LEGEND & ABBREVIATIONS

	CONDUIT w/#12 AWG CONDUCTORS, UON. SLASHES DENOTE QUANTITY OF CONDUCTORS IF NOT TWO. SHARED NEUTRALS SHALL BE #10 AWG.
	DUPLEX RECEPTACLE: 18" AFF, UON
	RAISED HEIGHT RECEPTACLE: 48' AFF, UON
S	SINGLE POLE SWITCH: 48" AFF, UON
S3	THREE-WAY SWITCH: 48" AFF, UON
SD	DIMMER SWITCH: 48" AFF, UON
	LED DOWNLIGHT: TYPE A1 or A2
	RECESSED LED DOWNLIGHT: TYPE B
	FLUORESCENT SURFACE MOUNT: TYPE C1 or C2
	WALL MOUNT FLUORESCENT: TYPE D
J	JUNCTION BOX
M	MOTOR CONNECTION: "m" = MANUAL STARTER
	PANELBOARD
	COMMUNICATIONS PANEL
T	LINE VOLTAGE THERMOSTAT
	TELEPHONE/DATA RECEPTACLE: 18'' AFF, UON
TV	TELEVISION RECEPTACLE: 18'' AFF, UON
FCP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR
	MANUAL PULL STATION
	SYSTEM HEAT DETECTOR
	SYSTEM SMOKE DETECTOR
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	120V SMOKE ALARM
	ALARM BELL NOTIFICATION APPLIANCE
	HORN/STROBE NOTIFICATION APPLIANCE
WP	WEATHERPROOF HORN NOTIFICATION APPLIANCE
	STROBE NOTIFICATION APPLIANCE
OS	OCCUPANCY SENSOR
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
(E)	EXISTING, TO REMAIN
Em	EQUIP WITH EMERGENCY BALLAST
FAA	FIRE ALARM ANNUNCIATOR
FCP	FIRE ALARM CONTROL PANEL
GND	GROUND
IDC	INITIATION DEVICE CIRCUIT
LTG	LIGHTING
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
(N)	NEW DEVICE, LUMINAIRE OR CIRCUIT
NAC	NOTIFICATION APPLIANCE CIRCUIT
NS	NOT SWITCHED
(R)	EXISTING, TO BE RELOCATED
REC	RECEPTACLE
TEF	TOILET EXHAUST FAN
TTB	TELEPHONE TERMINATION BOARD
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
(X)	EXISTING, TO BE REMOVED

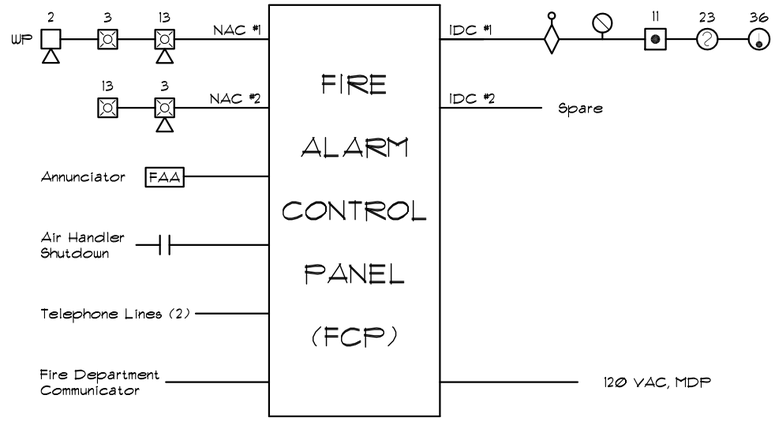
NOTES & SPECIFICATIONS

1. Provide all work as shown on the drawings and described in the specifications and notes for a complete and functional installation. Unless otherwise noted, all material shall be of new manufacture and of the manufacturer's standard construction. All material shall be approved by Underwriters Laboratories (UL) and so noted.
2. All work shall comply with the latest approved editions of:
   The National Electrical Code (NEC)
   The National Fire Protection Association Codes (NFPA)
   The International Building Code (IBC)
   The ADA Accessibility Guidelines (ADAAG)
   All applicable Federal, State and Local regulations
3. Provide two sets of as-built drawings at project completion.
4. Minimize and seal penetrations of the vapor barrier caused by the electrical installation.
5. Label all panelboards, circuit breakers, junction boxes, annunciators, controls, etc.
6. Provide an accurate, typed circuit directory for each revised panelboard.
7. Raceway systems shall be EMT for feeder, telephone, data and fire alarm circuits. All conductors shall be copper. Conductors in raceways shall have Type THHN/THWN insulation for inside work and Type XHHW-2 for exterior work. Type MC cable is acceptable for interior work where approved by the local authority, the Owner and the NEC.
8. Boxes shall be steel with appropriate plaster rings. All wiring devices shall be specification grade, screw connected, with matching nylon plates. Provide a manual starter/disconnect for all motor loads.
9. Provide connection to all mechanical and owner's equipment as shown.
10. Ensure all control devices (switches, manual pull stations, etc.) are mounted no higher than 48" above the finished floor to comply with the ADAAG. Also ensure receptacles are mounted not less than 15" above the finished floor.
11. For each telephone and cable television receptacle provide a deep 4" square box, single gang plaster ring, and a 3/4" conduit to the Telephone Termination Board. Include a pull string in each raceway system for future installation of cables.
12. Additional Connected Load for the facility is 0.0 kVA (0.0 Amperes).
    Additional Demand Load for the facility is 0.0 kVA (0.0 Amperes).

DRAWING LIST

E001	Legend, Notes, FA Riser, Luminaire Schedule
E100	Dormitory Demo Second Floor, Base & Alt #1
E200	Power & Signal Second Floor, Base & Alt #1
E300	Lighting Plan Second Floor, Base & Alt #1
E400	Fire Alarm Demo First Floor, Alternate #2
E401	Fire Alarm Demo Second Floor, Alternate #2
E500	Fire Alarm Plan First Floor, Alternate #2
E501	Fire Alarm Plan Second Floor, Alternate #2
E600	Electrical Specifications

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FIRE ALARM RISER DIAGRAM

NO SCALE

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	LAMP(S)	REMARKS
A1 A2	13" (7") diameter surface mount LED downlight with matte white acrylic diffuser, aluminum housing, dimming capability, natural aluminum finish	Lithonia VersiLite A1: FMML 13 830 DNA A2: FMML 7 830 DNA	Both: 3000º K, >80 CRI A1: 1898 lumens A2: 642 lumens	Dimming capability.
B	1' x 1', low profile volumetric static troffer, two-piece refractor system w/diffusing optical film & extruded prisms, sloped endplates, 3500°K LED's, CRI>80	Lithonia RT5D LED 3500K 120	LED'S 1700 lumen output 41 total system watts	Equip with emergency battery packs as noted.
C1 C2	Ceiling mount surface volumetric with 3500ºK LED's, linear faceted refractor, light diffusing film, die-cast end caps, white finish	Lithonia C1: STL2 20L LP835 C2: STL4 40L LP835	C1: 26W, 2000 lumens C2: 40W, 4000 lumens, all 3500ºK	Equip C2's with emergency battery pack as noted.
D	48" round profile direct/indirect LED wall mount with extruded aluminum housing, satin lens, die cast end caps, aluminum paint finish	Axis PRWLED B3 600 30 S 4 AP 120 X 1	600 lumens per foot, 3000ºK CRI > 80	Mount above mirror as noted. Ensure junction box is concealed by luminaire.

