earth grounded.

13. All wiring shall be executed in strict adherence to standard telephone and broadcast practices. Lines for microphone level circuits (level below -20 dBm), line level circuits (up to +30 dBm), loudspeaker circuits (above +30 dBm), and power circuits all installed in separate conduits. All conduits shall be well spaced from power conduits, and shall be properly grounded to the power system ground.

C. All boxes, conduits, etc., shall be of proper size, as determined by the VoIP Intercommunications Network Systems Trade, shall be clearly marked for easy identification, and continuously bonded to building electrode grounding system (BGES).

D. All equipment except portable equipment shall be firmly held in place. Fastenings and supports shall be adequate to support their loads with a safety factor of at least three.

E. The Intercommunications and Program Paging System Trade shall take such precautions as are necessary to prevent and guard against E.M.I., to supply adequate ventilation, and to install the equipment so as to provide reasonable safety for the operator.
F. The actual circuit routing of the Intercommunications and Program Paging System shall be by the installing trade based on the location of the devices, circuit limitations and wire limitations.

G. Coordinate recessed ceiling speaker enclosures with structural and mechanical systems.

H. The Section 27 53 13 Clock Master control unit shall be installed in this system’s rack.

I. Interconnect Section 27 20 00 station line’s trunk cable to this system for staff telephone function. Trunk cable provided by this Section.

J. All volume controls shall be integral to each required speaker. All wall speakers shall have outlet boxes. All preceding outlet boxes and ceiling speakers shall have conduits terminating in the corridor ceiling void. Telephone communication wiring shall utilize the same C-Hooks for the cabling. Refer to Section 27 20 00 for clearances and restrictions for paralleling and crossovers of cables. Intercom system speaker cables may utilize the same C-Hooks, but must be separated as outlined in 27 20 00 cabling specifications.

3.3 TECHNICAL ASSISTANCE

A. Instruction: The installation supervising technician for the Intercommunications and Program Paging System Trade shall instruct the proper designated authority on the correct operation of the system after the installation is completed. Provide a minimum of eight (8) hour training to system users. Record training and provide Owner with DVD of training.

3.4 FIELD QUALITY CONTROL

A. General: Upon completion of the installation, the Intercommunications and Program Paging System Trade’s factory-trained technician shall perform all necessary electrical tests and adjustments and who shall then submit a Letter of Certification to the Owner/Architect/Engineer that the system functions and conforms to all requirements of the manufacturer of the equipment, these specifications, and all requirements of Uniform Statewide Building Code for type of building in which the system is installed.

B. The factory-trained technician shall perform all electrical and mechanical tests, measurements and adjustments required below. All test costs shall be in the Contract price. A checkout report shall be prepared by the installation technician. The report shall include, but not be limited to:

1. A complete list of equipment installed and wired.
2. Indication that all equipment is properly installed and functions and conforms to these specifications.
3. Technician’s name, certificate number and date.

C. After completion of all tests, measurements and adjustments listed above, the Intercommunications and Program Paging System Trade shall submit the following information to the Architect/Engineer.

1. “As-built” conduit layout diagrams including wire color code and/or tag number.
2. Complete “as-built” wiring diagrams.
3. Complete operating instructions, including engineering data sheets on each major component and complete servicing data including part numbers of the various components.
D. Final tests and inspection shall be held in the present of Architect/Engineer’s representatives and to their satisfaction. The Intercommunications and Program Paging System Trade shall supply personnel and required auxiliary equipment for this test without additional cost.

E. The completed Intercommunications and Program Paging System shall be tested to insure that it is operating properly. Should a problem occur, the Intercommunications and Program Paging System Trade shall readjust or replace the defective components at no additional cost to the Owner.

END OF SECTION 275123
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SECTION 32 1823.33 – TRACK AND FIELD SURFACE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS
   A. The provisions of the Contract Documents apply to the work in this Section.

1.2 DESCRIPTION OF WORK
   A. Provide a mixture of uniformly graded rubber particles bound together with formulated styrene butadiene resin, providing a durable, resilient surface for the running track and designated field event areas. No asphalt material shall be incorporated into this system.
   B. The following surfaces shall receive the surface system:
      1. Athletic pad between the high school and technical center.

1.3 SUBMITTALS
   A. Product data in the form of manufacturer’s technical data, specifications and construction.
   B. Samples: Submit sample representative of actual surface to architect/owner for approval.

