

This addendum is hereby made part of the Contract Documents as though it were originally included therein and must be acknowledged by the bidder in the proper place on the bid form.

<u> Project Manual – VOL II</u>

1. Reference Addendum No. 1

A. Item 24, Specification Section 23 5519 – Meters and Gauges for HVAC Piping – **DELETE** "23 5519". **SUBSTITUTE** "23 0519".

2. Reference Specification Section 08 8000 – Glazing

- A. Article 2.02:
 - 1. Paragraph A. ADD "Safti First." and "Riot Glass"
 - 2. Paragraph F.
 - a. Paragraph 1. DELETE "Fireglass20 by J.R. Four Ltd. and distributed by Technical Glass Products". SUBSTITUTE "Superlite II XL-45 by Safti First".
 - b. Paragraph 2.:
 - 1) **DELETE** "ceramic glass".
 - 2) **DELETE** *"Firelite Plus by Nippon Electric Glass Company, Ltd., and distributed by Technical Glass Products"*. **SUBSTITUTE** *"Superlite II XL-60 by Safti First"*.
 - c. Paragraph 3:
 - 1) **DELETE** "or 1-7/16 inches thick respectively".
 - 2) **DELETE** "annealed glass".
 - 3) **DELETE** "Pyrostop by Pilkington Group and Distributed by Technical Glass Products". **SUBSTITUTE** "Superlite XL-90 by Safti First".
 - d. Paragraph 4. ADD "Ballistic Glazing Level 3: RG3-LS by Riot Glass."
- 3. Reference Specification Section 26 0940 Wireless Lighting Control System
 - A. **DELETE** in its entirety. **SUBSTITUTE** the attached revised Section 26 0940 Wireless Lighting Control System.

<u>Contract Drawings – VOLUME I</u>

- 4. ADD the attached Sheet AD2-A2 Existing Roof Hatch Detail.
- 5. Reference Sheet No. AA001 Hazardous Materials Abatement Notes, Schedules and Abbreviations A. DELETE in its entirety: SUBSTITUTE the attached revised Sheet No. AD2-AA001
- Reference Sheet No. AA101 First Floor Abatement Plan
 A. DELETE in its entirety: SUBSTITUTE the attached revised Sheet No. AD2-AA101
- Reference Sheet No. AA103 Roof Abatement Plan
 A. DELETE in its entirety: SUBSTITUTE the attached revised Sheet No. AD2-AA103
- 8. Reference Sheet No. A400 Roof Plans
 - A. ADD Detail 2 Roof Deck Key Plan on the attached sheet AD2-A1 Roof Deck Types Key Plan
 - B. **REFERENCE** Detail 1 Partial Roof Plan on the attached sheet AD2-A3 Partial Roof Plan for clarification regarding the existing roof hatch.
 - C. **DELETE** General Roofing Note No. 8 in its entirety. **CLARIFICATION:** The roof recovery system will be applied directly to the existing roof slopes and cricket layout. There are no additional tapered areas included in the recovery work.

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D. **ADD** the following to General Roof Note No. 9 – "Note: There are no new scupper locations required as part of the roof recovery system. See detail 6 on sheet A411 for existing scupper requirements."

9. Reference Sheet No. A410 – Roof Details:

A. DELETE all references to "Existing metal deck", "Existing metal deck to remain", and "Existing metal roof deck to remain." **SUBSTITUTE** "Existing roof deck to remain. See roof deck key plan for existing roof deck types and locations."

Contract Drawings – VOLUME II

- 10. Reference Sheet No. ED101 Electrical Removal Plan First Floor Area A
 - A. View #1 Removal Plan First Floor Area A Kitchen Area Field verify, retain, and reinstall existing smoke and heat detection devices. No new detection devices will be proposed for this space.
- 11. Reference Sheet No. ED113 Electrical Removal Plan Second Floor Area C
 - A. View #1 Electrical Removal Plan Second Floor Area C Clarification four (4) existing strobe devices shall be maintained, not currently shown on ED113, they are located on the upper track.