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CONSTRUCTION BID DOCUMENTS

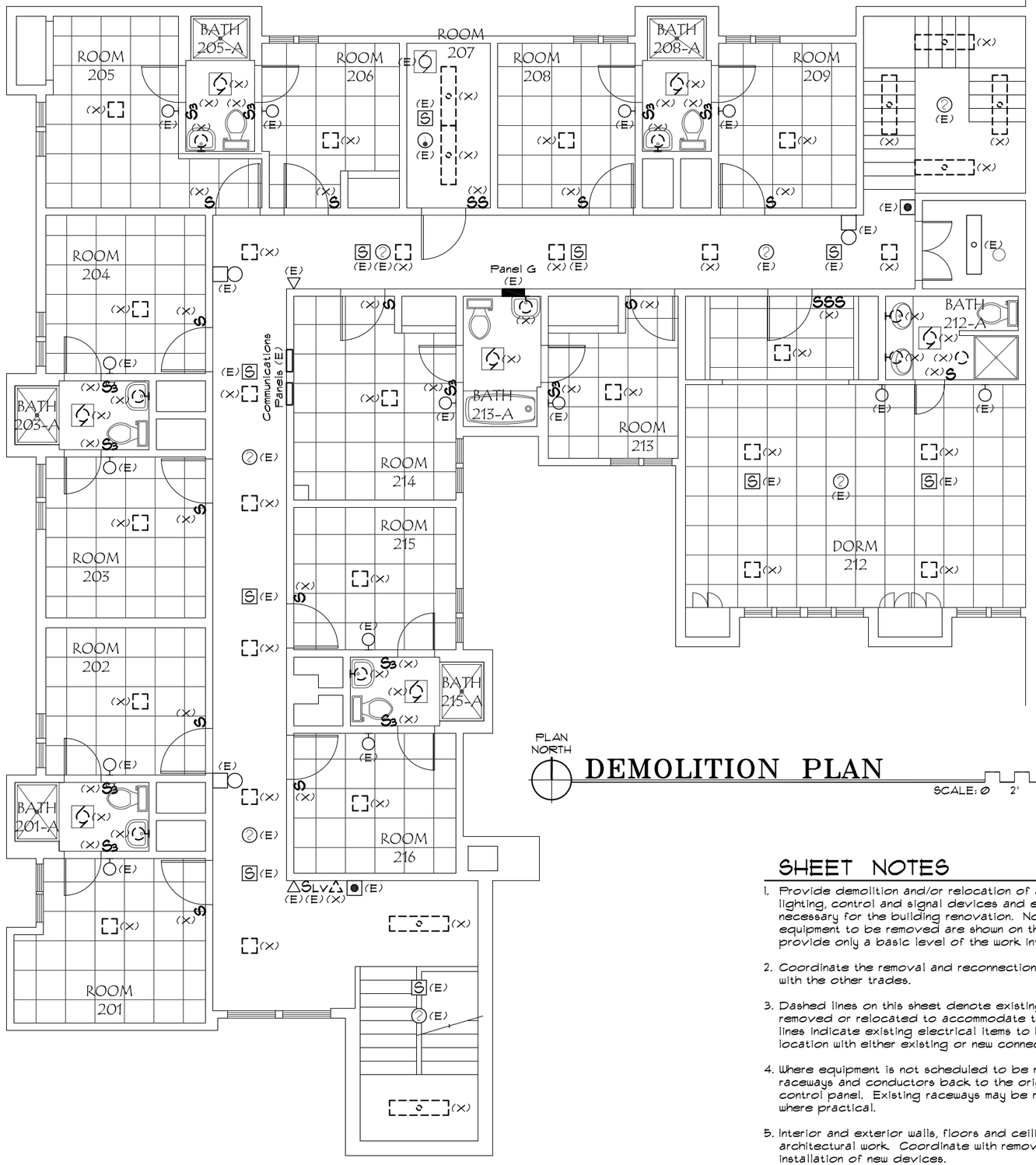
JUNEAU DOWNTOWN FIREHALL
DORMITORY RENOVATION

CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
LEGEND, NOTES, FA RISER, LUMINAIRE SCHEDULE

DATE: APRIL 2015
REVISION: ....
CHECKED BY: PG
DRAWN: GG/PG

SHEET #
E001



DEMOLITION PLAN

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to this Sheet for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to this Sheet for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

SHEET NOTES

1. Provide demolition and/or relocation of all electrical power, lighting, control and signal devices and equipment as shown or necessary for the building renovation. Note, not all devices and equipment to be removed are shown on this sheet. These plans provide only a basic level of the work involved.
2. Coordinate the removal and reconnection of electrical equipment with the other trades.
3. Dashed lines on this sheet denote existing electrical items to be removed or relocated to accommodate the new construction. Solid lines indicate existing electrical items to be retained in their present location with either existing or new connection.
4. Where equipment is not scheduled to be replaced, remove all raceways and conductors back to the originating panelboard or control panel. Existing raceways may be reused for new equipment where practical.
5. Interior and exterior walls, floors and ceilings to be patched in architectural work. Coordinate with removal of existing and installation of new devices.

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DORMITORY RENOVATION

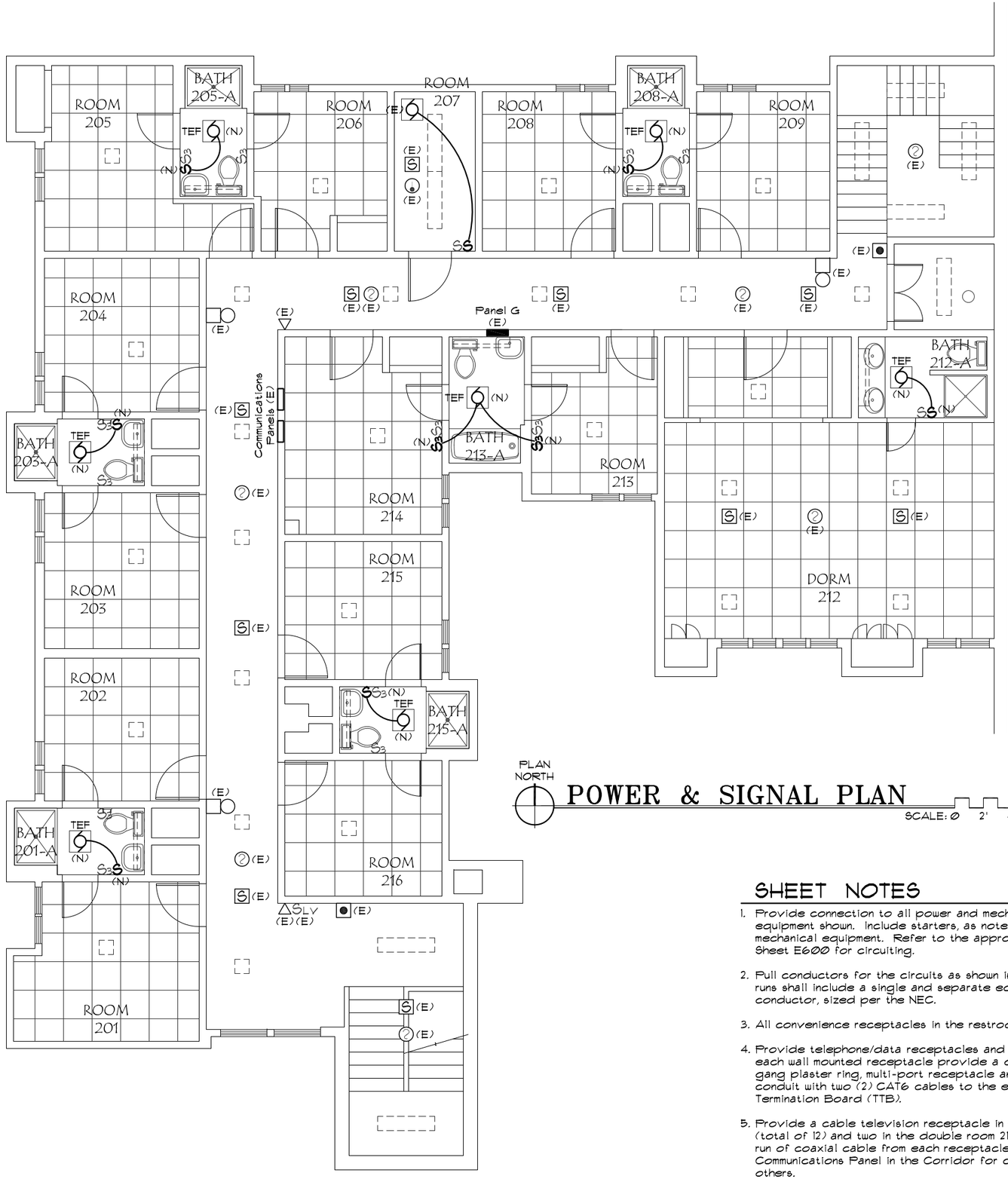
CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
DORMITORY DEMO
SECOND FLOOR
BASE & ALT #1

