

# ADDENDUM NO. 5

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DATE: 3/5/2010

PROJECT: Computer Lab Expansion  
Blue Oak Elementary School  
2391 Merrychase Drive  
Cameron Park, CA 95682

Silva Valley Elementary School  
3001 Golden Eagle Lane  
El Dorado Hills, CA 95762

Job No. 09-073  
DSA File Number No. 09-04  
DSA Application No. 02-111066

FROM: Placerville  
ANOVA Architects, Inc.  
778 Pacific St.  
Placerville, CA 95667

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents and previous Addenda as noted below. Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of 2 pages plus attachments.

## **MODIFICATIONS TO PROJECT MANUAL:**

1. **Reference Section 10950**
  - a. 2.1 modify to read: "Assistive Listening System."
  - b. Delete Paragraph A and items 1, 2, 3 and 4 to article 2.1.
2. **Reference Section 16010 Electrical Work General Requirements:**
  - a. ADD paragraph F. to article 2.2 as follows: "Flush Multi Service Floor Boxes (4 Port): Floor boxes shall be cast iron, fully adjustable, Walker RFB4-CI-1 with two (2) receptacle brackets and accessories as follows: CIHT-GFI for surge suppression receptacles, CIHT-D for duplex outlet modular mounting frame for data communications, telephone, and/or CATV, and S38BBTCAL cover. Provide blank plates as required."
  - b. ADD paragraph H. to article 3.3 as follows: "Where floor boxes are shown on drawings, contractor shall review approximate locations with Owner and Project Inspector prior to rough-in and obtain exact locations for proper placement."

## **MODIFICATIONS TO DRAWINGS:**

### **ELECTRICAL DRAWINGS:**

1. **E1 Reference Sheet EB2.2D as follows:**
  - a. Floor Plan – Signal: Move Intercom Main Node (formerly Interior Rack) to west wall. At west wall, disconnect abandoned telephone cables and remove existing telephone terminal blocks to clear space. Remove all abandoned cables back to existing STC's in each building and replace with pullstring in each conduit. Provide label at both ends of pullstring to designate

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other end building. For bidding, figure cable quantity same as new speaker quantity in each building plus 25%.

**2. E2. Reference Sheet ES2.2B as follows:**

- a. Floor Plan – Signal: Move Intercom Main Node (formerly Interior Rack) to existing closet at (E) STB. Coordinate locations of main node equipment with space available. Disconnect abandoned telephone cables and remove existing telephone terminal blocks to clear space. Remove all abandoned cables back to existing STC's in each building and replace with pullstring in each conduit. Provide label at both ends of pullstring to designate other end building. For bidding, figure cable quantity same as new speaker quantity in each building plus 25%.

**MODIFICATIONS TO PREVIOUS ADDENDA:**

1. **Reference Addendum No. 3 and Specification Section 16730:**
  - a. REPLACE Section with new Section 16730 attached to this addendum.
2. **Reference Addendum No. 3 Item E4, revise as follows:**
  - a. DELETE items c. and d.
3. **Reference Addendum No. 3 Item E12, revise as follows:**
  - a. DELETE items d. and e.
4. **Reference Addendum No. 3, revise as follows:**
  - a. REPLACE 8-1/2" x 11" drawings ESK-1 and ESK-2 with 8-1/2" x 11" drawing ESK-3.

\* End Addendum No. [5] \*

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

- A. General Conditions and requirements of Division 1 and Section 16010 apply to work hereunder.
- B. Furnish and install a "Hybrid" VoIP Sound/Communications System; signal between buildings shall be run over existing fiber network, and once in buildings shall be converted to analog signal, amplified and run over new copper audio cables. Include all wiring and connections and other materials as shown on Plans and specified herein. It is the intent that complete operating systems be installed and that any power supplies, transformers, modules, cards, cages, programming, or other items required to achieve this end result shall be furnished whether or not such item or items are specified herein.