12. Reference Sheet No. E101 – Electrical Power Plan & Systems Plan – First Floor Area A

- A. View #1 First Floor Power & Systems Plan Area Å Pre-K 121 ADD one (1) ceiling-mounted speaker only device located in the center of the room.
- B. View #1 First Floor Power & Systems Plan Area A Multi-Purpose Room 128 ADD four (4) ceiling-mounted smoke alarm detectors.
- C. View #2 First Floor Power & Systems Plan Area A Kitchen Area DELETE quantity three (3) wall-mounted strobe only devices, replace with quantity three (3) combination wall-mounted speaker/strobe devices. Each device shall be set to 30cd.
- 13. Reference Sheet No. E102 Electrical Power Plan & Systems Plan First Floor Area A
 - A. View #1 First Floor Power & Systems Plan Area B Changing Room 140A ADD one (1) wallmounted combination speaker/strobe device.
 - B. View #1 First Floor Power & Systems Plan Area B BOCES Services G ADD one (1) ceilingmounted combination speaker/strobe device.
 - C. View #1 First Floor Power & Systems Plan Area B IT 34 ADD one (1) ceiling-mounted combination speaker/strobe device.
 - D. View #1 First Floor Power & Systems Plan Area B Main Entrance:
 - 1) **REPLACE** existing annunciator in the main entrance lobby.
 - 2) **ADD** combination annunciator/microphone in main entrance lobby.
 - E. View #1 First Floor Power & Systems Plan Area B Main Office ADD one (1) new standalone fire alarm voice microphone in the main office. Coordinate final location with Construction Rep.

14. Reference Sheet No. E104 – Electrical Power & Systems Plan – First Floor Area D

- A. View #1 First Floor Power & Systems Plan Årea D Server 116A ADD one (1) ceiling-mounted combination speaker/strobe device.
- B. View #1 First Floor Power & Systems Plan Area D TR 131B ADD one (1) ceiling-mounted combination speaker/strobe device.
- C. View #1 First Floor Power & Systems Plan Area D Copy Room 141:
 - 1) **ADD** one (1) ceiling-mounted combination speaker/strobe device.
 - 2) **Copy Room 141 ADD** one (1) ceiling-mounted combination speaker/strobe device.

15. Reference Sheet No. E105 – Electrical Power & System Plan – First Floor Area E

A. View #1 – First Floor Power & Systems Plan Area E – Telecom 105A – ADD one (1) ceilingmounted combination speaker/strobe device.

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- B. View #1 First Floor Power & Systems Plan Area E Custodian Sto. 105 ADD one (1) ceilingmounted combination speaker/strobe device.
- C. View #1 First Floor Power & Systems Plan Area E Kindergarten 107 ADD one (1) ceilingmounted combination speaker/strobe device.
- 16. Reference Sheet No. E114 Electrical Power & Systems Plan Second Floor Area D
 - A. View #1 Second Floor Power & Systems Plan Area D Kiln 209A ADD one (1) ceiling-mounted combination speaker/strobe device.
- 17. Reference Sheet No. E115 Electrical Power & Systems Plan Second Floor Area E A. View #1 – Second Floor Power & Systems Plan Area E – Boys TR:
 - 1) **DELETE** one (1) ceiling-mounted strobe device.
 - 2) **ADD** one (1) ceiling-mounted combination speaker/strobe device.
 - B. View #1 Second Floor Power & Systems Plan Area E Girls TR:
 - 1) **DELETE** one (1) ceiling-mounted strobe device.
 - 2) **ADD** one (1) ceiling-mounted combination speaker/strobe device.

Respectfully submitted

Taylor J. Woolf, AIA, NCARB Associate / Project Architect

TJW:lr Enclosures

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SECTION 26 0940 WIRELESS LIGHTING CONTROL SYSTEM

GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Wireless Lighting Control Devices
 - 2. System Software Interfaces
 - 3. System Backbone and Integration Equipment
- B. Related Sections:
 - 1. Section 26 2726 Wiring Devices/Lighting Controls for wired switches,

1.02 DEFINITIONS

- A. Communication Bus: A wired interface a device uses to communicate with other control devices.
- B. Device: A wired or wireless equipment that controls the light emitted by a lighting source, including fluorescent ballasts, LED drivers, incandescent lamps, manual switches, switching relays, dimming modules and sensors.
- C. Group: A set of devices that communicate together
- D. Scene: Digital light level associated with a preset
- E. Supervisory System: A set of tools to acquire, process, communicate and display equipment status data, metered electrical parameter values, power quality evaluation data, event and alarm signals, tabulated reports, and event logs.
- F. System Backbone: Devices used to connect separate spaces via TCP/IP, including bridging devices, gateways, and area controllers.