DATE:	APRIL 2015
REVISION:	....
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DRAWN:	GG/PG

SHEET #
E100

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POWER & SIGNAL PLAN

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and this Sheet and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and this Sheet and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

SHEET NOTES

1. Provide connection to all power and mechanical devices and equipment shown. Include starters, as noted, associated with mechanical equipment. Refer to the appropriate Panel Schedules on Sheet E600 for circuiting.
2. Pull conductors for the circuits as shown in the Panel Schedules. All runs shall include a single and separate equipment grounding conductor, sized per the NEC.
3. All convenience receptacles in the restrooms shall be GFCI.
4. Provide telephone/data receptacles and cabling as shown. For each wall mounted receptacle provide a deep 4" square box, single gang plaster ring, multi-port receptacle and plate and a 3/4" conduit with two (2) CAT6 cables to the existing Telephone Termination Board (TTB).
5. Provide a cable television receptacle in each single dormitory room (total of 12) and two in the double room 212. Provide an individual run of coaxial cable from each receptacle to the north Communications Panel in the Corridor for connection of services by others.

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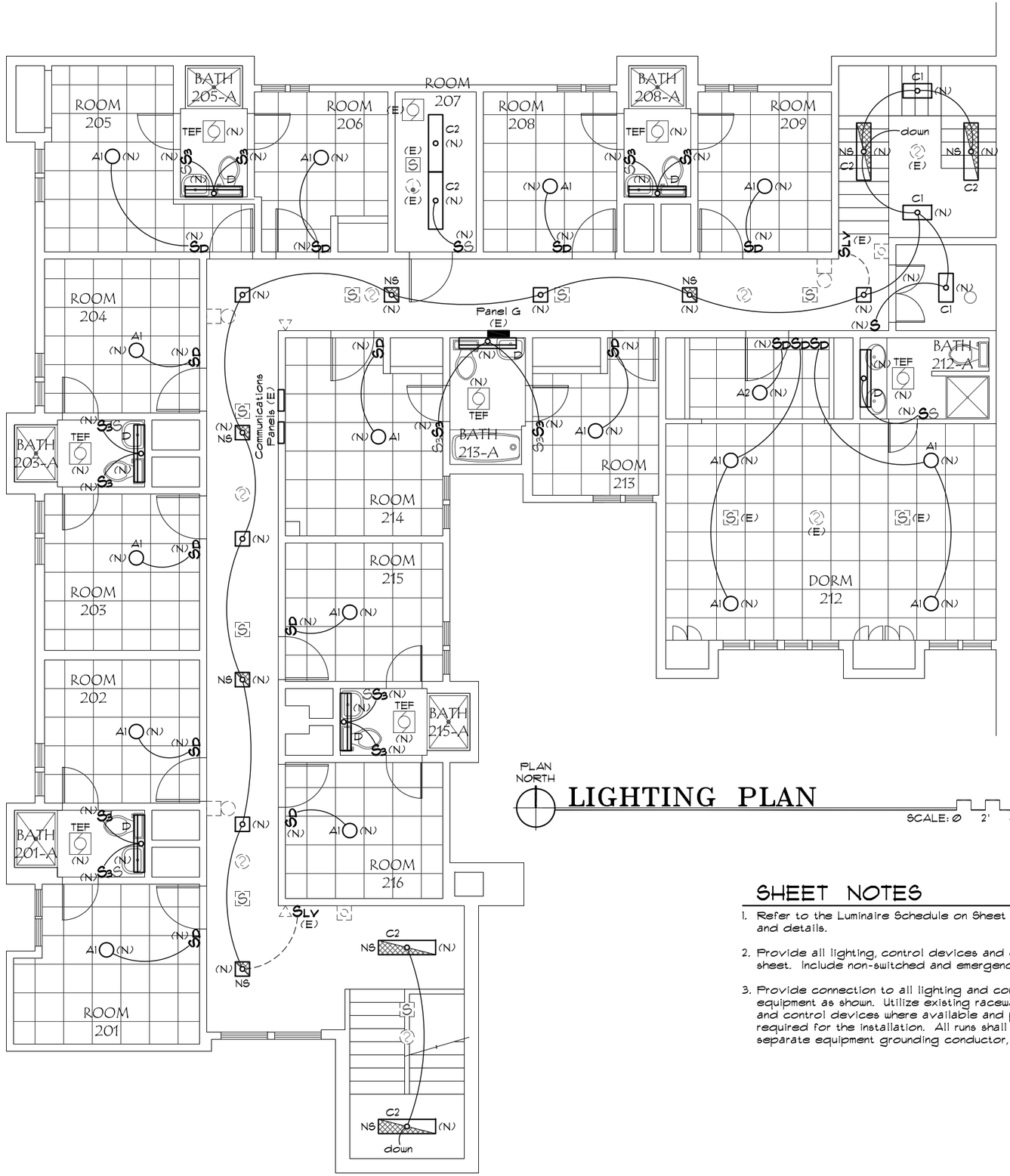
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SHEET TITLE:
POWER & SIGNAL SECOND FLOOR BASE & ALT #1

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SHEET #
E200

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LIGHTING PLAN

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and this Sheet and E200 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and this Sheet and E200 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

SHEET NOTES

1. Refer to the Luminaire Schedule on Sheet E001 for luminaire types and details.
2. Provide all lighting, control devices and equipment as shown on this sheet. Include non-switched and emergency lights as noted.
3. Provide connection to all lighting and control devices and equipment as shown. Utilize existing raceways, conductors, circuits and control devices where available and practical. Provide new as required for the installation. All runs shall include a single and separate equipment grounding conductor, sized per the NEC.