1.4 QUALITY ASSURANCE
   A. Surfacing Installer Requirements: Contractor must be in good standing with the American Sport Builders Association (ASBA) and must have an ASBA Certified Track Builder on staff. Over the last five years, the Contractor must have installed at least 20 running track surfaces that utilize the exact same material as specified herein. Contractor must have been in business under the same company name for a period of not less than 5 years. Contractor must be a licensed general contractor in the Commonwealth of Virginia.
   B. Weather Conditions: The quality of the installation is dependent upon proper weather conditions. No installation shall be made when rain is imminent or when ambient temperatures are below 60° F. It is best to install the system in full sun, and dry weather with daytime temperatures of at least 60° F and rising for five (5) hours. When nighttime temperatures fall below 45° F, the system should not be installed.

1.5 WARRANTY
   A. Warrant surface against defects in workmanship and materials for THREE (3) YEARS from date of Substantial Completion. The contractor shall repair or replace defective surface at no cost to the owner. Excluded from the warranty are defects caused by faulty design, acts of God, improper maintenance, abuse, and uses other than those set forth above. The owner is required to maintain the facility in accordance with the maintenance instructions which are provided with the warranty.

1.6 PROJECT CONDITIONS
   A. Drainage: Areas adjacent to the asphalt substrate upon which the MAXFLEX BL 3/8" TRACK SURFACE is installed shall be graded to drain away from the track surface. Subsurface design shall provide for a free flow of subsurface moisture away from the track and field events.
B. **Asphalt Substrate:** The asphalt upon which the MAXFLEX BL 3/8” TRACK SURFACE is installed shall be clean, free-draining, and shall exhibit the planarity and tolerances set forth in running Track and Field Event Base Course Construction as published by Precision Sports Surfaces, Inc.

C. **Finish Grading, Landscaping and Other Vegetation:** Sod or other landscaping materials shall not impede the flow of surface water from the track and field event surfaces. Project phasing shall be arranged so that during the track surface installation, straw and other mulching materials, leaves, and other foreign materials shall not be allowed to blow onto the track surface. The same materials shall be prevented from accumulating on the track and field event surfaces after installation.

**PART 2 – PRODUCTS**

2.1 BASIS FOR SPECIFICATION

A. The design basis for this specification is the MAXFLEX BL 3/8” system as manufactured and installed by Precision Sports Surfaces, Inc., 3325 Lobban Place, Charlottesville, VA 22903. 434-971-9628. Alternative equivalent systems may be submitted for approval as set forth below.

2.2 MATERIALS

A. **BINDER A** – formulated styrene butadiene polymer containing a minimum of 50% resin solids content; having a styrene butadiene ratio of 45:55; and having a Glass Transition Temperature of -32° C.

B. **BINDER B** - formulated styrene butadiene polymer containing a minimum of 50% resin solids content; having a styrene butadiene ratio of 65:35; and having a Glass Transition Temperature of -7° C.

C. **Ultraviolet Protectant/Pigment:** proprietary aqueous solution of black pigments.

D. **Rubber Particulate:** proprietary black SBR rubber particulate having a specific gravity of 1.15.

E. **Line Marking Paint:** acrylic line marking paint approved by the manufacturer of the track surface.

2.3 SUBSTITUTIONS

A. With any request for substitution, provide the following information in addition to the source of the proposed material:

1. **Latex:** Tensile strength and elasticity; glass transition temperature; styrene butadiene ratio

2. **SBR Rubber:** Compound content and sieve analysis

3. **List of five installations within 100 miles radius of this project that have had the same system installed within at least the last two years.**
PART 3 – EXECUTION

3.1 SCHEDULING
A. Inform the owner’s representative 48 hours prior to material placement. Any material placed when owner’s representative has not been given 48 hours notice may be required to be removed and replaced.

3.2 PREPARATION
A. New asphalt shall be allowed to cure for a minimum of 14 days prior to the installation of any surfacing material. Thoroughly clean the new asphalt substrate and check for deviations of planarity exceeding 3/16” when measured with a ten-foot straight-edge. Correct deviations exceeding this tolerance using asphalt. Minimum cross slope on the asphalt shall be 1%.

3.3 CONSTRUCTION
A. Mat Construction: The track and field event surface shall be constructed in accordance with the methods approved by the manufacturer of the system. The methods employed shall be designed to fully encapsulate all rubber particulate with a resin film of sufficient thickness to produce the required system tensile strength. Ultraviolet protectant/pigment shall be added to Binder A and B in accordance with the manufacturers recommendations and in sufficient quantity to protect the finished track system for the duration of the warranty period. The mat shall be constructed using the following material quantities:

1. SBR Resin: 2.7 to 2.9 dry lbs. per square yard of surface area.
2. Rubber Particulate: 12.5 to 12.7 dry lbs. per square yard of surface area.
3. Total System Weight: 12.2 to 13.4 dry lbs. per square yard.