1.03 SUBMITTALS

- A. Submittals Package: Submit the shop drawings, and the product data specified1. below at the same time as a package.
- B. Shop Drawings:
 - 1. Composite wiring and/or schematic diagram of each control circuit as proposed to be installed (standard diagrams will not be accepted).
 - 2. Sequence of operations for each space and how the suggested control will be programmed
- C. Product Data: Catalog sheets, specifications, and installation instructions.
 - . Include data for each switch, sensor and switch pack which:
 - a. Indicates where sensor is proposed to be installed.
 - b. Proves that the sensor is suitable for the proposed application.
 - c. Closeout:
 - d. Forms are to be completed by the installer before requesting the system start-up.
 - e. Warranty Certification.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications
 - 1. Phone Support: Toll-free technical support shall be available from the manufacturer through an online tool to schedule a technical support appointment and provide 24/7 emergency support.
 - 2. Remote Support: The manufacturer shall be capable of providing remote support, and the ability to virtually connect with customers to address issues with visual guidance overlaid on images of real-world objects.
 - 3. On-Site Support: The manufacturer shall be capable of providing a 72-hour, on-site response time within the continental United States and Canada.
 - a. Service Contracts: The manufacturer shall be capable of providing service contracts for continued on-site and remote support of the lighting control system post-installation for terms up to 10 years from substantial completion, including:
 - 4. Remote and on-site emergency response.
 - 5. Remote system performance checks.

- 6. Remote diagnostics.
- 7. Replacement parts.

1.05 WARRANTY

- A. Warranty: The manufacturer and Installer warrant that installed lighting control devices perform per specified requirements and agree to repair or replace, including labor, materials, and equipment, devices that fail to perform as specified within the extended warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty operation of lighting control hardware.
 - b. Faulty operation of lighting control firmware.
- B. Minimum Warranty Period:
 - 1. Five years for lighting control devices from the date of shipment.
 - 2. One year for the supervisory controller from the date of shipment
 - 3. One year for lighting management software application from the date of shipment

PART 2 – PRODUCTS

2.01 SYSTEM COMPLIANCE

- A. Components manufactured in accordance with UL 916 and UL 924 standards where applicable.
- B. Components manufactured in accordance with CFR Title 47, Part 15 standards where applicable.
- C. Components manufactured in accordance with ISED Canada RSS-247 standards where applicable.
- D. Components manufactured in accordance with IFT-008-2015 and NOM-208-SCFI-2016 standards where applicable.
- E. The system shall be listed as a qualified system under Design Lights Consortium
 1. Networked Lighting Control System Specification v5.0.
- F. Performance Criteria:
 - 1. Listed and labelled in accordance with NFPA 70 by a qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.

2.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. System Characteristics
 - 1. The system is composed of the following interconnected digital control devices and connected luminaires:
 - a. Wallstations Wired and Wireless.
 - b. Ceiling and Tile mount Occupancy/Vacancy Ceiling Sensors Wired and Wireless.
 - c. Fixture mount sensors for indoor, industrial, and outdoor fixtures Wireless.
 - d. Dimming Switchpack Wired and Wireless.
 - e. Area controller
 - f. Lighting Management Software applications
 - 2. The system shall be able to support the following topologies:
 - a. Interconnected digital control devices and connected luminaires to control the lights in a standalone room/a space with one or multiple zones.
 - b. Interconnected digital control devices, connected luminaires, area hubs and area controllers to control the lights in networked rooms/spaces with one or multiple zones per room.
 - 3. In a single room/space topology, the lighting control system shall provide the following capabilities:
 - a. Wireless communication The devices shall be able to exchange data with each other via low-voltage network cabling or wireless communication.
 - b. Occupancy sensing The ability to automatically turn the lights on and off based upon detecting the presence or absence of people in an indoor or outdoor space.
 - c. Daylight harvesting The capability of automatically affecting the operation of luminaires based on the amount of daylight present in a space.
 - d. Zoning The capability of grouping luminaires to form unique lighting control zones for a control strategy via software or electrical installation details (e.g. wiring).
 - e. High-end trim The ability to set the maximum light output to a less-than-maximum state of an individual or group of luminaires/lamps using the software application.

