ADDENDUM # 1 *Dated: July 31, 2015*

TO CONTRACT DOCUMENTS FOR:

PRE-K-8 SCHOOL AT MOLLY OCKETT
MSAD # 72, FRYEBURG SCHOOL DISTRICT
FRYEBURG MAINE
BUILDING CONTRACT

PREPARED BY:

STEPHEN BLATT ARCHITECTS
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5 SOUTH STREET
PORTLAND, MAINE 04101-0583
207-761-5911
Attn: Ron Rioux, email: rjr@sbarchitects.com

To all interested parties:

This addendum modifies, amends, and supplements designated parts of the Contract Documents, Project Manuals, and Drawings for this Project (as noted above) and is hereby made an integral part thereof by reference and shall be as binding as though inserted in its entirety in the location specified herein. It shall be the responsibility of the Contractor to notify all Subcontractors and suppliers he/she proposes to use for the various parts of the work of any changes or modifications contained in this addendum. The Contractor shall acknowledge receipt of this addendum in the appropriate section of the Bid Form.

NOTICE TO BIDDERS:

The following documents are enclosed with this addendum:

1. Sign in sheet for Pre Bid Conference pages 1
2. Fire Pressure for Proposed Molly Ockett School Additions. Pages 2

NON MANDATORY PRE BID CONFERENCE, July 29, 2015

Answers to questions asked at the Pre-Bid Conference: (See attached attendance sheet)

1. Question: Are there negative pressure and indoor air quality requirements specified for renovations and who is responsible for this? *Answer: See Section 01 10 00 Summary for requirements pertaining to construction in or adjacent to the occupied school.*

2. Question: Are there Fire Protection drawings? *Answer: Drawings A0.1 and A0.2 Code Egress Floor Plans show code requirements for the project including fire / smoke ratings for partitions and sprinkler Hazard levels by area. Sprinkler Specifications are a performance spec.*

3. Question: Do Davis Bacon wage rates apply to this project? *Answer: David Bacon wages do not apply to this project.*

4. Question: What is to be done with the concrete pads in the existing boiler room? *Answer: Existing concrete equipment pads must be removed and the floor patched to smooth sealed concrete surface.*

5. Question: is Romex or MC wiring required for this project? *Answer: See specification section 26 05 19 Low Voltage Electrical Power Conductors and Cables.*

6. Question / Discussion: Who is responsible for cutting and patching access for the sprinkler installation? There are a number of strategies that could be used to access attics and other concealed areas which could lower costs to the Owner. This would require the General Contractor and Sprinkler Subcontractor to work out the "means and methods" attendant to sprinkler installation, cutting and patching in the existing occupied building. ***Answer: Division 21 Section, Fire Protection Sprinkler System will not be a filed sub proposal. Revised Section 2-B-1 Proposal Form for General Contractors is included in this Addendum.***

7. Question: Are attic truss areas heated? *Answer: The existing pitched roof areas are not heated, they are vented roof areas.*

8. What is the Water Pressure to the school? *Answer: Contractors are required to confirm water flows with hydrant flow tests and the Fryeburg Water Company. Included in this addenda is a July 31, 2013 memo from FST extrapolating flows from Fryeburg Water Company data that is several years old.*

9. Builders Risk: *Requirements are specified in Section 3-A, State of Maine General Conditions For Public School Projects, Article 26, Contractor's Insurance Requirements*.

DRAWINGS:

Drawing D1.1, First Floor Demolition Plan. In Mechanical Room Add note to remove existing concrete equipment pads, repair floor to smooth sealed concrete slab.

FS-1 Food Service Equipment Plan: Equipment Schedule, Item # 30 is a new single Combi Oven as specified in Section 11 40 00 Food Service Equipment. Delete the words Double and (existing).

PROJECT MANUAL:

1. Section 2-B-1, Proposal Form for General Contractors**: Revised to Delete Filed Subcontract Proposal for Dry/ Wet pipe Sprinkler System Division 21**.

2. Section 01 10 00 Summary, Add the following Article 1.10B:

1.10B MINIMUM REQUIREMENTS FOR CONSTRUCTION IN OR ADJACENT TO THE OCCUPIED SCHOOL.

a. Objective: To provide separation between construction activities and the occupied areas of the school that will provide a safe and comfortable environment for the school to continue operations.

b. Requirements: Contractor shall submit the following for Owner and Architects' approval prior to doing any work within or near the existing building:

i. A detailed site / building perimeter plan showing locations of all temporary fencing with the proposed access gates along with a written description of how construction activities and deliveries will be coordinated around the school's bus and parent delivery and pick up schedules, as well as exterior school activities.
ii. A detail plan showing where temporary partitions will be installed to allow construction activities without blocking means of egress for the occupied school or creating a dead end corridor.
iii. A written indoor air quality plan explaining in detail how the contractor will prevent dust and fumes from leaving the construction areas.

c. All temporary walls must be constructed from floor to underside of decking above. Walls must be constructed of metal studs with sheetrock on occupied side of partition, taped, sanded and painted. Partitions must be insulated for sound and poly installed on construction side sealed to floor, adjoining walls and deck above. Any penetrations through this wall must be sealed.

d. Avoid installing doors in the temporary walls where possible. If a door is required for egress or access to the construction zone an exterior door with weather stripping shall be used, and an air lock constructed out of poly be installed on the construction side of the partition. This air lock is required to prevent dust and fumes from escaping the construction area when the door is opened.

e. All existing walls that make up part of the separation between construction and occupied space must be inspected and any/all penetrations through this wall must be sealed. If wall doesn't extend to decking above, it must be sealed with poly and all edges of poly be sealed to existing partition and decking above. All penetrations through this poly must be sealed.

f. The use of sticky mats and walk off mats must be used at all temporary doors leading from the construction zone to an occupied area.

g. All construction areas in new additions, as well as within the existing building (when possible) be placed under negative pressure by use of negative air machine / air scrubber. Machines must be running continuously during construction activities and filters maintained. To create the negative pressure, machines must be vented to the exterior of the building. Venting into the construction space will help clean the air but will not place the space under negative pressure. The negative pressure is important because it helps prevent dust and fumes from migrating into occupied spaces.

h. Review the layout and operations of all the existing ductwork and mechanical equipment in the construction area. Take note of any system that supplies to both the construction area as well as occupied spaces. Where possible, shut down the equipment and seal off ductwork that is common with both the construction area and occupied spaces. Existing mechanical equipment that is to stay in the construction area must be wrapped to prevent construction dust from getting into the unit. Units that must remain running should have temporary filters installed and inspected and changed as required throughout the construction activity. When construction and final cleaning is complete, the temporary can be removed.

i. Cutting of masonry and concrete dust shall be done wet and the slurry cleaned up before it dries. Drilling and grinding shall be done with HEPA vacuums attached. Where possible, cutting of masonry, stone or tile shall be done outside of the building. Locate these activities away from air intake vents or operable windows.

j. When possible, perform activities that cause fumes on off hours to allow sufficient time to off-gas before occupants return to the building. Review products being used to see if an alternate product, which would give off fewer fumes, can be substituted.

k. Activities that could cause excessive noise and / or vibrations must be scheduled off hours.

l. Take precautions to prevent equipment exhaust from being sucked into building air intakes. Park unused equipment as far away from air intakes as possible. Do not let equipment idle near building air intakes.

3. 02 41 19, Demolition: This section applies primarily to the site contract. Bidders should review portions of the Maine DEP Section, Solid Waste as it applies to building construction, renovations and disposal.
   a. Delete A1.1, A.
   b. Delete A1.1, C
   c. Delete 3.7

4. 06 41 00, Modular Casework, 1.5 A add the following Pre-Qualified Manufactures.
   a. J.C. Millworks, Mount Vernon Maine
   b. Pond Cove Millworks, Cape Elizabeth Maine
   c. Trico, Millworks Inc. Limington Maine
   d. Precision Millworks, South Portland Maine
   e. Saco Bay Millworks, Buxton Maine

5. 06 64 00, Plastic Paneling, 2.2, B, Adhesive: Shall comply with State of Maine VOC regulations. Delete specified adhesive and change to Tite Bond Fast Grab TD.

6. 07 72 00, Roof Accessories: 2.2 Roof Hatch, A,1: Subject to compliance with requirements Roof Hatches manufactured by Babcock-Davis is acceptable. Note that the specified size of 30"x66" is a custom size and required.

7. 10 22 26, Operable Partitions, 2.2, A, 1, add the following: C. subject to compliance with drawings and specifications add Moderco, Signature Series 8500 for paired panels and 8600 for single panels. Note: Specified STC ratings are minimums.

8. 31 20 00, Earth Moving, Page 8, 3.11, D, Compaction Testing: Compaction Testing required for the Building Contract. Compaction testing for perimeter foundation, change 150 linear feet 50 linear feet.

