SCOPE OF WORK
SEQUENCE #18
BUTTERFIELD B – NEW FIRE ALARM INSTALLATION

PART 1 – GENERAL

1.1 RELATED INFORMATION AND DOCUMENTS

1. The scope of work for this project includes the installation of a new fire alarm system, voice evacuation system and peripheral devices, to include but not be limited to automatic smoke and heat detectors, manual pull stations, speaker strobes and magnetic door holder relays for the existing magnetic hold opens for the Butterfield B building as indicated on the drawings and in the specifications. The Contractor shall furnish all labor, equipment and materials and perform all operations required.

2. Additional work not shown on drawings but shall be a part of the contractors bid includes the installation of transponders and power supplies as required for the most efficient installation, reconnection of all sprinkler water flow and supervisory switches and all electromagnetic door holders, control relays and power supplies.

3. The Owner shall obtain the building permit for all of the MM FY12 projects. Building permit number shall be provided to the awarded contractor. Contractor shall provide to the Owner certified copies of all contractor and sub-contractor licenses. Licenses shall be current and correspond to the type of work being performed by the specific individuals. Contractor shall not be allowed to start work without these copies.

4. Contractor shall schedule and notify Owner of all inspections with the City of Middletown. Owner must be present at inspections.

5. Drawings, photos and general provisions of the Contract, including General and Supplementary Conditions and all other Specification Sections apply to this section.

1.2 HAZARDOUS MATERIAL COORDINATION

1. All painted surfaces are to be treated as positive for lead containing paint due to the construction of the building prior to 1978. Federal, State, Local and OSHA requirements are to be strictly adhered to for all lead removal. Contractor shall wrap lead waste in 6-mil plastic and dispose of in Owner supplied lead dumpster. Owner shall dispose of lead waste.

2. Contractor’s superintendent shall be certified by the U.S. Environmental Protection Agency (EPA) for lead based paint activities. All contractor personnel working on the project shall be trained by the U.S. Environmental Protection Agency (EPA) for lead based safe practices.

3. Painting contractor shall provide current blood test results for ALL employees working on Wesleyan properties before the start of any work. Monthly reports shall be provided thereafter and also upon completion of the project. See Section 01015.

4. Some areas of the building have asbestos containing materials (ACM’s). Contractor either has to arrange the installation of equipment in such a manner that the ACM’s are not disturbed, or will be required to provide a layout of equipment to be installed, so that specific areas may be abated of ACM’s prior to installation.

1.3 SCHEDULE

1. General Project Schedule
   b. Project Complete: August 2, 2011 (Coordination of work with occupied offices will be Required).
2. There will be an electrical shutdown of the entire Butterfield B complex from August 8, 2011 through August 16, 2011 – no power to the building will be available. Contractor shall complete all fire alarm work by August 2, 2011.
3. After arranging an approved schedule, the Contractor is responsible for contacting Wesleyan University’s in-house electrical shop foreman Rich Darna and the City of Middletown alarms division in order too disconnect the radio alarm master box prior to working on the existing fire alarm system.
4. The existing fire alarm system must be maintained in working order for the duration of the project.
5. Upon completion of work in areas, Contractor shall turn over completed areas to the Owner for the performance of summer maintenance.

1.4 GENERAL PROJECT REQUIREMENTS

1. Contractor shall adhere to the project manual.
2. Contractor to assume all paint is lead containing. Reference the Hazardous Assessment materials report available for viewing at the Owner’s office located at 170 Long Lane.
3. A current transformer replacement project will be in progress in the building by another contractor for the duration of this project. Contractor shall coordinate work with the Owner’s Representative as required.
4. Butterfield B – Basement Level will be occupied by custodial staff for general maintenance.
5. Butterfield B – First Floor Level: The Freeman scholars, HPPI, Mellon Mays and MacNair programs will occupy the office spaces in the 300 – 400 pods. Contractor shall coordinate work in these areas with Owners Representative as required.
6. The Butterfield Complex; Buildings A & C will be occupied by CCY summer programs beginning June 12 - July 31, 2011.
7. The existing fire alarm system must be maintained in working order for the duration of the project. Contractor shall post appropriate signage as pull stations are taken out of order.
8. Contractor is responsible for verifying the fire alarm equipment layout with the vendor, Owner and City of Middletown Fire Marshal.
9. All cutting, patching, painting and fire caulking shall be included in the bid price.
10. The contractor will be responsible to ensure each subcontractor is responsible for daily clean up of individual’s work. Project site must be kept clean and free from tripping hazards.
11. Conduct construction waste management activities in accordance with the State of Connecticut EPA, Middletown Municipal Code and all other applicable laws and ordinances. Removal of non lead based debris is to be disposed of in contractor supplied dumpsters at a location agreed to by the Owner and Contractor (Reference Section 01505, Construction Waste Management).
12. Coordinate all work with work of other trades.
13. Contractor to comply with all State and Federal Codes, City of Middletown Ordinances, OSHA requirements and Wesleyan University General Project Requirements and Closeout Procedures.
14. Provide as-built condition drawings for all work performed in this building.
15. Contractor shall provide dust barriers to all surrounding spaces within building during fire alarm installation.
16. After review of site, contractors are responsible for any required temporary protection during the work.
17. Any overtime required to complete the project MUST be brought to Owner’s attention prior to submission of bid.
18. Final cleaning of the area after completion is the responsibility of the contractor.
19. Doors to facilities must be kept locked at all times; any propped doors will be closed by Wesleyan University facility operations staff or public safety, no complaints or exceptions. If
doors have to be propped for loading or unloading, the door shall be attended by a contractor’s representative.