### 1.2 GENERAL REQUIREMENTS

- A. **SYSTEM REQUIREMENTS:** All of various equipment components to be complete with all appurtenant accessories required to provide specified facilities and perform specified functions throughout presently planned construction and space; and provisions for expanding system to provide same facilities, and perform same functions in all future planned construction, including space and mountings in consoles and terminal backboards.
- B. **EQUIPMENT TESTS AND STANDARDS:**
  - 1. For all equipment operating at 26 volts or more, or utilizing over 50 watts, Contractor to submit proof within time allowed for submittals that all items of equipment will conform to requirements of U.L. Label or listing of equipment by U.L. to be accepted as evidence of conformance.
  - 2. For all items of equipment operating at 25 volts or less, and utilizing less than 50 watts, Contractor may submit, in lieu of such label or listing, written certificate from any nationally recognized testing agency, adequately equipped and competent to perform such services, that each item has been tested and conforms to U.L. standards, including method of test of U.L.
- C. **INSTRUCTIONS AND MANUALS:**
  - 1. Equipment supplier of systems to demonstrate operation of systems to satisfaction of Owner and furnish Owner three (3) wiring schematics for all items of equipment, installation instructions, and details of all routine maintenance and servicing which must be given systems by Owner. Manuals shall be provided in 3-ring binders, with title page, list of contents, and conspicuous label on cover and shall be delivered to District. Refer to Section 16010 for additional requirements. Submit copy to Architect for approval before delivering to Owner.
  - 2. Supplier shall demonstrate operation of systems and provide training to all end users, administrative staff, and system administrator. Coordinate times of instruction with District, at District's convenience. Supplier shall provide a minimum of 4 hours of user instructions to clerical staff and 8 hours of user/maintenance instructions to District maintenance personnel. Instruction periods shall not coincide and shall be scheduled with District, not school staff.
- D. **SUBMITTALS:** Incomplete submittals (such as product data submitted without shop drawings,

etc.) will be returned without review. Submittals shall be complete and include catalog data, shop drawings, one-line diagrams, and scaled plan drawings. Building plans shall be 1/8"=1'-0", and site plans shall be no smaller than 1"=40'. Provide two (2) cross reference lists: (1) items of equipment with specified system function each item provides, and (2) specified system function with item of equipment which perform that function. Contractor shall also submit name of firms he proposes to do work under this Section, addresses, phone numbers, and name of firm's contact, for approval. Such firms shall be factory authorized representatives of the equipment specified, who shall furnish all equipment and specialty cables, make all connections to same, and place the systems in operation. Such firms shall have offices and service departments within a 100 mile radius of project and shall have been in business of this type for at least five years. Also, refer to requirement for shop drawings, substitutions, materials, and submittals in Section 16010, Electrical. Two submittal reviews will be made by the Architect's representative. Subsequent reviews will be charged to the Contractor. A rejection of a submittal or review of a partially presented submittal constitutes one submittal review.

- E. **RECORD DRAWINGS:** Refer to General Conditions. Final Inspection will not be made until drawings are received and approved. Record Drawings shall include "As-Built" one-line and wiring diagrams, with terminations identified, wire color coding schedule, pullbox locations, and conduit routing plans.
- F. **GUARANTEE:**
1. One firm to assume full responsibility for performance on all work of this section. Guarantee all equipment against defects in material and workmanship for one (1) year, and provide on-the-premises service during normal working hours for one year, at no cost to Owner if trouble is not caused by misuse, abuse, or accident, or at current labor rates if so caused. Provide manufacturer's written one-year guarantee for equipment and parts to Owner.
  2. Service shall normally be available within 24 hours from service department of authorized distributor of manufacturer by factory trained servicemen.
  3. On-the-premises service at other than normal working hours to also be available, but labor charges for such calls to be paid by Owner at current labor rates.