MECHANICAL:
PROJECT MANUAL:

1. **230900, Para. 2.10.A.1: ADD the following sentence: " The boilers have a Modbus, Bacnet or LonWorks interoperability interface, coordinate with the boiler manufacturer to display all available boiler parameters at the BMS."**

2. **230501, para. 3.01.A: REVISE as follows: "The demolition and removal of all mechanical and plumbing components is part of the work of the Mechanical Contractor. The Mechanical Contractor shall coordinate the demolition work with the building use and phasing plan" DELETE para. #.1.A.1.**

3. **230000, Heating, Ventilating and Air Conditioning, para. 2.7.A., ADD the following sentence: Heattek (Blue Flame Stoker) shall be an acceptable substitute manufacturer provided all specifications requirements are met.**

4. **23 00 00, Heating, Ventilating and Air Conditioning, para. 2.1.A., REVISE as follows: Hot Water Heating Piping (HWS/R), Chilled Water Piping (CHWS/R): Schedule 40 carbon steel pipe conforming with ASTM A53 or ASTM A106 with grooved or threaded joints and malleable iron fittings (2-1/2" pipe size and under). Mechanical press connections (Viega MegaPress) may also be used up to 2" with the above mentioned standards. Pipe sizes 3" and over shall be grooved end or butt-welded with flanged connections. All 90 degree elbows shall be long radius type.**

5. **23 00 00, Heating, Ventilating and Air Conditioning, para. 2.1.B., REVISE as follows: Condensate Piping: Type L hard copper tubing and cast bronze or wrought copper solder or Victaulic Permalynx fittings or Schedule 40 PVC (solvent-welded). Mechanical press connections are also permitted provided they meet manufacturer's approval for specified application. (Viega ProPress or equivalent).**

6. **23 00 00, Heating, Ventilating and Air Conditioning, para. 2.2.A., REVISE as follows:**

    3. **Mechanical Press Fittings shall conform to ASTM A420 or ASME B16.3 and performance criteria of IAPMO PS117 or ICC LC1002.**

    4. **Stainless steel fittings and pipe may be used in lieu of steel pipe with screwed fittings in applicable piping systems. Pipe shall conform with ASTM A312, Type 304/304L, Schedule 5S stainless steel with precision, cold**

drawn, austenitic stainless steel with elastomer O-ring seals. Victaulic Vic-Press 304™ or Viega ProPress 304 Stainless Steel Fittings w/ Viega Schedule 5 - ASTM A 312 tubing .

7. **23 00 00, Heating, Ventilating and Air Conditioning, para. 2.2., ADD paragraph F. as follows:**

   F. **Mechanical Press Joints & Fittings - : ½-inch through 2-inch shall conform to IAPMO PS117 or ICC LC1002. Fittings shall have a rust resistance coating such as zinc/nickel and be listed for use with IPS schedule 5 thru schedule 40 carbon steel pipe conforming to ASTM A53, ASTM A106, ASTM A135, or ASTM A795. Fittings shall also have an EPDM sealing element, 420 stainless steel grip ring, 304 stainless steel separator ring, and leak detection feature which identifies un-pressed fittings during testing. Installation must be in accordance to manufacturer's instructions and specifications utilizing manufacturers recommended tooling.**

      1. **Viega MegaPress or equivalent.**

8. **23 00 00, Heating, Ventilating and Air Conditioning, para. 3.2., REVISE paragraph I. as follows:**

   I. **Steel piping shall have screwed, grooved end, welded or mechanical press connections. Threads on piping shall be full length and clean cut with inside edges reamed smooth to the full inside bore. Close nipples shall not be used. Pipe threads: standard pipe threads, machine cut and full length. Pipe: reamed to remove burrs and up ended and rapped to dislodge dirt and scale. Joint compound shall be applied to male thread only. If it is necessary to back off a screwed joint after it is made, the thread shall be cleaned and new compound applied. Caulked threads will not be permitted. Mechanical connections ½" – 2" must be made to manufacturer's specifications and instructions. Installers shall be trained on proper installation by manufacturer.**

9. **23 00 00, Heating, Ventilating and Air Conditioning, para. 3.2., REVISE paragraph N. as follows:**

   N. **Viega, ProPress copper, bronze and stainless steel fittings ½" – 4": Sealing element shall be verified for the intended use. Tube ends shall be cut on a right angle (square) to the tube. Tube ends shall be reamed and chamfered, all grease, oil or dirt shall be removed from the tube end with a clean rag. Visually examine the fitting sealing element to ensure there is no damage, and it is properly seated into the fitting. Utilizing a Viega Insertion Depth Inspection Gauge mark the tube wall, with a felt tip pen, at the appropriate location, or insert the tube fully into the fitting and mark the tube wall at the face of the fitting. Always examine the tube to ensure it is fully inserted into the fitting prior to pressing the joint. Installation must be in accordance to the most current edition of the manufacturer's installation guidelines.**

DRAWINGS:

1. **Mechanical and Plumbing Drawings Plan Scale is 1/8"=1'-0" Unless Otherwise Noted.**

2. **Drawing P2, The 4" domestic water service shall be separated from the sprinkler service 10'-0" outside the building.**

3. **Drawing P2, ADD the following: "Provide 1¼" compressed air piping (Schedule 40 carbon steel) from the air compressor to Boiler B3 for automatic tube cleaners. Coordinate locations with the boiler manufacturer."**

4. **Drawing P3, ADD the following note: "Remove the strainers from the floor drains in the kitchen and existing boiler room and replace with solid covers, flush with the finished floor."**

5. **Drawing M10, The "Autoflow Valve Piping Schematic with 2-way Valve", also applies to Variable Air Volume Boxes with Control Valves (¾") and IFWH-1. Pipe sizes for IFWH-1 shall be 2".**

6. **Drawing M7, "Air Separator Performance Schedule", ADD AS-2 information as follows: 80.0 GPM, 1.0' pressure drop, 150 psig rated working pressure, 3', Taco Model 4903 A-D.**

7. **Mechanical Drawings, Provide 3-way control valves in lieu of 2-way control valves at RFM-#1, #2, #22, #24, #35.**

ELECTRICAL:

PROJECT MANUAL:

1. **Add Section 260000 - GENERAL ELECTRICAL REQUIREMENTS**
2. **Add Section 260600 - MINOR ELECTRICAL DEMOLITION FOR REMODELING**
3. **287000 - DETECTION AND ALARM, Add paragraph 1.3 RELATED DOCUMENTS to read as follows:**

   1.3 RELATED DOCUMENTS

   A. Section 287250 - VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS

   B. Section 287500 - ANALOG ADDRESSABLE FIRE ALARM SYSTEM

4. **287000 - DETECTION AND ALARM, Add paragraph – 0.5 Security/Access/Hardware Coordination Drawing A1.14 - Electrical Contractor is responsible for complete operational systems shown on Drawing A1.14 Security/Access/Hardware Coordination Drawing. GC shall supply and install door hardware wired by Electrical contractor. Electrical contractor shall coordinate, supply and install ALL equipment/materials and wiring for complete door access control, door intercom, intrusion alarm, Security camera system as indicated and described on Drawing A1.14.**
5. **287000 - DETECTION AND ALARM, Add paragraph – Wireless emergency button system - There will be one wireless emergency button system composed of one kit located at the burglar alarm panel Bosch ENKIT-SDi2 Interface and EN4200**

receiver kit. There will be two repeaters, one to cover the rear playground area and one in the office to cover the bus area EN5040-T. Each of these repeaters will require a 120 VAC outlet and they will be located above the ceiling. There will be ten portable transmitters supplied EN1235SF.