SUBMITTALS:

1. Five sets of submittals shall be supplied to Wesleyan University before the start of any installation.

2. Submittals shall consist of detailed data sheets for each piece of equipment to be supplied for this project including but not limited to all fire alarm equipment, battery backup calculations, wire, raceways, junction boxes, fastening methods and fire caulk.

3. Detailed floor plans with all device locations and room numbers shall be included and shall be in an AutoCAD format. Wesleyan shall supply the backgrounds for this in AutoCAD version 2006.

4. Detailed riser drawings will all device locations and addresses shall be supplied. The description indicated for each device shall be approved by Wesleyan and shall match the exact description as programmed into the fire alarm control panel and indicated on the annunciators.

5. Riser drawings shall include, where applicable, the candela setting, the wattage and voltage setting for all indicating devices. Voltage drop calculations shall be supplied for each circuit or a cross reference table for checking voltage drop shall be supplied.

6. Detailed point to point wiring diagrams for every device shall be supplied.

PART 2 - SCOPE OF WORK BY DIVISION

DIVISION 2 – DEMOLITION

General
1. All demolition activities shall be in accordance with Wesleyan University’s Construction Waste Management guidelines outlined in section 01505.

2. Any walls or ceilings required to be penetrated or demolished to complete the work specified shall be fire caulked, patched, primed and painted upon completion of the work.

3. Salvage existing smoke detectors (installed in 2007) and return to owner, appropriately boxed with quantities noted on label. Remove batteries and dispose of properly prior to boxing.

4. Remove conduit, wiremold, back boxes from existing local smoke detectors.

5. Remove existing conduit and wiremold as required for a proper installation.

6. Remove, box and return all pull stations intact to Owner for proper disposal of mercury component.

7. Contractor shall coordinate fire alarm shutdown with the Owner’s Rep, Wesleyan University’s in-house electrical foreman Rich Darna and the City of Middletown Fire Department.

DIVISION 3 – CONCRETE

1. N/A

DIVISION 4 – MASONRY

1. N/A

DIVISION 5 – METALS
1. New pull stations and voice-strobe as identified on the drawings.
   a. Cap existing abandoned strobe and pull junction boxes with metal plates and paint to match adjacent wall color and finish.

DIVISION 6 – WOOD AND PLASTICS
1. N/A

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
1. Apply firestopping to all electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.
2. Firestopping materials and installation requirements are specified in Division 7 Section "Through-Penetration Firestop Systems."

DIVISION 8 – DOORS AND WINDOWS
1. N/A

DIVISION 9 – FINISHES
1. Patch and paint walls where conduit, wiremold, back boxes, junction boxes, etc. have been removed.
2. Paint all new conduit, wiremold, covers to match existing wall color and finish.
3. Contractor shall infill, patch, prime and paint any walls or ceilings that were penetrated/demolished to complete any of the work specified.
4. Cap and paint existing abandoned horn/strobe and pull junction boxes to match adjacent wall color and finish.

FINISH SCHEDULE:
To be provided under separate cover.

DIVISION 10 – SPECIALTIES
1. N/A

DIVISION 11 – EQUIPMENT
1. N/A

DIVISION 12 – FURNISHINGS
1. N/A

DIVISION 13 – SPECIAL CONSTRUCTION
1. N/A

DIVISION 14 – CONVEYING SYSTEMS
1. N/A

DIVISION 15 – MECHANICAL
1. Tie in existing sprinkler system to the new fire alarm system.

DIVISION 16 – ELECTRICAL
1. Contractor shall install a new fire alarm system. The system shall be Siemens XLS and shall meet specification requirements.

2. Contractor bid shall be based on the following estimated quantities – Notify Owner if quantities differ in the field.
   a. Pull Stations: 23
   b. Flow Switches: 19
   c. Tamper Switches: 17
   d. Duct Detectors: 8
   e. Magnetic Door Holder Relays: 4

   Reference fire alarm drawings for additional device requirements and location clarifications.

3. The Fire Alarm Control Panel (FACP) shall be an addressable system with integral voice evacuation command center. The Voice command center shall have a digital message generator. Voice message shall be the same as Butterfield A.