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CONSTRUCTION BID DOCUMENTS

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CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
LIGHTING PLAN
SECOND FLOOR
BASE & ALT #1

DATE: APRIL 2015
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SHEET #
E300

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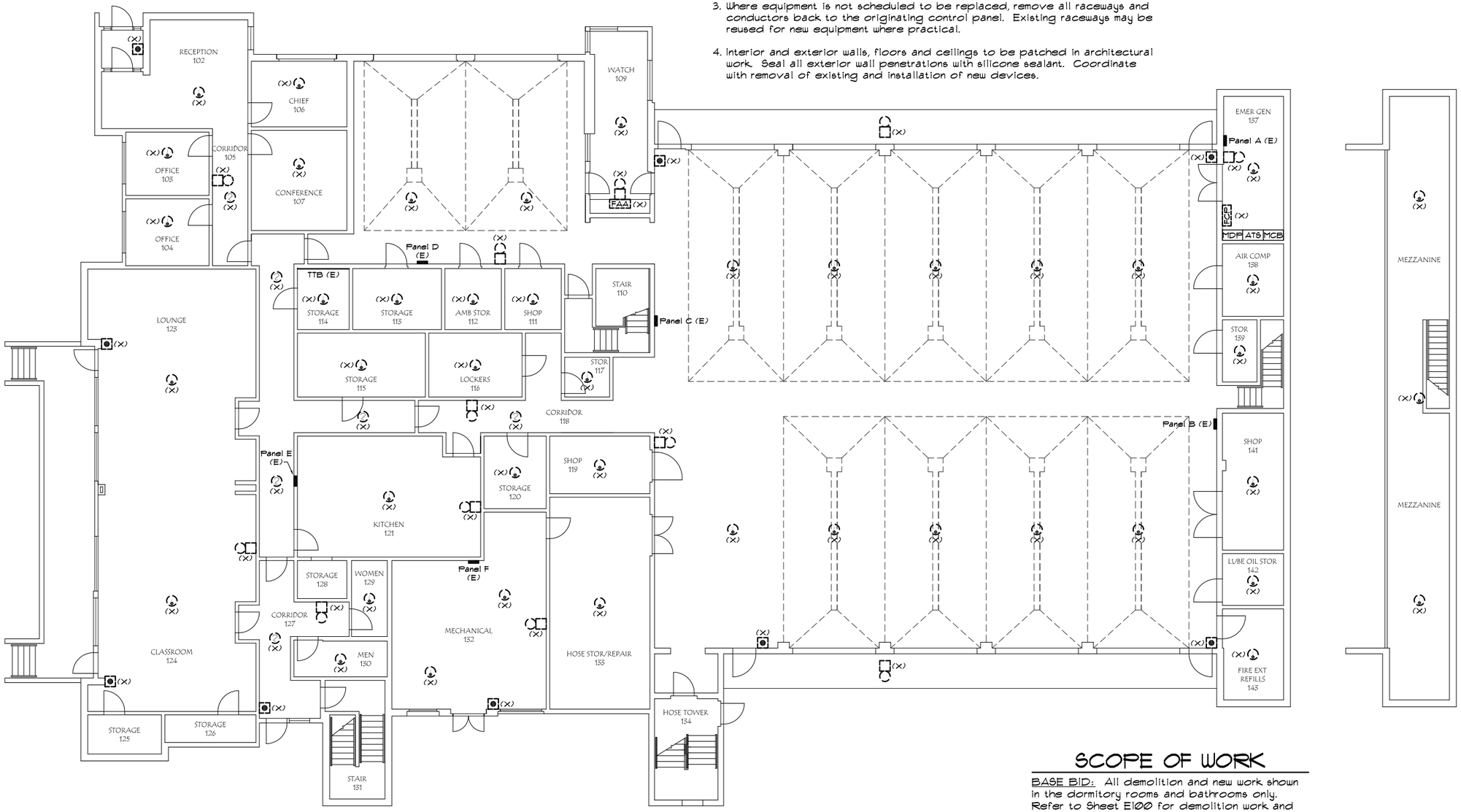
SHEET NOTES

1. Provide demolition of all existing fire alarm devices and equipment shown or necessary for the system replacement. Note, not all devices and equipment to be removed are shown on this sheet. These plans provide only a basic level of the work involved.

2. Dashed lines on this sheet denote existing electrical items to be removed or relocated to accommodate the new construction. Solid lines indicate existing electrical items to be retained in their present location with either existing or new connection.

3. Where equipment is not scheduled to be replaced, remove all raceways and conductors back to the originating control panel. Existing raceways may be reused for new equipment where practical.

4. Interior and exterior walls, floors and ceilings to be patched in architectural work. Seal all exterior wall penetrations with silicone sealant. Coordinate with removal of existing and installation of new devices.



PLAN NORTH

FIRE ALARM DEMO PLAN

SCALE: 0 4' 8' 16'

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to this Sheet and E401 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

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CONSTRUCTION BID DOCUMENTS

JUNEAU DOWNTOWN FIREHALL
FIRE ALARM SYSTEM REPLACEMENT

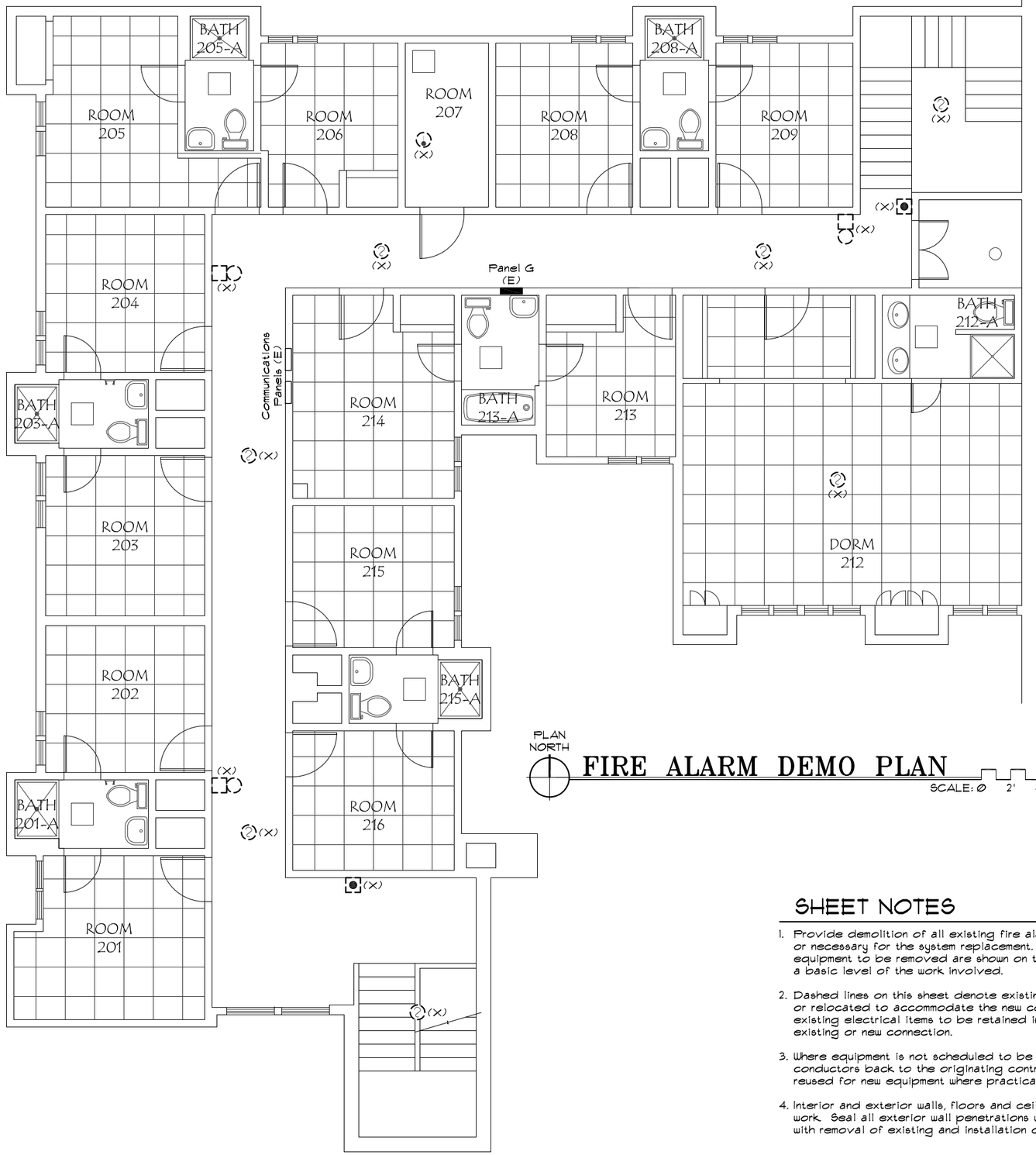
CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
FIRE ALARM DEMO
FIRST FLOOR
ALTERNATE #2