6. **287000 - DETECTION AND ALARM, Add paragraph - access control system will be supplied with qty (100) FOBs Bosch part #ACT-IC2K26-10.**
7. **287000 - DETECTION AND ALARM, Add paragraph – electrical contractor shall provide and install Aiphone JM-4MED at school reception area and qty (4) Aiphone weatherproof door stations at doors indicated on drawing A1.14. Electricla contractor responsible for complete operational system.**
8. **Add Section 287250 - VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**
9. **Add Section 287500 - ANALOG ADDRESSABLE FIRE ALARM SYSTEM**

DRAWINGS:

1. **KP1-Kitchen Electrical Plan: Provide Fire Alarm monitoring of the kitchen hood system.**
2. **E3.0-First Floor Power Plan Part 1- Provide Fire Alarm Strobe in rooms:**
    a. **Speech S1467**
    b. **STU Supp RTI S158**
    c. **T-1 S157-7**
    d. **T-1 S156-7**
3. **E3.1-First Floor Power Plan Part 2-**
    a. **Provide Fire Alarm Strobe in rooms:**
        i. **T-1 W136-7**
        ii. **Music Alcove W113-7**
        iii. **SM Conf N110-15**
        iv. **Calm W131-7**
        v. **Files N109-28**
        vi. **Work Rm E163-15**
    b. **Provide Fire Alarm Horn/Strobe Device in rooms:**
        i. **Music w118-7**
        ii. **Library E116-21 Qty (3)**
    c. **In Cafeteria E150-11, replace two speaker/strobes with horn/strobes.**
    d. **In gym, add UL listed wire guards on all of the Fire Alarm audio/visual devices.**
4. **E3.2-First Floor Power Plan Part 3**
    a. **Provide Fire Alarm Strobe in rooms:**
        i. **Nurse 123-3**
        ii. **Clinic E126-23**
        iii. **Conf E118-15**
        iv. **Calm E146-6**
        v. **Psych Exam E134-15**
        vi. **Psychol E135-15**
    b. **Provide Fire Alarm Horn/Strobe Device in rooms:**
        i. **MESA/Science X114A-6**
    c. **Provide Fire Alarm Pull Station at Exterior door in room:**
        i. **MESA/Science X114A-6**
5. **Drawing E4.0 – Symbol Legend – Add to description of Wall clock – Wall clocks in all rooms shall be 12" Analog, white face, black hands, 12 hour - Sapling Model # SAI-212-11 Battery operated clock. Battery clock in Gym shall be 16" Analog, white**

face, black hands, 12 hour with WIRE GUARD Sapling model# SAAI-216-11.

6. **ALL Power Drawings - Add Notes:**
    a. **All classroom strobes and mechanical room strobes shall be rated at 75 candela.**
    b. **Electrical Contractor is responsible for complete operational systems shown on Drawing A1.14 Security/Access/Hardware Coordination Drawing. GC shall supply and install door hardware wired by Electrical contractor. Electrical contractor shall coordinate, supply and install ALL equipment/materials, conduiit and wiring for complete door access control, door intercom, intrusion alarm, security camera system as indicated and described on Drawing A1.14.**

END OF ADDENDA

SECTION 2-B-1

PROPOSAL FORM FOR GENERAL CONTRACTORS
(PUBLIC SCHOOL PROJECTS)

BIDDER: _____

_____

_____

TO: **Jay Robinson, Superintendent of Schools**
MSAD # 72 Fryeburg Maine
124 Portland Road
Fryeburg Maine 04037

A. Having carefully examined the form of contract, general conditions, special provisions and plans and specifications dated **July 16**, **2015**, Prepared by: **Stephen Blatt Architects** for the **PreK-8 School at Molly Ockett, Fryeburg Maine, Building Contract** as well as the premises and conditions affecting the work, we the undersigned propose to furnish all labor, equipment and materials necessary for and reasonably incidental to the construction and completion of this proposal for the amount of:

1. Base Bid:

   Words: $_____

   Numerals: $_____

2. The above amount includes the following allowances:

   Item: __Not Applicable_____ Allowance $_____

B. Alternate Prices as follows: **Refer to Section 01 23 00 Alternates:**

Alternate No. 1 **Additional Brick Veneer:**
Add $_____ Subtract $ _____

Alternate No. 2: **Operable Partitions in K-1 and MESA:**
Add $_____ Subtract $ _____

Alternate No. 3: **Additional Casework:**
Add $_____ Subtract $ _____

Alternate No. 4: **Replace Exterior Doors and Hardware in Existing Building:**
Add $_____ Subtract $ _____

Alternate No. 5: **Replace Windows in Existing Building:**
Add $_____ Subtract $ _____

Alternate No. 6: **Upgrade Existing Air Handler Motors:**
Add $_____ Subtract $ _____

Unit Prices as follows: (No Unit Prices)

Item: _____Add $ _____ Subtract $ _____

Item: _____ Add $ _____ Subtract $ _____

C. This proposal includes the following addenda to the plans and specifications:

Addendum No. _____, Dated _____ Addendum No._____, Dated _____

Addendum No. _____, Dated _____ Addendum No._____, Dated _____

Addendum No. _____, Dated _____ Addendum No._____, Dated _____

D. Filed Subcontract proposals as follows: (list those trades required, but do not combine trades except as called for.)

Trade Name of Subcontractor Amount

Plumbing Division 22 and HVAC Division 23:
_____ **$** _____

Electrical Division 26, Communications Division 27 and Electronic Safety & Security Division 28:
_____ **$** _____

The undersigned agrees that each of the above named subcontractors represents a bona fide SUBPROSAL based on the plans and specifications and will be used for the work indicated at the amount stated, unless a substitution is made by mutual agreement as provided for in section 1, paragraph6, "Instructions to bidders". In the event alternate prices are requested and various trades are involved, the general contractor may use properly filed sub-proposals even though a change in subcontractors from those carried in his base proposal may occur. If he does use different subcontractors because of alternates, he shall use supplemental sheets attached to the proposal form (2-B1) to indicate such changes.

E. The undersigned agrees, if this proposal is accepted, to sign a contract and deliver it. Along with the bonds and affidavits of all insurance specified within twelve (12) calendar days after the date of notification of such acceptance, except if the 12th day falls on a holiday, a Saturday or Sunday, then the conditions will be fulfilled if the required documents are received before 12 o'clock noon on the day following the holiday, or the Monday following the Saturday or Sunday, and as a guarantee thereof, herewith submits a certified or cashier's check or bid bond as required.

The undersigned agrees, if awarded the contract, to complete the work on or before:
June 15, 2017_____

This proposal includes the cost of a 100% performance bond and a 100% payment bond.

Signed _____

BY _____

Address _____

Note: If the bidder is a corporation, write State of incorporation, and if partnership, give full names of all partners.

SECTION 260000

GENERAL ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Divisions 26, 27 and 28 Sections.

1.02 SCOPE OF WORK

A. The work to be accomplished under this contract involves the following:

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. ANSI C2 - National Electrical Safety Code.

C. ANSI/NFPA 101 - Life Safety Code.

1.04 RELATED REQUIREMENTS

A. Conditions of the Contract and Division 1 - General Requirements, apply to all work, including work of this Division. Examine all contract documents for requirements affecting this work.

1.05 SUBMITTALS

A. Submit under provisions of Division 01.

B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

C. Mark dimensions and values in units to match those specified.

D. Provide fixture schedule, lighting drawings, panelboard schedules and single line or risers diagram(s) to supplier for assistance in pricing as applicable. Contractor shall receive one set of black line drawings for reproduction from the engineer for this purpose.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable local, State and Federal Building Code for the State of Maine.

B. Electrical: Conform to NFPA 70, NFPA72, NFPA 99, NFPA 101, ANSI C2, 2 FM, UL, and applicable ASTM and ANSI Standards.

C. Contractor shall visit the site to become familiar with all existing conditions affecting this work. No claim shall be recognized for extra compensation due to failure of contractor to familiarize himself/herself with the conditions and extent of proposed work.

D. Obtain permits and request inspections by local authority having jurisdiction.

1.07 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Engineer before proceeding.

1.08 TEMPORARY LIGHT AND POWER

A. Temporary light and power shall be installed and maintained by the Electrical Contractor for use by all trades for the duration of construction complete with all wiring, switches, protective devices and similar equipment as may be required. Arrangement for the temporary service with the Power Company is the responsibility of the Electrical Contractor. Power bills will be paid by the General Contractor. Provide 120/208 volt or 120/240 volt 100 ampere, drop box similar to standard CMP detail 980-31.1.4. Provide 15-20 watt self ballasted compact fluorescent, lamps with plastic “cages” as needed. or 4 foot twin lamp (T8) fluorescent tamper-proof, gasketted and water-tight as required.

1.09 CONTRACT DRAWINGS AND SPECIFICATIONS

A. It is to be understood that drawings accompanying these specifications are intended to show general arrangement and extent of work to be done, but exact location and arrangement of all components shall be determined as work progresses. Anything shown on the drawings and not specifically mentioned in specifications or vice versa shall be considered as required in both.

B. Locations of equipment, and materials, etc., as given on drawings are approximate unless dimensioned. It shall be understood they are subject to such modifications as may be found necessary or desirable at time of installation in order to meet any structural conditions. Such changes shall be made by the contractor without extra charges.

C. Because of small scale drawings, all required offsets, etc., as may be required to clear work of other Contractors, may not be shown. Contractor, however, shall provide all necessary offsets, etc., as required to complete the installation of their

work and not conflict with that of others.

D. It is the intention that wiring systems shall be complete and fully operational. The contractor shall identify system components during the bid process that clearly constitute conditions that would cause the system to be incomplete. Clarification: The remedy to these discrepancies shall be communicated by the engineer to all bidders or included as an addenda.

1.10 MATERIALS AND LABOR

A. Bidders for this work shall carefully examine the Plans and Specifications, as the Contractor shall be required to furnish all materials and labor necessary to deliver to the Owner a complete system installed in full accordance with Local State and Federal laws. The system shall be furnished as specified, tested, and turned over to the Owner in perfect operating condition.