B. Physical Properties: The finished surface shall be uniform in appearance, depth and density, and shall exhibit the following physical characteristics:

1. Thickness: 3/8” (9.5mm)
2. Color: Black
3. Spike Use: Yes, 1/8” Pyramid Type

END OF SECTION 32 1823.33
EXISTING PIPING, CONTAINMENT PIPING AND CONTAINMENT VENT PIPING BELOW SLAB TO BE ABANDONED IN PLACE UNLESS NEW WORK REQUIRES REMOVAL OF SPECIFIC RUNS OR SECTIONS.

SAW CUT EXISTING FLOOR, CAP EXISTING PIPING BELOW SLAB, PATCH FLOOR TO MATCH SURROUNDING FLOOR AND FLOOR FINISH.

CAP PIPE BELOW FLOOR WITH PERMANENT CAP OF SAME MATERIALS AS PIPING. PATCH FLOOR TO MATCH EXISTING.

REMOVE PROPANE TANKS AND ASSOCIATED PROPANE GAS PIPING SYSTEM.
EXISTING GAS MAIN TO REMAIN IN SERVICE UNTIL EXISTING GYM ROOFTOP UNITS ARE DEMOLISHED.
EXISTING HWR TO REMAIN ACTIVE UNTIL PHASE TWO DEMOLITION BEGINS. TEMPORARILY CONNECT EXISTING HWR RUN TO NEW HWR SYSTEM WHEN NEW DOMESTIC HOT WATER PLANT IS PUT IN SERVICE DURING PHASE ONE. REMOVE LAST SECTION OF EXISTING TEMPORARY HWR RUN WHEN PHASE TWO DEMOLITION BEGINS.
EXISTING HW AND CW MAINS TO REMAIN ACTIVE UNTIL PHASE TWO DEMOLITION BEGINS. TEMORARILY CONNECT EXISTING HW AND COLD WATER MAINS TO NEW RESPECTIVE SYSTEMS WHEN NEW PHASE ONE DOMESTIC WATER IS PUT INTO SERVICE. CAP NEW DOMESTIC CW AND HW MAINS AS INDICATED ON P301B WHEN PHASE TWO DEMILITION BEGINS.
1. Connect all electric door strikes to circuit 12.

Note this sheet:
1. Connect all electric door strikes this sheet.

2. Provide steam and audio/visual decoder for wall mounted LED monitor. Locate device above teacher's data outlet.

3. Connect all electric door strikes this sheet.

4. Provide phone, data cable, and jack in outlet box at 48" WP+12'-0" WP. Locate above teacher's data outlet.

5. Wall storage to be suitable for rolling door type. Door switch to be Door Horn Speaker I. Volume 12'-0" Above Floor

6. Kitchen Pantry to be suitable for pan area. Office to be suitable for art locker.

7. Toilet to be suitable for toilet area. Office to be suitable for art locker.
1. CONNECT ALL ELECTRIC DOOR STRIKES THIS SHEET TO CIRCUIT EXISTING UNDERGROUND COMMUNICATION FIBER CABLES BETWEEN TECH XLOS-47 AND HIGH SCHOOL SHALL BE REMOVED AND REINSTALLED AND EXTENDED THROUGH TECH AND THE HIGH SCHOOL VIA THE CONNECTOR CORRIDOR CABLE AND JACK IN OUTLET BOX AT 48" AFF IN EACH CLASSROOM AND EXTENDED VIA FUSION SPLICING TO THE NEW MDF ROOM. THE FIBER SPACE FOR INTERCOM PHONE. LOCATE ABOVE TEACHER'S DATA CABLES ARE TWO (2) SETS OF 12 SINGLE MODE AND 12 MULTIMODE FIBERS. OUTLET. COORDINATE FIBERS AND CONNECTORS. TERMINATE ALL 48 FIBERS. PLENUM RATED ARMOR CONDUIT FROM END TO END.
GENERAL NOTES THIS SHEET:
1. CONNECT ALL ELECTRIC DOOR STRIKES THIS SHEET TO CIRCUIT XLOS-49.
2. PROVIDE SLIM LINE WALL MOUNTED INTERCOM PHONE, DATA CABLE AND JACK IN OUTLET BOX AT 48" AFF IN EACH CLASSROOM SPACE FOR INTERCOM PHONE. LOCATE ABOVE TEACHER'S DATA OUTLET.
1. PROVIDE SLIM LINE WALL MOUNTED INTERCOM

2. PROVIDE STEAMING A/V DECODER FOR WALL MOUNTED LED MONITOR. LOCATE DEVICE BEHIND WALL MOUNTED MONITOR.