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SHEET #
E400

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FIRE ALARM DEMO PLAN

SCALE: 0 2' 4' 8'

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to this Sheet and E400 for demolition work, Sheets E500 and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

SHEET NOTES

1. Provide demolition of all existing fire alarm devices and equipment shown or necessary for the system replacement. Note, not all devices and equipment to be removed are shown on this sheet. These plans provide only a basic level of the work involved.
2. Dashed lines on this sheet denote existing electrical items to be removed or relocated to accommodate the new construction. Solid lines indicate existing electrical items to be retained in their present location with either existing or new connection.
3. Where equipment is not scheduled to be replaced, remove all raceways and conductors back to the originating control panel. Existing raceways may be reused for new equipment where practical.
4. Interior and exterior walls, floors and ceilings to be patched in architectural work. Seal all exterior wall penetrations with silicone sealant. Coordinate with removal of existing and installation of new devices.

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CONSTRUCTION BID DOCUMENTS

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FIRE ALARM SYSTEM REPLACEMENT

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SHEET TITLE:
FIRE ALARM DEMO SECOND FLOOR ALTERNATE #2

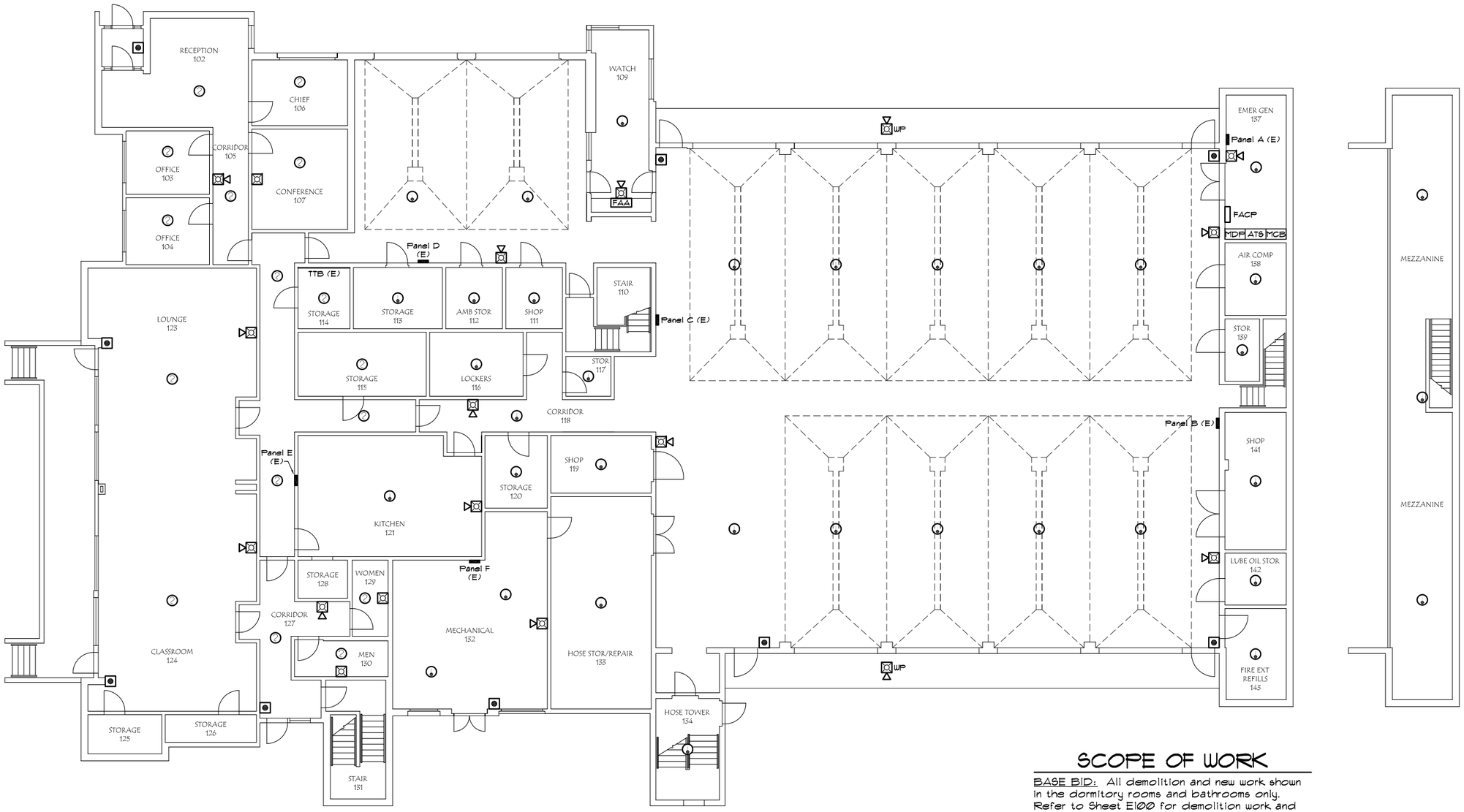
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E401

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SHEET NOTES

1. Provide connection of all the fire alarm system components to the Fire Alarm Control Panel. Refer to the Riser Diagram on Sheet E001 for configuration and circuiting. Refer to the Specifications on Sheet E600 for equipment description and installation requirements.