## PART 2 - DETAIL REQUIREMENTS AND PRODUCTS

### 2.1 **SOUND/COMMUNICATIONS SYSTEM**

- A. **GENERAL:** Furnish and install a complete and operational microprocessor-based school Intercommunications System with interconnection to telephone system. The system shall be Bogen PCM 2000. Bogen PCM is the District standard.
- B. **EQUIPMENT STANDARDS:**
1. System consists of Main Node (node is transition point from analog input/output convertor to digital with connection to existing LAN) near the MDF, and Satellite Nodes in each building. Main Node shall be affixed to the main terminal backboard. Satellite Nodes shall be in wall mounted cabinets. Refer to plans for exact requirements.
  2. Oscillators and amplifiers shall be solid state.
  3. All relays which switch electronic circuits to have precious metal contacts with minimum engineered life of 1,000,000 trouble-free operations.

4. All Speaker circuits to be 25 volt lines with individual speakers matched thereto by use of matching transformers with adjustable impedance taps.
5. All enclosures for all equipment to be of metal throughout system. Enclosures other than metal are not acceptable.
6. Speaker grilles to be non-directional diffusion type insulated from speaker by fiber mounting board. Dampening material to be installed between mounting board and grille to prevent metallic resonance.

C. **SYSTEM FUNCTION AND PRODUCTS:**

1. Automatic volume level control by means of a built-in compressor on classroom communications to assure a desirable, constant predetermined sound level on all conversations, with no need for manual volume controls and their repeated readjustment.
2. Adequate power (12 watts minimum) to override high noise levels in such areas as shops, multipurpose rooms, bus loading points, and playing fields, and to permit practical 2-way communication.
3. Ability to transmit a program or announcement simultaneously to all classrooms and speaker locations.
4. Input facilities for two (2) low-impedance microphones and two (2) auxiliary program sources.
5. Selective distribution of thirty-two (32) channels of clock program signals.
6. Provide software for system remote programming and diagnostics.

D. To fulfill the above requirements, the following equipment shall be provided:

1. Main Node:
  - a. Bogen PCM 2000.
  - b. Program Clock, American Time and Signal rogram Clock, American Time and Signal YMP02 Plus.
  - c. Universal telephone interface, Bogen UTI 1.
  - d. Multitone generator, Bogen T64C.
  - e. Telephone interface card.
  - f. 5 volt/12 volt power supply.
  - g. 26 volt power supply(s).
  - h. Multi VoIP Gateway, Bogen MVP410BG.
  - i. Power amplifier.
  - j. Punch blocks and MDF equipment prepared for tie-in of outside lines and inter-tie of intercom to telephone.

- k. 10-plug 20 amp plugstrip.
  - l. All of the associated material, hardware, and wiring necessary for a complete and satisfactorily installed operating system, which meets the specified requirements.
2. Satellite Node:
- a. Wall mounted terminal cabinet. Provide panelboard type construction, 12" deep by width and height as required. Provide shelves inside cabinet to hold gateway and amplifiers. Provide fourplex receptacle in cabinet with 120V wiring in flex.
  - b. Multi VoIP Gateway, Bogen MVP210BG.
  - c. 5 volt/12 volt power supply.
  - d. 26 volt power supply
  - e. Power amplifier.
- E. Two channels of clock program tone signals shall be transmitted to selected speakers by direction of clock programmer. Clock program tone signal shall be three simulated chime notes. Clock signal tone duration shall be adjustable from one to ten seconds.

## 2.2 REMOTE EQUIPMENT

### A. CLASSROOM SPEAKER:

- 1. Ceiling Speaker: Bogen CSD2X2 drop-in ceiling speaker.
- 2. Wall Speaker: Bogen MB8TSL surface mounted speaker.

- B. OUTDOOR SPEAKERS: Bogen FMH15T mounted in BBSM6 surface mounted vandal-resistant enclosure/BBGM6 flush-mounted vandal-resistant enclosure with FMHAR8 adapter ring and SGHD8 heavy duty grille..