4. The remote annunciator shall consist of a LCD annunciator with the same character capacity of the main FACP. It shall also have the capability of trouble acknowledge, system silence and system reset. It shall have a microphone and control switching that will allow interruption of the recorded alarm message and allow a manual message to be sent to all or any combination of floors. All of these controls shall be mounted in one locking cabinet.

5. Contractor shall ensure costs include the appropriate number of wires required and/or power supplies if required.

   1. 250 detection devices can be put on a loop, two (2) loops will be used.
   2. Speaker circuits will be around 30 per circuit
   3. Strobes around 30 per circuit, 3 amp circuits will be used.
   4. Two circuits for power will be used for audible bases. This will leave power to drive strobes if need be.
   5. If these quantities are exceeded, power supplies will be required.

6. Duct smoke detectors are required on the return air only if the return air exceeds 5,000 CFM. Therefore, they shall not be required.

7. The FACP shall have an integral QWERTY keyboard installed for programming. If a keyboard is unavailable then the equipment supplier shall supply all computer software and programmers needed for the owner to make program changes to the equipment.

8. The FACP shall be capable of handling all input and output devices needed for this project and shall have a spare supplied capacity of 20%.

9. Amplifiers and power supplies shall be sized to meet existing demand and an additional 25%. All amplifiers shall have a backup amplifier that will automatically take up the load should an amplifier fail.

10. New fire alarm system shall have battery back up. The battery backup shall be designed for 24 hours of standby with 15 minutes of alarm after that.

11. Contractor shall install magnetic door holder relays for the existing magnetic hold opens.

12. Provide all material and labor for the installation of:
   a. All conduit / wiremold
   b. Hangers
   c. Supports and wire required to tie in the sprinkler valve and switches
   d. Devices and equipment per drawings

13. All wiring shall be done to national, state and local standards.

14. All wiring shall be MC cable where concealed and metal wiremold or EMT where exposed.
15. Additional power wiring shall be pulled to a junction box within 4 feet of each room smoke detector. This wiring shall be for future use if room ADA strobe lights are needed.

16. For ease of troubleshooting the building shall be wired as four wings at a minimum – a fifth wing is acceptable. Each wing and each floor shall be treated as a separate zone. All wiring for a zone shall begin at a terminal cabinet junction box. All terminals shall be permanently labeled with a circuit number that will correspond with the as built drawings.

17. New pull stations and voice-strobe as identified on the drawings. Final locations shall be verified in the field during the pre-bid walk through.
   a. Cap and paint existing abandoned horn/strobe and pull junction boxes to match adjacent wall color and finish.

18. The sprinkler system shall remain active and alarm to the radio master box should the need arise throughout the project. Local smoke detectors shall not be removed from spaces until the fire alarm is active in the respective location. The fire alarm system devices (smokes, pulls, horns, strobes, magnetic hold opens) are allowed to be taken off line as occupancy in the building shall not exceed 10 throughout the summer. This will allow the reuse of conduit and wiring that is intact and without cracks, cuts, damage. Conduit shall not be overfilled.

### SEQUENCE OF OPERATION

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<tr>
<th>Apartment Smoke Detector &amp; Any Other Initiating Device</th>
<th>Sprinkler Waterflow Switch</th>
<th>Sprinkler Supervisory Switch</th>
<th>Duct Smoke Detector</th>
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<tr>
<td>Manual Pull Station Smoke Detector</td>
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Indicate Trouble on FACP
Indicate Trouble on remote annunciators
Indicate Supervisory on FACP
Indicate Supervisory on remote annunciators
Indicate Alarm on FACP
Indicate Alarm on remote annunciators
Sound general evacuation alarm
Release Electromagnetic door holders
Shutdown associated HVAC unit
Sound associated sounder base
Sound all sounder bases
Send signal to Middletown FD via Master Box

An individual room smoke detector alarm shall automatically reset if the smoke condition has cleared but will latch in alarm if any other initiating device goes into alarm while that smoke is in alarm.

19. Contractor shall coordinate reconnection to existing master box with Middletown Fire Department, Owner’s rep and Wesleyan’s in-house electrical foreman, Rich Darna.

20. Contractor shall provide for all testing and commissioning to ensure functionality. Contractor shall schedule and notify Owner of all inspections with the City of Middletown. Owner must be present at inspections.

21. Review and approval by authorities having jurisdiction

22. Coordinate and schedule with Owner training of all in-house electrical tradespersons.

23. Close out requirements including but not limited to
   a. As-built drawings
      i. As built floor plans shall indicate the actual location of all devices. Initiating devices shall show the address of that device.
      ii. All wire runs shall be shown on the drawing along with the location of the

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terminal cabinets.

   iii. Candela ratings shall be shown for each device.

b. Acceptance certificates from the local agencies having jurisdiction.

c. Warranties/Guarantees

   i. All equipment shall be warranted by the manufacturer for a minimum of 3 years. The supplier shall warranty his labor to replace any defective item for a period of one year.

   ii. The installation contractor shall warranty all wiring for a period of one year.