PLAN NORTH

FIRE ALARM PLAN

SCALE: 0 4' 8' 16'

SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, this Sheet and E501 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

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CONSTRUCTION BID DOCUMENTS

JUNEAU DOWNTOWN FIREHALL
FIRE ALARM SYSTEM REPLACEMENT

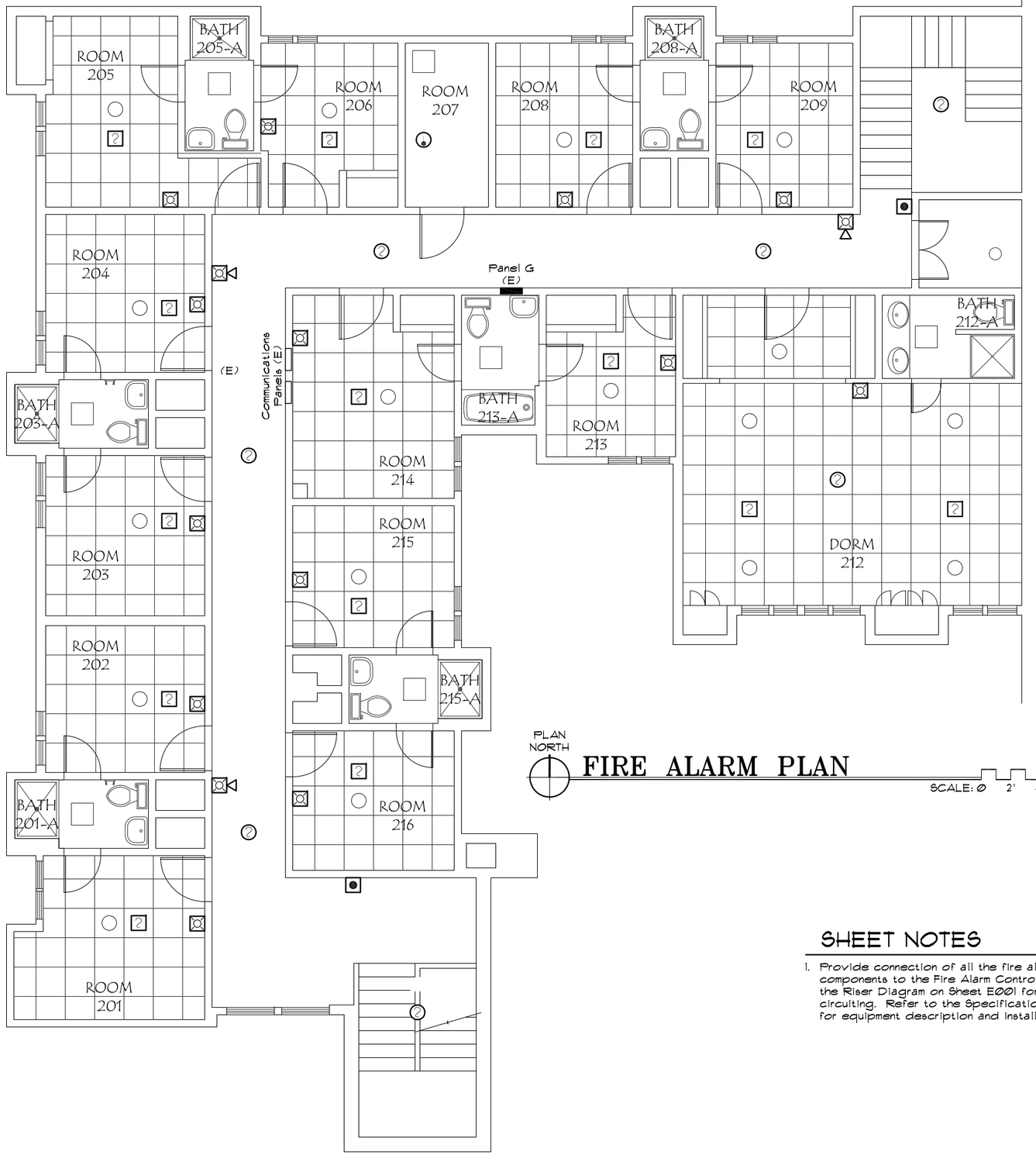
CBJ Contract No. E16-077
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SHEET TITLE:
FIRE ALARM PLAN
FIRST FLOOR
ALTERNATE #2

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SHEET #
E500

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SCOPE OF WORK

BASE BID: All demolition and new work shown in the dormitory rooms and bathrooms only. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #1: All demolition and new work shown in the corridors, stairwells and Room 207. Refer to Sheet E100 for demolition work and Sheets E200 and E300 for new work.

ADDITIVE ALTERNATE #2: All work associated with replacing the existing fire alarm system. Refer to Sheets E400 and E401 for demolition work, this Sheet and E500 for new work, and Sheet E100 for the Fire Alarm Riser Diagram.

SHEET NOTES

1. Provide connection of all the fire alarm system components to the Fire Alarm Control Panel. Refer to the Riser Diagram on Sheet E001 for configuration and circuiting. Refer to the Specifications on Sheet E600 for equipment description and installation requirements.

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CONSTRUCTION BID DOCUMENTS

JUNEAU DOWNTOWN FIREHALL
FIRE ALARM SYSTEM REPLACEMENT

CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
FIRE ALARM PLAN
SECOND FLOOR
ALTERNATE #2

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SHEET #
E501

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ELECTRICAL SPECIFICATIONS

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SECTION 16000 - SCOPE OF WORK

GENERAL REQUIREMENTS: This project requires the installation of demolition of the existing fire alarm system and installation of a new addressable fire alarm system, in accordance with these Specifications, for the existing Downtown Fire Station in Juneau, Alaska.

COORDINATION: The Electrical Contractor shall coordinate the installation of electrical features with the work of the other trades. Where conflicts are likely with structural, mechanical or other features, perform the electrical installation after the others and arrange to eliminate conflicts.

SECTION 16012 -- SUBMITTALS

CONTRACTOR'S CERTIFICATION: Each submittal shall contain a certification stating that the Electrical Contractor has reviewed the list and the items proposed conform to the Contract requirements. The certification shall be signed by the Alaska Electrical Administrator's license holder, and a copy of the license shall be included.

GENERAL: Prior to the purchase of any materials or equipment, the Contractor shall submit to the Project Representative for acceptance data completely describing all items intended for use in the work. This data shall include the manufacturer and identifying number or nomenclature; the manufacturer's published data as to size, capacity, power requirements and dimensions; and such other information as necessary to properly describe each item. Catalog cuts fulfilling these requirements will be considered appropriate for this application.

SECTION 16020 -- WORK INCLUDED

GENERAL: Provide all work designated in these specifications for a complete, safe and functional installation. Unless otherwise noted, all materials shall be of new manufacture, American-made, of the manufacturer's standard construction for the application. The omission of express reference to any part, supplies, services, or facilities necessary for or incidental to a complete installation shall not be construed as a release from furnishing such items.

INSTALLATION: Materials shall be installed in a neat, orderly and secure fashion, as required by these specifications and the commonly recognized standards of good workmanship, for which the Project Representative's judgment shall be final.

PROTECTION AND CLEANING: All electrical materials and equipment shall, both in shipment and during the entire duration of construction work, be protected against water, dust, debris, over-spray or any other contamination or damage, whether environmental in origin or as a result of handling or construction work. Any damaged items shall be replaced or repaired to original manufactured condition, at no additional cost to the Owner. All construction dust, debris, over-spray, scrap and surplus materials, etc. resulting from this work shall be cleared away, leaving the installation in completely clean condition.