B. All materials shall be new and of best quality of their respective kinds. Workmanship in all respects shall be of highest grade and all construction shall be done according to best practices of the trade. Materials shall be warrantied directly by the manufacturer.

C. Contractor shall provide, when required for review of Engineer, labeled samples of any material or equipment specified herein or proposed to be used on this project.

D. Where words "furnish", "provide" or "install" are mentioned, either singly or in combination, these words are hereby interpreted to mean "furnish and install" or "provide and install," including all materials complete with all connections, supplemental devices, accessories and appurtenances, unless specifically otherwise noted. These words are likewise hereby interpreted as being prefixed to all materials, equipment, and apparatus hereinafter mentioned, either in abbreviated or schedule information.

1.11 PROTECTION OF WORK AND MATERIALS

A. Contractors shall be responsible for the care and protection of all materials delivered and labor performed until the completion of the work.

B. Cap all uncompleted lines, raceways, and ducts until ready for final connections, or future work as indicated.

C. All portions of the work liable to damage by weather or by those engaged on the project, must be securely protected by temporary, but substantial covering which must be maintained in position until Engineer authorizes removal.

1.12 REPLACEMENTS

A. In the event of damage to any equipment or materials, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to

the Owner.

1.13 SAFETY REGULATIONS

A. All work to be performed and/or installed shall conform to all requirements of the Occupational Safety and Health Act (OSHA) of 1970 and all Amendments thereto.

1.14 INSURANCE

A. The Contractor shall purchase and maintain all Workmen's Compensation Insurance, Public Liability and Property Damage Insurance during the progress of the work and until completion and acceptance of the entire project by the Owner.

1.15 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work using persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and physical distortion or disfigurement.

1.16 SCHEDULE OF MATERIALS AND EQUIPMENT

A. As soon as practicable, and before commencement of installation of any material or equipment, a complete schedule of materials and equipment proposed for installation shall be submitted for review. Schedule shall also include a list of all proposed subcontractors. Partial or incomplete lists will not be considered. Any materials, fixtures, and equipment not conforming to specifications may be rejected. Also see Section 01300, Submittals .

B. Orders for purchase of any devices, material, conduit, etc., or other equipment shall not be placed until this schedule is reviewed.

1.17 UNDERWRITER'S APPROVALS

A. All electrical materials and equipment shall bear label of Underwriter's Laboratories, shall be listed by them in their list of electrical fittings and shall be approved by them

for purpose for which they are to be used, unless materials and equipment are of a type for which Underwriter's Laboratories does not list or provide label service.

1.18 SUBSTITUTIONS

A. Where the specifications allow the substitution of a product for that which has been specified, said substitution must be reviewed by the Engineer and shall be equivalent in all respects to that which is specified. The Engineer's decision shall be obtained on all questions as follows, and his/her judgment shall be final and binding on all parties.

B. Reference in the specifications or on the drawings to any product, material, fixture, form or type of construction, etc., by proprietary name, manufacturer, make or catalog number, shall be interpreted as establishing a standard of quality or design and shall not be construed as limiting competition. The Contractor may, at his/her option, use any fully equivalent substitute provided written review by the Engineer is first obtained indicating acceptance of the equality of the substitute preferred.

C. For materials or equipment which are supplied with integral or factory applied finish, the colors of same shall be considered in evaluating substitutions.

D. For the purpose of avoiding conflicts with other trades, contracts, and adjoining work where more than one (1) article, device, material, fixture, form or type of construction, etc., is referred to by proprietary name, manufacturer, make or catalog number, the first named shall be used as the basis of design and details. The cost of any changes of approved equivalent item shall be borne by the Contractor requesting such change.

1.19 RECORD DRAWINGS

A. During construction, the Contractor shall keep an accurate record of all deviations to the installation of the work as indicated on the drawings. Upon completion of the work, the Contractor shall furnish a copy of this record to the Engineer, on a black line of the original which will be available from the Engineer. Submit record drawings before requesting final payment.

1.20 MANUFACTURER'S REPRESENTATIVE

A. At appropriate times, or as directed by the Engineer, provide the services of a competent factory trained Engineer or Technician of the particular manufacturer of equipment or item involved, to inspect, adjust, and place in proper operating condition any and all such items of manufacture. No additional compensation shall be allowed Contractors for such service.

1.21 MANUFACTURERS' INSTRUCTIONS, AND OPERATION AND MAINTENANCE DATA

A. Provide for each item of equipment or apparatus furnished, a complete set of printed

instructions obtained from the manufacturer covering proper operation, care, lubrication, cleaning, servicing, adjustment, etc., together with any special safety instructions.

B. Manufacturers' data shall further include performance data (time current curves, where applicable), complete parts lists, recommended spare parts lists, and wiring diagrams.

C. Data shall be arranged in complete sets, properly indexed and marked.

D. Data shall include complete set of shop drawings.

E. Material shall first be submitted in preliminary fashion for review by Engineer. After approval, Contractor shall submit two (2) copies in bound volumes to the Engineer for distribution.

F. Provide contacts for service agencies for all major system components.

1.22 GUARANTEES

A. An item becomes "defective" when it ceases to conform to this Contract Document. Guarantees beginning on the date of issuance of the Owner's final payment, or certificate of substantial completion, with Owner taking occupancy or beneficial use thereafter.

B. Upon completion of the work and before applying for final payment, furnish a written guarantee, stating that the work complies with the provisions of codes listed herein and the local enforcing authorities, and that it will be free from defects of material and workmanship for the required guarantee period. Guarantee shall further state that the Contractor will, at his own expense, repair and/or replace any of his material and work which may become defective during the time of guarantee, together with other work damaged as a consequence of such defects. All manufacturers written warranties shall apply to materials. Warranties other than that of the manufacturer are not acceptable.

C. The guarantee period shall be one (1) year except when longer periods are indicated for specific equipment.

D. All materials in Division 16 where a written warranty is published shall require the warranty to be offered by the product manufacturer.

1.23 EXISTING UTILITIES AND EQUIPMENT

A. Extreme care shall be taken to protect existing utilities and equipment above and below grade and in all other locations. Information contained on drawings is not guaranteed as to location, invert, etc. but represent the best information available as to the location of underground and concealed utilities and equipment. The Contractor shall be responsible for the replacement of all damaged or broken utilities or equipment due to their work or operations.

1.24 ENERGIZING EQUIPMENT

A. Obtain Owner's written approval before energizing any equipment.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 CONNECTION TO EQUIPMENT

A The Contractor shall be responsible for proper wiring and raceway connections to equipment, make sure of alignment, both initially and under operating conditions, and provide proper supports, brackets, means of expansion, etc., to make sure that no excessive stresses are applied to equipment. Raceways shall be run to the equipment and alignment checked before final bolting and fastening.

B At the request of the Engineer, dismantle equipment connections to demonstrate proper installation and make such corrections necessary without additional compensation for disassembly, re-connection, or the required corrective work.

C Equipment shall be installed in such a manner as to permit disconnecting for service and repairs without the necessity of rigging.

3.02 CLOSING IN UNINSPECTED WORK

A General: Do not cover up or enclose work until it has been properly and completely inspected and approved. Engineer may waive this requirement by written permission.

B Noncompliance: Should any of the work be covered up or enclosed prior to all required inspections and approvals, uncover the work as required, and after it has been completely inspected and approved, make all repairs and replacements with such materials as are necessary to the approval of the Engineer and at no additional cost to the Owner.

3.03 CLEANING OF SYSTEMS

A All wiring systems shall be thoroughly cleaned prior to initial operation and in accordance with manufacturer's instructions for equipment to be furnished and/or installed.

B Furnish all detergents, solvents, cleaning compounds, tools, etc., required in connection with cleaning operations.

C Thoroughly clean all exposed portions of all equipment, remove all labels, and wipe clean with a damp rag.

3.04 TESTING, BALANCING, AND ADJUSTING

A Electrical loads shall be balanced on all phase legs to a tolerance of plus or minus 10 percent. Include testing circuits for shorts to ground. Measure grounding system resistance. Correct all deficiencies. Provide all test equipment.

3.05 INSTRUCTIONS

A On completion of the job, Contractor shall provide competent technicians to thoroughly instruct the Owner's representative in the care and operation of the system. The total period of instruction shall not exceed 2 hours and be performed in a minimum of one interval. The time of instruction shall be arranged with the Owner. The Electrical subcontractor shall be present and participate in the Owner’s instruction.

*** END OF SECTION ***

SECTION 260600

MINOR ELECTRICAL DEMOLITION FOR REMODELING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

1.02 RELATED SECTIONS

A. Section 260000 – General Electrical Requirements.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work shall be as specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on Drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to Architect/Engineer before disturbing existing installation.

D. The act of beginning demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

B. Coordinate utility service outage with Utility Company.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system

is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 48 hours before partially or completely disabling system. Minimize outage duration.