- f. Individual Addressability The ability to uniquely identify and address each luminaire and control device, allowing for configuration and re-configuration of devices and control zones independent of electrical circuiting.
- g. Continuous dimming The ability to offer smooth light level changes by providing high resolution in light output control.
- h. Personal Control The capability for individual users to adjust the lights to their personal preferences using a control interface.
- i. Scenes control The capability of providing two or more pre-programmed light level settings for a group or multiple groups of luminaires.
- j. Emergency lighting The capability of having emergency lighting to full on upon loss of normal power.
- k. Luminaire Level Lighting Control (connected luminaires) The capability to have an occupancy sensor and ambient light sensor installed for each luminaire for luminaire level control as well as the ability of individual luminaires to exchange data with other luminaires and control devices on the system (Note: for wireless luminaires and control devices only).
- I. Programming The capability of allowing installers and system owners to configure the system to meet their specifications using an application running on a mobile device or accessible via a web browser running on a computing device.
- m. System devices support firmware updates from a mobile app or controller.
- n. Out-of-box control For spaces controlled by wired control devices or spaces within connected wireless luminaires, the lights shall be able to go to 75% light level once powered and automatically turn on/off based on the occupancy status of the space with no programming.
- o. Standalone Control The capability for connected luminaires and digital lighting control devices within the same space to provide automatic control from sensors (occupancy and/or photosensor) without requiring connection to a higher-level system component.

2.03 WIRELESS CONTROL SYSTEM CHARACTERISTICS

- A. Multiple wireless networking protocols supported:
 - 1. A 2.4 GHz IEEE 02.15.1 Bluetooth Sig Mesh network is used when the system is deployed in a standalone topology. The devices use this protocol to communicate directly with each other and with the mobile device used to program the system.
 - 2. A 2.4 GHz IEEE 802.15.4 wireless mesh network is used when the system is deployed in a networked topology. The devices use this protocol to communicate with each other and an area controller.
 - 3. A 2.4 GHz Wi-Fi IEEE 802.11 b/g/n protocol is used when the system is deployed in a networked topology. The area controller uses this protocol to communicate with the mobile device used to program the system.
- B. No wired connections shall be required between networked control. Wired connections shall only be required to connect area controllers, supervisory controllers, and Touchscreen. The wired connection is used to allow for central management of the system.
- C. The wireless mesh network shall self-configure, self-organize and self-heal.
- D. Wireless network communication must support uniform and instant response such that all luminaires in a lighting control zone respond immediately and synchronously in response to a sensor or wall station signal.
- E. The wireless lighting control system shall provide a visible indication on all wireless devices as each wireless device joins the wireless network.
- F. Wireless devices shall have a line-of-sight communication range of 150 ft and 75 ft under typical site conditions accounting for typical environment conditions and building construction materials.
- G. The wireless lighting control system shall allow addressed wireless light fixtures with integrated sensors to be identified (reverse-identified) by the sensor with laser, flashlight, IR remote, etc. Identified light fixtures shall provide a visible indication on the mobile application. Systems that do not permit reverse identification methods shall not be acceptable.
- H. The wireless lighting control system shall allow wireless wallstations, receptacles, wireless Switchpack with 0-10V dimming and battery-powered wireless sensors to be identified (reverse-identified) by a

simple pushbutton method on each device. Identified devices shall provide visible indications on the mobile application. Systems that do not permit reverse identification methods shall not be acceptable.

I. The wireless lighting control system shall support standalone and networked topologies. The WaveLinx Area Controllers shall not be connected to an IP network in a standalone topology. The user shall program the standalone area controller via a mobile app. In a networked topology, the WaveLinx Area Controllers are connected to an IP network and bi-directionally communicate with a supervisory system.