REPAIR OF EXISTING FEATURES: Where previously completed building surfaces or other features must be cut, penetrated or otherwise altered for the installation of electrical features, such work shall be carefully laid out and performed. The Owner shall provide and coordinate subsequent patching or repairs to be performed by skilled mechanics of the trades involved.

WORK INCIDENTAL TO SUBSTITUTIONS: When substitutions for specified methods or materials alter the relationship between the work actually required and that called for by the Specifications, the Contractor shall bear responsibility for all expenses incurred by any necessary revisions, including the work of other trades.

SECTION 16025 -- CODES AND FEES

CODES: All work shall comply with the latest editions of:

- The National Electrical Code (NEC).
- The NFPA Codes.
- The International Building Code (IBC).
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- All applicable Federal, State, and Local laws and regulations.

PERMITS AND FEES: The Contractor shall obtain and pay for all permits and connection fees required for the work in this Division.

SECTION 16032 -- O & M MANUALS, AS-BUILTS

OPERATION & MAINTENANCE MANUALS: The electrical Contractor shall submit for review two (2) copies of Operation and Maintenance Manuals for the project. These manuals shall be bound and shall include:

- All information covered by the final accepted submittals, modified as necessary to reflect the final as-built condition.
- Complete listings of repair and replacement parts for all equipment, and names and addresses of the suppliers from which the equipment was obtained.
- Complete listing of all equipment that may require periodic servicing, with recommended schedules and complete instructions for performing said servicing. Service instructions shall include complete English-language narrative descriptions and illustrations necessary to describe all service operations.

AS-BUILT DRAWINGS: The Electrical Contractor shall at all times keep a current set of Contract Drawings on the project site. This set shall be kept in good condition, and be neatly and accurately marked to show the as-built condition of the electrical installation. Of particular importance are the precise locations of concealed features such as conductors, raceways and junction boxes. Upon completion of the project, the field-marked set of drawings shall be forwarded to the Project Representative, along with any supplementary drawings, sketches, notes or materials necessary to completely describe the as-built condition of the electrical installation.

SECTION 16110 -- RACEWAYS

APPLICATIONS: All conductors shall be run in metal raceways unless specifically permitted by the local code authority and the Owner.

LAYOUT: Raceways shall be concealed within finished walls and ceilings and as otherwise noted. Exposed raceways shall be run square with the building lines.

SECTION 16720 -- FIRE ALARM SYSTEM

SCOPE OF WORK: This Specification provides the requirements for the installation of a complete Addressable Analog Fire Detection System. The system shall include, but not be limited to: control panel, alarm initiating and indicating peripheral devices, audible notification appliances, visible notification appliances, fire alarm system software and conduit, wire and accessories required to furnish a complete operational system.

The system components will provide coverage and alarm annunciation within the entire building. Inputs shall consist of smoke detectors as well as manual pull stations. Outputs shall include strobe and horn/strobe notification appliances in the appropriate spaces.

The work covered by this Section of the Specification shall include all labor, equipment, materials and services to furnish and install a complete addressable fire alarm system. The system shall be complete with all necessary hardware, software and memory specifically tailored for this installation. It shall be possible to permanently modify the software on-site by using a plug-in programmer.

STANDARDS: All work and materials shall conform to all applicable federal, state and local codes and regulations governing the installation. National standards shall prevail unless local codes are more stringent.

System components proposed in this specification shall be UL listed to operate together as a system. The supplier shall be responsible for filing of all documents, paying all fees (including, but not limited to plan checking and permit) and securing all permits, inspections and approvals.

Upon receipt of approved drawings from the authority having jurisdiction, the supplier shall immediately forward two sets of drawings to the Engineer. These drawings shall either be stamped approved or a copy of the letter stating approval shall be included.

SUBMITTALS: Provide submittal data for all fire alarm system components. Indicate the type, size, rating, style, catalog number, manufacturer's names, photos, and/or catalog data sheets for all items to ensure compliance with these specifications.

Drawings and Diagrams: Submittals shall contain 1/8-inch = 1-foot-scale floor plans showing all raceway layouts, equipment and devices with complete wire count of all wiring proposed for installation under this contract. All devices shall be numbered and located on the drawings. Provide riser diagrams showing all interconnections and wire types and counts.

Submittals shall include:

- List of all types of equipment and components provided.
- Catalog cuts of all equipment.
- Complete operating instructions for the system and all components.
- Schematic diagrams for all equipment.
- Complete shop drawings showing equipment, wiring layout, connections and:
- Drawing of the fire alarm control panel.
- Single line riser diagram showing all equipment and type, number and size of all conductors.
- Calculation verifying standby battery capacity, including manufacturer's published current consumption data for all equipment furnished.
- Calculations and shop drawings as necessary to confirm that signal circuit voltage drops do not exceed 10% at the most distant signal devices, for the conductor sizes proposed.

QUALITY ASSURANCE/STANDARDS: All signal and communications equipment shall be supplied and installed by a licensed and bonded Fire Alarm System Contractor.

Manufacturer: All major communication system equipment shall be of a single manufacturer, supplied and installed by an authorized factory distributor.

System Materials: The Fire Alarm System Contractor shall furnish and install all materials, even though not specifically mentioned herein, which are necessary for the proper integration of the system, so that the system shall perform the functions listed herein in compliance with all the specified requirements.

Service: Each Fire Alarm System Contractor shall maintain a fully equipped service organization with stocks and have direct factory access to the manufacturer's standard parts and be capable of system inspection, troubleshooting, maintenance, and service to the system. Each Fire Alarm System Contractor shall guarantee availability of 24-hour local service by factory-trained personnel of the equipment manufacturer.

CONTRACT CLOSE-OUT SUBMITTALS: Deliver five (5) copies of the following to the Contracting Officer at the time of Project Acceptance.

- Installation and Programming manuals covering the installed system.
- Point to point diagrams of the entire system as installed. Number all conductors and show all terminations and splices.
- The application program listing for the system as installed at acceptance.
- Name, address and telephone of the authorized factory representative.

WARRANTY: Warranty all materials, installation and workmanship for one (1) year from date of acceptance, unless otherwise specified.

GENERAL EQUIPMENT AND MATERIAL REQUIREMENTS: The system shall be capable of detecting the electrical location of each intelligent device including new and existing devices. Authorized personnel shall be able to use the computer to change the personality/function of a device to meet changes in building layout or environment.

CIRCUITING GUIDELINES: Each addressable loop shall be circuited as shown on the submitted shop drawings with device loading not to exceeding 80% of loop capacity. Where it is necessary to interface conventional initiating devices provide intelligent input modules to supervise the zone wiring. Provide a minimum of two (2) notification appliance circuits for the entire building.

FIRE ALARM CONTROL PANEL: The fire alarm control panel shall incorporate all control electronics, relays and necessary modules and components into a surface mounted cabinet. The operating controls and zone/supervisory indicators shall be located behind locked door with viewing window. All control modules shall be labeled and all zone locations shall be identified. The cabinet shall be steel with a gray finish. The assembly shall contain a base panel, system power supply and battery charger with optional modules suitable to meet the requirements of these Specifications.