## PART 3 - EXECUTION

### 3.1 INSTALLATION REQUIREMENTS

- A. Electrical Contractor shall retain the services of the duly appointed representative as specified hereinbefore, who shall furnish all equipment, make all connections to same, and place system in operation. Technician and workman employed shall be particularly skilled in this type of work. Workmanship on installed systems shall be of professional quality, best commercial practice.
- B. All wiring throughout entire system shall be installed in conformance with standard industry practice. Each equipment cabinet shall be provided with terminations as follows:
- 1. Communications signal system conductors shall be terminated on wire slot terminals. Terminal blocks shall be Siemens S66M1 Series, AMP Modular Connecting Block, or approved equal, with mounting base.
- Submittal shall show internal elevation of terminal cabinets with equipment laid out.
- C. All cables shall be run through fanning strip to terminals of terminal blocks.

- D. All audio cables within terminal cabinets shall be bound with plastic cable ties so that cables are in tight contact for their entire length.
- E. All audio circuit wiring external to equipment cabinets shall be of type of cable that will allow shields to be insulated from ground and audio circuits. Shields shall be grounded at point of lowest audio level only and shall be free of any other ground for their entire length. Where two (2) cables join or connect together on terminal strip, shields shall be insulated from all other conductors and connected together in manner similar to cable conductors.
- F. All cables entering terminal cabinet shall be identified with Panduit SSM4S-C or PLF/MA-C marker tie flags. Upon completion of installation, six (6) copies of one-line "as-built" wiring diagram shall be furnished to Architect.
- G. Each cable run on wiring diagram shall be identified with exact wire marker code (numerical or alphabetical) as appears in terminal cabinets.
- H. Station locations shall be identified by location and room numbers as furnished by District, and in all ways shall relate as closely as possible to record wiring drawings. Prior to performing final labeling and programming, coordinate information with District.
- I. **TELEPHONE SYSTEM INTERFACE:** Provide conduit, wire, labor, and miscellaneous materials to telephone switch as required to provide a two trunk interface. Closely coordinate work with District IT person.
- J. **DATA NETWORK INTERFACE:** Provide conduit and data cable to existing MDF and IDF as shown on 8-1/2" x 11" drawing ESK-3. Connect to patch panel as directed by District IT person. Contractor shall program new system gateways and District IT will program existing network as required. Contractor shall work closely with District IT person to insure proper interface and operation.