E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Notify Owner and local fire service at least 48 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

F. Existing Apartment Entry/Intercom System: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections.

3.03 DEMOLITION AND EXTENSTION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Remove abandoned wiring to source of supply.

C. Remove exposed abandoned conduit and cable, including abandoned conduit or cable above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces. Provide knockout seals for conduit removed from equipment which remains in place.

D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed. Insure intact grounding system remains in place. Extend or rework grounding system as necessary.

E. Disconnect and remove abandoned power distribution equipment.

F. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

G. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

H. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

I. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.04 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be

reused. Re-gasket and reseal as required to maintain watertight or weatherproof enclosures.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement. Provide knockout seals to close unused knockouts.

C. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps ballasts, and broken electrical parts.

3.05 INSTALLATION

A. Install relocated materials and equipment so that a complete, clean, and finished appearance remains.

*** END OF SECTION ***

SECTION 287250

VIDEO SURVEILLANCE

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
1. Video Surveillance Remote Devices.
2. Video Storage Devices
3. Video Monitor Devices

1.2 REFERENCES

A. Federal Communications Commission (FCC) (www.fcc.gov)
1. FCC CFR 47 part 15 class B – Telecommunications – Radio Frequency Devices – Digital Device Emission.

B. International Electrotechnical Commission (IEC)
1. IEC 60068-2-75 test Eh, 50 J

C. International Organization for Standardization (ISO)
1. 9001 – Quality System.

D. Underwriters Laboratories, Inc. (UL) (www.ul.com)
1. UL 1950 Standard for Information Technology Equipment Including Electrical Business Equipment

E. Water/Dust Protection
1. IP 66
2. NEMA 4X

1.3 DEFINITIONS

A. Day/Night (infrared sensitive): A camera that has normal color operation in situations where there is sufficient illumination (day conditions), but where the sensitivity can be increased when there is little light available (night conditions). This is achieved by removing the infrared cut filter required for good color rendition. The sensitivity can be further enhanced by integrating a number of fields to improve the signal-to-noise ratio of the camera (this may introduce motion blur).

B. Privacy Masking: The ability to mask out a specific area to prevent it from being viewed in order to comply with privacy laws and particular site requirements.

C. SensUp (sensitivity up): Increases camera sensitivity by increasing the integration time on the CCD (lowering shutter time from 1/50 s to 1/5 s – PAL; 1/60 s to 1/6 s -

NTSC). This is accomplished by integrating the signal from a number of consecutive video fields to reduce signal noise.

D. Smart BLC (Back Light Compensation): Smart back-light compensation allows the camera to automatically compensate for bright areas of a high contrast scene without having to define a window or area.

1.4 SYSTEM DESCRIPTION

A. Video Storage Devices
   1. Bosch VIP-2042EZ-4HD Network Video Recorder

B. Video Monitor Devices
   1. Supplied by customer

C. Video Surveillance Remote Devices
   1. Bosch NIN-733-V03P Flexidome IP camera to interface with Bosch B9512 alarm panel.

D. Equipment storage

1.5 SUBMITTALS

A. Submit under provisions of Section [01 33 00].

B. Product Data:
   1. Manufacturer's data, user and installation manuals for all equipment and software programs including computer equipment and other equipment required for complete video management system.

C. Shop Drawings; include
   1. System device locations on architectural floor plans.
   2. Full Schematic of system, including wiring information for all devices.

D. Closeout Submittals
   1. User manual.
   2. Parts list.
   3. System device locations on architectural floor plans.
   4. Wiring and connection diagram.
   5. Maintenance requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer:
   1. Minimum of 3 years' experience in manufacture and design Video Surveillance Devices.
   2. Manufacturer's quality system: Registered to ISO 9001 Quality Standard.

B. Video Surveillance System
   1. Listed by UL specifically for the required loads. Provide evidence of compliance upon request.

C. Installer:
   1. Minimum of 3 years' experience installing Video IP Surveillance System.

1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with requirements of Section [01 60 00].

B. Deliver materials in manufacture's original, unopened, undamaged containers; and unharmed original identification labels.

C. Protect store materials from environmental and temperature conditions following manufacturer's instructions.

D. Handle and operate products and systems according to manufacturer's instructions.

E. Installation to be done in a professional manner.

1.8 WARRANTY

A. Provide manufacturer's warranty covering 1 year for replacement and repair of defective equipment.

1.9 MAINTENANCE

A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.

B. Provide technical support by a local vendor within 50 miles of the customer location.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Bosch Security Systems, Inc. Contact Rich Brobst, Jr at Protection Professionals 775-5755

B. Substitutions:
   1. All proposed substitutions must be approved by the Architect or Engineer.
   2. Proposed substitutions must provide a line-by-line compliance documentation.

2.2 Bosch VIP-2042EZ-4HD
   A. General Characteristics
      1. Four bay mini-tower

2. Three USB ports
3. One Gigabit Ethernet LAN
4. Provide eight terabytes of storage
5. Sixteen channels VRM license
6. Front swappable HDD

B. Installation Requirements
1. Install equipment in IT room
2. Provide a minimum of one Network POE switch to support all of the cameras

C. Electrical Requirements
1. 120 VAC

2.3 Switch

A. Provide POE switches as needed for the entire camera system

2.4 BOSCH NIN-733-V03P

A. General Characteristics:
1. IP 1.3 MP camera
2. HD surveillance in low light, (starlight)
3. 720p60
4. IVA installed
5. SDXC card slot

B. Installation Requirements
1. Shall contain a full-featured camera and integral varifocal lens.
2. Shall be capable of indoor and outdoor installations.
3. Shall be capable of being mounted to a surface, 4S (USA) electrical box, wall, corner, and suspended ceiling.
4. All cable shall be Cat 6 rated and tested.
5. Cabling cannot exceed 300 feet.
6. All cabling shall be homerun without any junctions or connectors.
7. All power shall be POE to the switch

C. Optical
1. Varifocal: Manual zoom and focus adjustment
2. Iris Control: Automatic Iris control
3. Viewing Angle (H x V):
   a. 3 to 9 mm SR lens

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.

B. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

A. Protect devices from damage during construction.

3.3 INSTALLATION

A. Install devices in accordance with manufacturer's instruction at locations indicated on the floor drawings plans.

B. Ensure selected location is secure and offers protection from accidental damage.

C. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.

3.4 FIELD QUALITY CONTROL

A. Test snugness of mounting screws of all installed equipment.

B. Test proper operation of all video system devices.

3.5 ADJUSTING

A. Make proper adjustment to video system devices for correct operation in accordance with manufacturer's instructions.

B. Make any adjustment of camera settings to comply with specific customer's need.

3.6 DEMOSTRATION

A. Demonstrate at final inspection that video management system and devices function properly.

END OF SECTION

SECTION 287500

ANALOG ADDRESSABLE FIRE ALARM SYSTEM

PART 1.0 – GENERAL

1.1 DESCRIPTION:

A. This section of the specification includes the furnishing, installation, connection, and testing of the intelligent, microprocessor controlled, analog addressable, fire alarm equipment required to form a complete and operational system. It shall include but not be limited to a Fire Alarm Control Panel (FACP), alarm initiating devices, alarm notification appliances, auxiliary control devices, annunciators, TCP/IP (Ethernet) and/or digital alarm communications to central stations, and wiring as shown on the drawings and specified herein.

B. The fire alarm system shall comply with the requirements of NFPA 72 National Fire Alarm Code except as modified by the local Authority Having Jurisdiction and supplemented by this specification. The system field devices shall be supervised either electrically or through software driven polling process.

C. The FACP and associated field devices shall be manufactured or supplied 100% by a single U.S. manufacturer that is ISO 9001 certified.

D. The FACP and associated field devices system shall comply with the following Underwriters Laboratories Inc. (UL) USA listing standards as applicable.

1. No. 38 Manually Actuated Signaling Boxes
2. No. 50 Cabinets and Boxes
3. No. 864 Control Units for Fire Protective Signaling Systems
4. No. 268 Smoke Detectors for Fire Protective Signaling Systems
5. No. 268A Smoke Detectors for Duct Applications
6. No. 346 Waterflow Indicators for Fire Protective Signaling Systems
7. No. 464 Audible Signaling Appliances
8. No. 521 Heat Detectors for Fire Protective Signaling Systems
9. No. 1638 Private Mode Emergency and General Utility Signaling
10. No. 1971 Visual Notification Appliances

E. The FACP shall meet the requirements of UL ANSI 864 Ninth Edition. Systems listed to UL ANSI 864 Eighth Edition or earlier revisions are not acceptable.

F. The installing company shall provide employ NICET Level II (or higher) fire alarm technicians to supervise the programming and testing of the system and to ensure the systems integrity.