The system shall store all basic system functionality and job specific data in non-volatile memory. The system shall survive a complete power failure intact. The system shall have built-in automatic system programming to automatically address and map all system devices and provide a minimum default single stage alarm system operation with support of reset, alarm silence, trouble silence, drill and lamp test common controls.

The system shall have a UL Listed Detector Sensitivity test feature, which will be a function of the smoke detectors and performed automatically every four hours.

The system shall support 100% of all remote devices in alarm and provide support for a 100% complement of detector isolator bases.

The system shall use full digital communications to supervise all addressable loop devices for placement, correct location and operation. It shall allow swapping of "same type" devices without the need of addressing and impose the "location" parameters on the replacement device. It shall initiate and maintain a trouble if a device is added to a loop and clear the trouble when the new device is mapped and defined into the system.

DACT DIALER: The system shall provide off premise communications capability using a digital alarm communications transmitter (DACT) for sending system events to central monitoring station (CMS) receivers. The system shall provide the CMS with point identification of system events using Contact ID or SIA DCS protocols. In the event of a panel CPU failure during a fire alarm condition, the DACT degrade mode shall transmit a general fire alarm signal to the CMS.

SMOKE DETECTORS: System smoke detectors shall be intelligent analog ionization type utilizing a unipolar ionization smoke sensor to sense changes in air samples from its surroundings. The integral microprocessor shall dynamically examine values from the sensor and initiate an alarm based on the analysis of data. Systems using central intelligence for alarm decisions shall not be acceptable. The detector shall monitor changes in sensitivity due to environmental effects of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval. The ionization detector shall be rated for ceiling installation and for operation in constant air velocities. The percent smoke obscuration per foot alarm set point shall be factory set but field selectable to any sensitivity setting within the UL approved range for the device.

RELAY BASES: The relay bases shall have a bi-stable relay with form "C" contacts rated at 30 VDC at 1.0 Ampere, supervised for position and tested on being energized. The relay shall be controlled by its respective detector processor and in the event of a communication failure the operation of the relay shall not be affected. Upon removal of the detector the relay shall automatically de-energize.

MANUAL PULL STATIONS: It shall be possible to address each fire alarm manual pull station without the use of DIP or rotary switches. The manual stations shall have a minimum of 2 diagnostic LED's mounted on their integral, factory assembled single stage input module. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status. The station shall be capable of storing diagnostic codes that can be retrieved for troubleshooting. Input circuit wiring shall be supervised for open and ground faults.

Provide intelligent double action, single stage fire alarm stations. The fire alarm station shall be of Lexan construction with an internal toggle switch. Provide a locked test feature. Finish the station in red with white "lift then pull handle" and "pull for fire" lettering. The manual station shall be suitable for mounting on single-gang boxes and 4" square boxes with single-gang covers.

FIRE ALARM HORN/STROBES: The Fire Alarm Horn/Strobes shall be UL Listed for Fire Protective Service and shall be suitable for surface or semi-flush wall mounting. Each device shall provide a 15/75 candela strobe output with an integral, repetitive flashing Xenon tube and sound output of 86 dbA nominal at 10' on axis. Each device shall have a clear polycarbonate lens marked "FIRE" on a heavy-duty polycarbonate or cast steel housing/front plate finished in red or white. Outdoor Horn/Strobe shall be a weatherproof, surface mounted unit with a sound level of 90 dBA nominal at 10' on axis and an integral, flashing Xenon tube in polycarbonate lens marked "FIRE".

The Fire Alarm Strobes shall be capable of providing the "Equivalent Facilitation" that is allowed under the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and shall be UL 1971, UL 1638, and ULC S526 Listed.

INITIATION & CONTROL MODULES: Provide addressable control relay circuit modules at the locations required. The module shall provide one (1) form C dry relay contacts rated at 24Vdc @ 2 amps (pilot duty) to control external appliances or equipment. The position of the relay contact shall be confirmed by the system firmware.

Notification Appliance Circuits: Provide addressable notification appliance circuit modules at the required locations. The module shall provide one (1) supervised Class B notification circuit. The module shall provide polarized audible / visual selection for 24Vdc @ 2amps, audio outputs at 25Vrms @ 50 watts or 70 Vrms @ 35 watts.

WIRING: All wiring shall be of the type recommended by the NEC, per the manufacturer's requirements. All conductors shall be copper. The Contractor shall verify all wiring requirements with the manufacturer prior to submitting a bid. Initiating and signal wiring shall be 300 volt insulated copper; types TFN, THHN/THWN or XHHW and of the size recommended by the system manufacturer (#16 AWG minimum). No splices shall be installed in conduit or any inaccessible place. All splices shall be made on terminal blocks specifically designed for that purpose. All terminations must be identified. All wiring shall be color-coded (and identified with wire markers where not consolidated into single cables).

INSTALLATION: System shall be complete with all equipment, connections, wiring, backboxes, and conduit. The system shall be tested, adjusted as required, and left in completed, fully functional condition. All wiring shall be checked and tested by the installing Contractor, in accordance with the instructions provided by the manufacturer, to assure that the system is free of grounds, opens or shorts.

TESTING AND ACCEPTANCE: The Fire Alarm System Contractor shall be responsible for the commissioning, start-up and troubleshooting of the signal and communications systems. Notify the Engineer of the date and time of commission testing at least two weeks prior to testing. Start-up and testing of the system by the Electrical Contractor is not acceptable.

Test Results: Upon completion of the testing, the test documentation shall be sent to the Engineer stating the adjustment and commissioning of the system is complete. A copy of each test shall be included in the Operations and Maintenance Manual.

Deficiencies: In the event that defects or deficiencies are found, they are to be corrected to the satisfaction of the Engineer.

Acceptance: Signal and communications systems will not be accepted on a device-by-device or area-by-area basis, but only as a fully completed and operational system. Beneficial usage shall start upon successful completion of the system test and acceptance by the Engineer.

DOCUMENTATION AND TRAINING: The contractor shall compile and provide to the Owner six (6) comprehensive manuals on the completed system to include operating and maintenance instruction, catalog cuts of all equipment and components, as-built wiring diagrams and a manufacturer's suggested spare parts list.

In addition to the above manuals, the contractor shall provide the services of the manufacturer's trained representative for a period of two (2) hours to instruct the Owner's maintenance personnel on the operation and maintenance of the entire system.

Training: Orient the training specifically to the systems installed, rather than a general training course. Instructors shall be thoroughly familiar with all aspects of the specific system and its components. Utilize the computer and communications feature as part of the training course.

SPARE COMPONENTS: Furnish the following spare components: two smoke detectors of each type used in the system, one visible notification appliance (strobe) and one combination notification appliance (horn/strobe). Provide all spare parts in a single box with all spares listed along with replacement instructions. All spare components shall be available on-site for inventory at the time of final inspection.

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IF THE ABOVE DIMENSION DOES NOT EQUAL EXACTLY 1", THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELED SCALES

CONSTRUCTION BID DOCUMENTS

JUNEAU DOWNTOWN FIREHALL
FIRE ALARM SYSTEM REPLACEMENTS

CBJ Contract No. E16-077
JUNEAU, AK 99801

SHEET TITLE:
ELECTRICAL SPECIFICATIONS

DATE: APRIL 2015
REVISION: ....
CHECKED BY: PG
DRAWN: GG/PG

SHEET #
E600