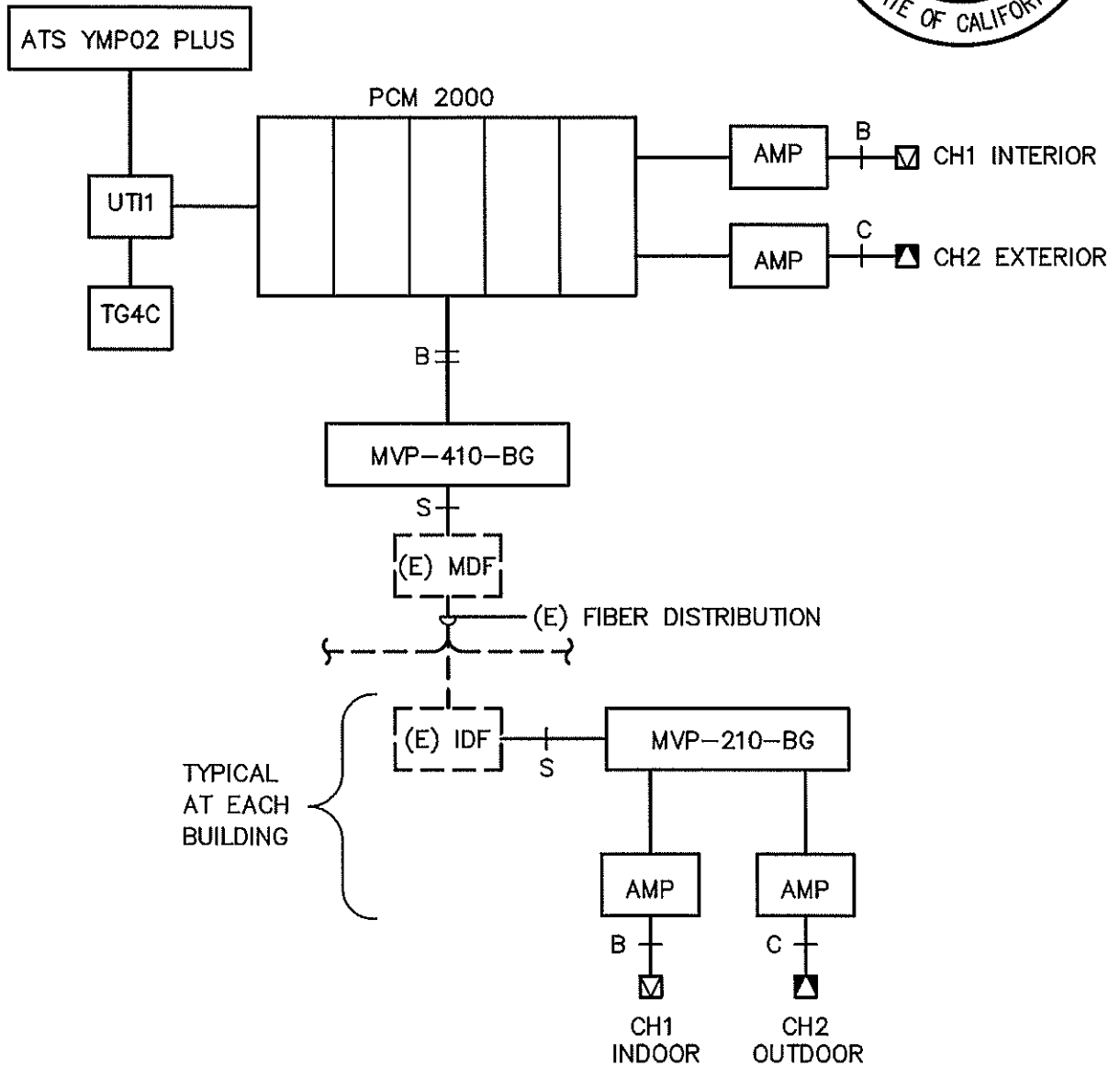
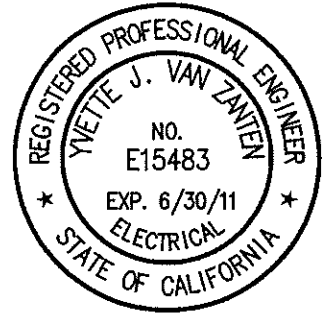
### 3.2 **CONSTRUCTION MEETINGS**

- A. The Contractor shall schedule construction meetings at the jobsite as follows:
  - 1. Prewire meeting shall occur after raceways are installed and prior to pulling of any wire or cable.
  - 2. Pre-termination meeting shall occur after wire and cable has been installed and prior to termination.
- B. Meetings shall be scheduled by the Contractor on a building by building basis and shall include the Project Inspector, School's Representative, the electrical subcontractor, and the Signal System subcontractor as a minimum.

### 3.3 **TESTS**

- A. After all equipment specified herein has been installed and is in operating condition, performance tests shall be conducted by Contractor to determine that installation and components comply with these specifications. Contractor shall furnish competent personnel for these tests.
- B. Testing shall be scheduled with the Owner and the Project Inspector and shall occur after receipt by Architect of Contractor's written certification of completion, record one-line diagram, wiring diagrams, maintenance and operation manuals, and other "As-Built" data required by these specifications. Tests shall be scheduled with School before occupancy occurs.

\* End of Section 16730 \*



## NEW INTERCOM SYSTEM - ONE LINE DIAGRAM

X:\4306\AD\8X11-COLD-PCM

Last Save: Mar 04, 2010 - 4:10pm James

**ANOVA**  
ARCHITECTS  
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PROJECT

**BLUE OAK & SILVA  
VALLEY ES**

DATE

3-04-10

JOB

09-073

REFERENCE SHEET

DOCUMENT TYPE

APPLICATION

02-111066

SHEET

ESK-3