1.2 SCOPE:

A. An intelligent, microprocessor controlled, analog addressable fire alarm detection system shall be installed in accordance with the project specifications and drawings.

B. Basic Performance:

1. Analog Addressable devices shall be connected to the FACP Signaling Line Circuit (SLC)

2. The FACP SLC shall support either Class A (Style 6 or 7) or Class B (Style 4) wiring configuration.

3. The SLC loop shall not require twisted or shielded cabling. Systems that require twisted and/or shielded cabling for the SLC loop are not acceptable.

4. The FACP Notification Appliance Circuits shall support either Class A (Style Z) or Class B (Style Y) wiring configuration.

5. The FACP RS-485 bus shall support either Class A or Class B wiring configuration.

6. All circuits shall be power limited per UL 864 requirements.

7. The secondary power source of the fire alarm control panel shall be capable of providing at least 24 hours of backup power with the ability to power the system for an additional 5 minutes in an alarm condition, at the end of the 24 hour backup period.

C. Basic System Operation

1. When an off normal condition occurs (Alarm, Supervisory, or Trouble) the respective LED on the FACP shall illuminate.

2. A piezo sounder shall activate at the FACP during any off normal condition until the SILENCE button is pressed by an authorized user.

3. A Red LED shall illuminate when an alarm or pre-alarm condition exists.

4. An Amber (yellow) LED shall illuminate when a Supervisory or Trouble condition exists.

5. A backlit 4 line 160 character LCD screen shall display all messages that refer to an off-normal condition.

6. An Alarm condition shall have priority over all other signals.

7. The FACP shall include an event buffer that maintains the last 1000 system events including a date and time stamp for each.

8. In response to a fire alarm condition, the systems notification appliances and relay controlled output circuits that are associated through programming with the device initiating the alarm, shall automatically activate. Additionally the system shall notify an approved central station via dial-up, IP, or cellular means as deemed acceptable by the local Authority Having Jurisdiction (AHJ).

1.3 SUBMITTALS:

A. General

1. Copies of all submittals shall be submitted to the Architect/Engineer for review and approval.

2. All references to manufacturers model numbers and other pertinent information herein is intended to establish minimum standards of performance, function, and quality.

3. For equipment other than that specified, the contractor shall provide proof that the proposed substitute equipment equals or exceeds the form, feature, function, performance, and quality of the specified equipment.

B. Documentation

1. In addition to the shop drawings, the following information shall also be included with the submittal.

a. Manufacturer's technical data sheets for each piece of equipment that will be installed.

b. Standby battery calculations for the FACP and any remote power supply or other panels that include their own standby batteries.

c. Voltage drop calculations showing the worst case end of line voltage for all notification appliance circuits

d. Detailed description of the overall operation of the system or a sequence of operation matrix.

e. Proof of factory training and certification of the supervising technician assigned to the project.

f. Proof of factory training and certification of a service technician employed by the installation company that can be onsite to troubleshoot and repair any service related problems with the system, within 4 hours of being notified of the problem.

1.4 WARRANTY:

A. All of the main fire alarm system components including control panels, detectors, modules, and notification devices furnished under this contract shall include a warranty from the manufacturer for a period of five (5) years from the date of purchase. All other materials, labor and work performed under this contract shall be free of defects and shall remain so for a period of one (1) year from the date of acceptance. The full cost of materials and labor to correct any defects during these warranty periods shall be included in the installed price of the system.

1.5 MAINTENANCE:

A. Maintenance and testing shall be on an annual basis or as required by the AHJ. A preventative maintenance schedule shall be provided by the contractor describing the protocol for preventative maintenance. The schedule shall include:

1. Systematic testing and complete inspection of the entire fire alarm system including control panels, field devices, and wiring terminations including smoke sensors, heat sensors, manual pull stations, sprinkler system switches, remote panels, power supplies, and terminal boxes, and all other fire alarm accessories, in accordance with NFPA 72. Cleaning and adjusting of these devices shall be conducted at this time.

2. An inspection and test of system power supplies, batteries, circuit breakers, and fuses as well as a load test of the batteries shall be conducted in accordance with NFPA 72.

3. Placing the system into an alarm condition and checking each notification device for proper operation.

4. Input and output mapping shall be tested to ensure proper sequence of operation.

5. Signal transmission shall be tested to the Monitoring Station.

6. Following each periodic maintenance and test, the owner shall be provided with a detailed report of the test results including any deficiencies found.

1.6 POST CONTRACT EXPANSIONS:

A. The contractor shall supply an hourly service rate for a technician for two years after substantial completion. This will include any travel cost and rate from the service office. Any service technician shall be within 50 miles of the site.

B. A price for one smoke detector, one pull stations, one speaker/strobe, one horn/strobe, and one strobe only shall be provided on an itemized basis and this price shall be good for two years form substantial completion.

C. The price for monitoring and an annual inspection shall be included.

D. Submittals that do not include a these options will be rejected.

1.7 APPLICABLE STANDARDS AND SPECIFICATIONS:

A. The specifications and standards listed below form a part of this specification. The system shall fully comply with the latest issue of these standards, if applicable.

1. National Fire Protections Association (NFPA)

a. No. 13 Sprinkler Systems
b. No. 70 National Electric Code (NEC)
c. No. 72 National Fire Alarm Code
d. No. 101 Life Safety Code

2. Local and State Building Codes

3. All requirements of the local Authority Having Jurisdiction (AHJ)

1.8 APPROVALS:

A. The system shall have the proper listing and/or approval from the following recognized agencies:

1. UL Underwriters Laboratories Inc.

PART 2.0 – PRODUCTS:

2.1 EQUIPMENT AND MATERIALS:

A. All equipment and components shall be new, and of the manufacturers current model. The materials, appliances, equipment, and devices shall be tested and listed for its intended purpose by a recognized national listing testing laboratory.

B. All equipment and components shall be installed in strict compliance with the manufacturer's recommendations as indicated in the installation manuals and wiring diagrams for the system.

C. All equipment attached to walls and ceiling shall be securely fastened. Ceiling mounted devices shall not be supported solely by suspended ceilings. A back box shall be used for mounting all equipment. A listed and compatible back box shall be used on all outdoor devices or those devices installed in locations subject to moisture.

D. All equipment shall be manufactured by an ISO 9001 certified company.

E. All equipment shall be readily available through wholesale distribution outlets to licensed installation contractors that are independent of the systems manufacturer.

2.2 CONDUIT AND WIRE:

A. Conduit:

1. The conduit or raceway shall be installed in accordance with the National Electrical Code, state and local requirements.

2. Where required, all wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40% on the interior cross sectional area where three or more cables are contained within a signal conduit.

3. All conduit and raceway shall be listed and/or approved by a recognized national testing laboratory.

4. Conduit size shall be ¾” minimum.

5. Conduit may only enter the fire alarm control panel, power supply, annunciator, and other system cabinets through the pre-punched knockouts provided by the system manufacturer.

6. Fire alarm cables must be separated from any Class 1 circuits, and shall not be placed in any conduit, junction box, or raceway containing Class 1 or light or power circuits.

7. With the exception of telephone connections, wiring for 24 volt DC control, alarm, notification, emergency communication and similar power-limited auxiliary functions, may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.

B. Wire:

1. All fire alarm wiring shall be new.

2. Wiring shall be installed in accordance with local, state, and national codes and as recommended by the manufacturer of the fire alarm system.

3. All wire and cable shall be listed and/or approved by a recognized national testing laboratory for its intended purpose.

4. The Signaling Line Circuit (SLC) loop shall be installed with a minimum #16 AWG wire, and shall allow the use of non-twisted and non-shielded solid or stranded wire. Systems that require twisted and/or shielded wiring are not acceptable.

5. Notification Appliance Circuits (NAC) shall be wired with not less than #14 AWG wire for the strobe circuit and #16 AWG for the speaker circuit as required for proper end of line operating voltage.

6. All field wiring shall be supervised for open circuits and earth ground faults.

7. The FACP RS-485 wiring bus shall be capable of operating system devices up to 6500 feet away from the main panel, without the use of additional power supplies, boosters or signal amplifiers.

C. Terminal Boxes, Junction Boxes, and Cabinets

1. All terminal boxes, junction boxes, and accessory cabinets shall be listed for their intended purpose.
2. All covers shall be colored red

2.3 FIRE ALARM CONTROL PANEL (FACP)

A. The FACP shall be a Potter Electric Signal Company model P-300 microprocessor based analog addressable type system ONLY to match school district systems. Contact Rich Brobst, Jr at Protection Professionals 775-5755.

B. Overview and Features:

1. The FACP shall include one (1) Signaling Line Circuit (SLC) that will power, supervise, monitor, and control a maximum of 127 analog addressable points which may be made up of any combination of sensors and modules. The SLC shall have the capability to be wired in an NFPA Style 4, 6, or 7 (Class A or B) configuration.

2. The FACP shall be capable of expanding to 318 analog addressable points, which may be made of any combination of sensors and modules, by use of up to 2 SLCE-127 Signal Line Communication expansion board. The SLCE-127 shall have the capability to be wired in a NFPA Style 4, 6, or 7 (Class A or B) configuration.

3. The FACP shall have 3 form C relays dedicated to Alarm, Trouble, and Supervisory conditions. These relays shall have a contact rating of 3 Amps at 24VDC.

4. The FACP shall have a power supply capable of providing a minimum of 3.5 amps of 24 VDC power to devices requiring auxiliary power and/or notification appliances.

5. The FACP shall have two (2) programmable Notification Appliance Circuits rated at no less than 3 amps per circuit and capable of being wired in a Class A or Class B configuration. These circuits shall be programmable for the following output types:

    a. Notification Appliance Circuit – Continuous Output
    b. Notification Appliance Circuit – ANSI Temporal Output

c. Notification Appliance Circuit – Synchronized Output
d. Auxiliary Power – Constant
e. Auxiliary Power – Resettable
f. Door Holder Power – Constant
g. Door Holder Power – Low AC Dropout
h. City Tie - Reverse Polarity Output for applications in compliance with applicable NFPA standards.

6. The FACP NAC circuits shall include the capability to automatically synchronize notification appliances from multiple manufacturers simultaneously on the same FACP without the need for a synchronization module. Systems that do not allow for multiple brands of strobes to be synchronized together on the same panel are not acceptable. The following manufacturers synchronization protocol shall be supported as a minimum:

   a. Potter/Amseco
   b. Gentex
   c. Wheelock
   d. System Sensor

7. The FACP shall include a 4-wire serial P-LINK bus for communication with system annunciators, power supplies, expansion modules, and other accessories. The P-LINK bus shall support a wiring distance of no less than 6500 feet from the panel to the furthest device and be capable of being wired in Class A or Class B.

8. The FACP shall have two (2) programmable I/O Circuits rated at 1 amp per circuit and capable of being wired in a Class B configuration. These circuits shall be programmable for the following output types.

   a. Notification Appliance Circuit – Continuous Output
   b. Notification Appliance Circuit – ANSI Temporal Output
   c. Notification Appliance Circuit – Synchronized Output
   d. Auxiliary Power – Constant
   e. Auxiliary Power – Resettable
   f. Door Holder Power – Constant
   g. Door Holder Power – Low AC Dropout
   h. City Tie - Reverse Polarity Output for applications in compliance with applicable NFPA standards.
   i. Contact Input Pull Station
   j. Contact Input Waterflow
   k. Contact Input Supervisory
   l. Contact Input Tamper
   m. Contact Input Fire Drill
   n. Contact Input Trouble Monitor
   o. Contact Input Aux.
   p. Trigger IO Reverse Polarity
   q. Trigger IO Reverse Polarity No Trouble

r. Contact Input Reset
s. Contact Input Silence

9. The FACP shall include an operator interface keypad and annunciation panel that includes a 4 line 160 character backlit LCD display and color coded system status LED's.

10. The FACP shall include a LEARN feature to quickly and automatically detect and enroll all system devices, and make them operational. The LEARN function shall allow an authorized user to subsequently run a LEARN function after initial installation in order to make changes to the system, without deleting any existing programming. Systems that include auto-program functions that delete existing programming when ran are not acceptable.

11. The FACP shall be housed in a UL listed key locked cabinet with sufficient space to house 8AH or 18AH batteries.

12. The FACP shall include programming terminals for the purpose of addressing system SLC devices without the need for a special programmer.

13. The FACP shall be capable of being programmed with an IP address so that it can reside on a standard TCP/IP network. The IP address shall be able to be assigned dynamically through DDNS or programmed statically.

14. The FACP shall include a built-in TCP/IP Ethernet port for programming and communications purposes. **This is a required feature and any substitute shall meet this specification.**

a. The TCP/IP Ethernet port shall be capable of communicating to an approved UL listed central station via the internet or other compliant TCP/IP network connection, without the need for additional modules or software.

1. The central station communication shall be transmitted in a format capable of transmitting event information by point or by software zone.

2. If applicable, the installation contractor shall verify the building network components compliance with any applicable codes and standards including NFPA and UL.

b. The TCP/IP Ethernet port shall be capable of connecting a computer to the FACP for programming purposes using a standard Ethernet patch cable. Systems that require special cables, modules or adapters for programming are not acceptable.

c. The FACP shall be capable of emailing the systems software program, event history, detector status, and any off-normal events that occur, to up to 20 preauthorized email recipients. Authorized email recipients shall have the ability to opt in and out of email transmissions by sending the FACP a standard email message.

15. The FACP shall include the ability to add a Digital Alarm Communicating Transmitter (DACT). The DACT shall be capable of being used in lieu of or in addition to the IP central station communication capability.

16. The FACP operating software shall include the following features:

    a. The ability to program any input to activate any output or group of outputs on the system.

    b. Drift compensation to ensure smoke detector accuracy between maintenance inspections.

    c. Maintenance alert function to warn of excessive dust or dirt accumulation in a smoke detector.

    d. Built-in detector sensitivity test meeting the requirements of NFPA 72.

    e. 1000 event history buffer that stores all off-normal conditions and actions along with a time/date stamp of when they occurred.

    f. Alarm verification feature with a programmable counter.

    g. Positive Alarm Sequence capability meeting NFPA 72 requirements.

    h. Auxiliary point types to allow for the configuration of non-fire related devices on the SLC loop.

    i. One person walk-test capability with all devices tested during walk-test mode recorded in the event history buffer.

    j. Duplicate device address detection to determine if more than 1 device per SLC loop shares the same address. An authorized user shall also be able to turn on the LED for any device address to assist in troubleshooting duplicate address troubles.

C. Operator Control and Interface

1. The FACP shall include an intuitive operator interface that includes the following:

a. Acknowledge (ACK) Button

1. Depressing the FACP ACK button in response to new alarms and/or troubles shall silence the local piezo sounder and change the alarm and trouble LED's from flashing mode to steady ON mode. The alarm or trouble event information on the LCD display shall also display an icon indicating that the event has been acknowledged.

b. Alarm Silence (SILENCE) Button

1. Depressing the FACP SILENCE button shall cause all silenceable alarm notification appliances and relays to return to their normal non-alarm condition. The selection of which notification appliance circuits and relays that are silenceable by this button, shall be fully field programmable within the confines of all applicable codes and standards. The FACP software shall include silence inhibit and auto silence/unsilence timers.

c. Alarm Activate (DRILL) Button

1. Depressing the FACP DRILL button shall activate all notification appliance circuits. The drill function shall latch until the ESC button is depressed.

d. System (RESET) Button

1. Depressing the FACP RESET button shall cause all electronically latched input devices and software zones, as well as all associated output devices and circuits to return to their normal condition.

e. Display

1. The user interface display shall be a backlit 2 line 32 character LCD.

2.4 SYSTEM COMPONENTS

A. Compatible FACP Accessories

1. Signal Line Communication Expansion Board

a. Potter Electric Signal model SLCE-127

2. Digital Alarm Communicating Transmitter

a. Potter Electric Signal model UD-1000

3. LCD Remote Annunciators

    a. Potter RA-6500

        1. RA-6500 shall provide the means for an authorized user to operate the system from a location remote to the main panel.

        2. RA-6500 shall include a 4 line 160 character backlit LCD display.

4. Intelligent Power Expanders

    a. Potter Electric Signal Model PSN-1000(e)

        1. PSN-1000(e) shall add 10 amps of power, 6 programmable NAC circuits, and 2 programmable I/O circuits.

        2. The PSN-1000(e) shall be capable of Quadrasync strobe synchronization as described earlier in this specification.

B. Compatible SLC Devices

1. Analog Addressable Photoelectric Smoke Detector w/Heat Detector. All automatic detection devices shall be combination smoke and heat detectors.

    a. Potter Electric Signal model PSHA

2. Analog Addressable Fixed Temperature Heat Detector

    a. Potter Electric Signal model FHA

    b. The FHA shall be programmable for a 135 up to 185 degree operating temperature.

3. Analog Addressable Rate-of-Rise Heat Detector

    a. Potter Electric Signal model RHA

4. 6” Detector base

    a. Potter Electric Signal model AB-6

5. Addressable Detector Base with Sounder

    a. Potter Electric Signal model ASB

6. Addressable Detector Base with Isolator Module

    a. Potter Electric Signal model AIB

7. Relay output Module

    a. Potter Electric Signal model TRM-4

        1. The TRM-4 shall have 2 sets of Form C relays that are rated for 2 amps at 24VDC.

8. Single Contact Input Module

    a. Potter Electric Signal model SCM-4

9. Dual Contact Input Module

    a. Potter Electric Signal model DCM-4

10. Monitored Output Module

    a. Potter Electric Signal model MOM-4

11. Short Circuit Isolator Module

    a. Potter Electric Signal model SCI

C. Conventional Devices

1. Photoelectric Duct Detector

    a. The photoelectric duct smoke detector shall be the Potter Electric Signal model number DSD-P.

        1. The DSD-P shall be installed with a Potter DCM-4 dual contact module to monitor alarm and trouble conditions.

        2. The DSD-P shall be installed using resettable 24VDC aux power from a NAC or I/O circuit on the system.

        3. The duct detector will be tied to a SCM module.

2. Carbon Monoxide Detector

a. The carbon monoxide detector shall be the Potter Electric Signal model number CO-12/24 or System Sensor CO12/24. CO detection as part of a smoke detector assembly will not be accepted.

1. The CO-12/24 shall be installed with a Potter DCM-4 dual contact module or SCM-4 single contact module to monitor alarm and trouble conditions.

2. The CO-12/24 shall be installed using resettable 24VDC aux power from a NAC or I/O circuit on the system.
3. The CO sounder shall have a temporal 4 pattern

3. Notification Appliances

a. Audible Indicating Appliances in fire department section

1. Speakers with multiple, field selectable taps 1/8 to 4 watts
2. Speakers shall be rated for 25 or 70.7 VRMs audio systems
3. Speakers shall be FASPKR-R for ceiling or wall mount

b. Audible Indicating Appliances in police department section

1. All audible sounding devices shall operate on 24 VDC and be UL listed as compatible with the FACP.

2. All audible devices shall be programmed to sound in the ANSI Temporal 3 sound pattern.

3. Audible appliances shall be EH-24R for wall mount.

c. Visual Indicating Appliances

1. All visual indicating appliances shall operate on 24VDC and be listed as compatible with the FACP sync.

2. All visual indicating appliances shall support an adjustable candela feature that is set for the appropriate coverage area per NFPA 72.

3. Visual indicating appliances shall meet UL and ADA requirements.

4. Visual indicating appliances shall be Potter Electric Signal model S-24WR for wall mounted applications or model CS-24R for ceiling mounted applications.

d. Audible/Visual Indicating Appliances for voice evacuation system

1. Speakers with multiple, field selectable taps 1/8 to 4 watts
2. Speakers shall be rated for 25 or 70.7 VRMs audio systems
3. Strobe portion of the device shall meet the strobe only specifications
4. Speakers/strobes shall be SPKSTR-24WLPR for wall mount and SPKSTR-24CLP for ceiling mount

e. Audible/Visual Indicating Appliances for non-voice

1. All audible/visual indicating appliances shall operate on 24VDC and be listed as compatible with the FACP.

2. All audible/visual indicating appliances shall support an adjustable candela feature that is set for the appropriate coverage area per NFPA 72.

3. All audible/visual appliances shall be programmed to sound in the ANSI Temporal 3 sound pattern.

4. Visual indicating appliances shall meet UL and ADA requirements.

5. Audible/Visual indicating appliances shall be Potter Electric Signal model HS-24WR for wall mounted applications or CHS-24R for ceiling mounted applications.

4. Voice Evacuation Panel shall be a PVX-100/4z voice panel or an EVAX 100/4z panel. The panel shall include the following:
   a. 100 watts power with four speaker zone outputs
   b. Provide fire alarm signal as well as CO alarm signal
   c. Back up amplifier
   d. Interface to the fire department's PA system
   e. System design will be based on all speakers rated at 1 watt minimum.
   f. Located in the fire department section only. The devices in the police department section shall be horns or horn/strobes.

5. Document Cabinet such as a Space Age SSU00672

6. Surge protection and labeling of panels as per Space Age E120V-GT

7. Batteries on all panels and NAC power supplies shall be rated for 24 hours stand by and 10 minutes of alarm.

   a. Batteries used for backup power to the main FACP or remote power supply panels shall be of the sealed lead acid, maintenance free type.

b. Batteries shall be sized according to the power requirements of the FACP and be capable of operating the system in standby mode for a minimum of 24 hours followed by 5 minutes in alarm condition.

c. Battery calculations shall be supplied showing the calculated standby battery size after factoring in a minimum 15% efficiency/derating factor.

PART 3.0 – EXECUTION

3.1 INSTALLATION:

A. The entire installation shall be in accordance with NFPA 72, NFPA 70 (NEC), state and local codes, and meet the requirements of the local Authorities Having Jurisdiction.

B. The installation shall be in accordance with manufacturers recommended practices and installation instructions.

C. Smoke detectors shall not be installed until all construction is completed and construction dust and debris are removed. Detectors that were installed in construction areas shall be removed, cleaned, and recalibrated prior to final acceptance.

D. All conduit, junction boxes, and supports shall be concealed in finished areas and may be exposed in unfinished areas.

3.2 ACCEPTANCE TEST:

A. All tests shall be conducted in accordance with NFPA 72

B. Persons conducting fire alarm acceptance tests shall be knowledgeable in fire alarm systems. This is verified by the proper training and recognition from wither the factory, NICET, International Municipal Signal Association, State or locally certified, or trained by a company that is listed by a national testing laboratory.

C. The fire alarm test shall be thorough and test 100% of all circuit, devices, and signals. That test shall include but not be limited to the following:

a. Prior to powering the system, check for ground faults, short circuits, and continuity.

b. Test the supervisory valves connected to the fire suppression system for a supervisory signal sent to the panel.

c. Test all sprinkler waterflow switches. Retard times shall not exceed 90 seconds.

d. Open and short each SLC circuit and verify a trouble condition occurs.

e. Open and short each notification appliance circuit and verify a trouble condition occurs.

f. Ground all circuits and verify a trouble condition occurs.

g. Verify the installation is in accordance with the approved drawings.

h. Test audibility of all audible notification appliances and that the output volume is in accordance with NFPA 72.

i. Test all visual notification appliances for synchronization and proper operation.

j. Test the operation of every addressable device on the system per manufacturer's recommendations.

k. Verify the appropriate outputs are activated when each input device is put into an alarm condition.

l. Verify the appropriate messages are displayed and LED's illuminate on the FACP and remote annunciators, corresponding to each point tested.

3.3 OPERATOR INSTRUCTION:

The manufacturer–trained representative shall instruct and demonstrate to the building owner the operation of all system components. An operator's manual shall be provided and kept with the FACP for future reference. A drawing or list shall be provided to the building owner detailing the device locations, addresses, and programming of each system device. If requested, the installation contractor shall provide a typewritten sequence of operations.

July 31, 2014

Mr. Ron Rioux
Stephen Blatt Architects
P.O. Box 583
Portland, ME 04101

Subject: Fire Pressure for Proposed Molly Ockett School Additions
Fryeburg, Maine

Dear Ron:

I visited the Fryeburg Water District last week and obtained information about the water system and hydrant tests taken on 2010. The water system is a gridded system with hydrant tests near Route 302 and north of the site indicating a fire flow of about 1200 gallons per minute with a residual of 20 psi. The existing water line that is along the CMP transmission line, which transects the site, is an 8-inch line. Assuming the fire service is extended with a tap for a new fire service, we expect the following residual pressures at the base of the sprinkler riser in the front of the building addition:

Residual Pressure (Psi) Versus Flow(Gpm) for Various Service Sizes Between the School and the Distribution Main in the Power Line			
Flow	**Fire Service Size from Power line**		
	Parallel 8" and 6"	**New 8 inch only**	**New 12 inch**
0 gpm	90	90	90
250 gpm	87	87	87
500 gpm	77	76	78
750 gpm	61	59	63
1000 gpm	39	36	42
1250 gpm	11	5	15
1500 gpm	Vacuum	Vacuum	Vacuum

These numbers are approximate since I do not have the actual elevations of the hydrants where the tests were taken. However, the pressure should not vary by more than 5 psi based upon review of the USGS topographic mapping for the area. It would seem that an 8 inch service would be adequate with not much gained with a 12 inch service due to the relatively short length.

If Bennett Engineering can review this information and confirm the 8-inch service size will be adequate, we will show this on our drawings. We would also like to verify the location of the sprinkler service connection.

Let us know the location and fire service size which will be necessary for this project.

778 Main Street, Suite 8
South Portland, ME 04106
T: 800.835.8666
F: 207.879.0896
www.fstinc.com

FAY, SPOFFORD & THORNDIKE
Offices in: Massachusetts, New Hampshire, Maine, Connecticut and New York

I have a hand drawn water system map and computations on a spreadsheet to document my analysis. Let me know if you need copies of these data.

Sincerely,

FAY, SPOFFORD & THORNDIKE

William G. Hoffman, P.E.
Vice President

WGH/cmd

c: Steve Doel – Bennett Engineering

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MSAD # 72, Pre-K 8 School, Building Construction Contract
PRE-BID CONFERENCE

SIGN IN SHEET
Date: July 29, 2015

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