2.04 SUPPORTED SEQUENCE OF OPERATIONS

- A. Control Zones
 - 1. Standalone topology: A group of connected luminaires and lighting control devices (ceiling sensor, wallstations, Switchpacks) installed in a single area that communicate with each other and adjust the lights within the space based on the space's occupancy status, daylight levels coming into the room as well as occupants' actions. The lights can be grouped together up to 16 unique control zones to support different and reconfigurable sequences of operation within the area.
 - 2. Networked topology: A group of connected luminaires and lighting control devices (ceiling sensors, wallstations, swithpacks) installed in different areas that communicate to an area controller. The devices communicate with each and adjust the lights within the space based on the space's occupancy status, daylight levels coming into the rooms as well as occupants' actions. The lights can be grouped together up to 30 control zones per area and up to 49 areas to support different and reconfigurable sequences of operation within those areas.
- B. Wall station Capabilities
 - 1. Wall stations support the following capabilities:
 - 2. On/Off of one or many zones.
 - 3. Continuous dimming control of the light level of one or many zones.
 - 4. Multi-Way Control: Multiple wallstations capable of controlling the same zones to support "multi-way" switching and dimming control.
 - 5. Minimum actions supported: Specific light level, specific scene, raise, lower, toggle (available in networked topology only)
- C. Occupancy Sensing Capabilities
 - 1. Occupancy sensors configurable to control one or multiple zones.
 - 2. Multiple occupancy sensors controlling one or multiple zones.
 - 3. Occupancy sensing sequence of operation modes:
 - a. On/Off Occupancy Sensing.
 - b. Partial-On Occupancy Sensing.
 - c. Partial-Off Occupancy Sensing.
 - d. Vacancy Sensing (Manual-On / Automatic-Off).
 - 4. On/Off, Partial-On, and Partial-Off Occupancy Sensing Modes Sequence of Operation:
 - a. When occupancy is detected, occupancy automatically turns lights on to a designated level or scene (0 to 100%).
 - b. Occupancy sensors automatically turn lights off or to a dimmed state (Partial-Off) when a vacancy occurs or if sufficient daylight is detected.
 - c. A system capable of combining Partial-Off and Full-Off operations by dimming lights to a designated level when vacant and turning the lights off entirely after an additional time delay.
 - d. If enabled in the occupancy sensing control zone, photosensor readings automatically adjust light levels during occupied or unoccupied conditions as necessary.
 - e. Wall station activation changes the dimming level or turns the lights off as the occupant selects. Lights optionally remain in this manually specified light level until the zone becomes vacant. Upon vacancy, the normal sequence of operation resumes.
 - 5. Vacancy Sensing or Manual-On/Automatic-Off Mode Sequence of Operation:
 - a. Activation of a wall station is required to turn lights on. A system capable of programming the area to turn on to a designated light level. Initially occupying the space without using a wall station must not result in lights turning on.
 - b. Occupancy sensors automatically turn lights off or to a dimmed state (Partial-Off) when a vacancy occurs or if sufficient daylight is detected. Users can change the default unoccupied light level (0%) to another light level.

- c. Photosensor readings, if enabled in the Occupancy Sensing control set, can automatically adjust the light level during occupied or unoccupied conditions as necessary.
- d. Wall station interaction changes the dimming level or turns lights off as the occupant selects. Lights remain at the manually specified light level until the zone becomes vacant; the normal sequence of operation resumes upon vacancy.
- 6. Occupancy time delays before dimming or shutting off lights separately
 - a. programmable for all control zones from 15 seconds to 2 hours.
- 7. Energy mode sequence of operation:
 - a. The system shall be capable of dimming the lights when vacant and then turning the lights off entirely after an additional time delay.
 - b. Associated occupancy sets: Networked luminaires and control devices can track occupancy broadcasts from adjacent zones. When this feature is enabled, luminaire output for a vacant zone will reduce to a configurable dimmed state if one or more adjacent zones are occupied. Luminaires will turn off when both primary and adjacent zones are vacant.

2.05 DAYLIGHTING SENSING CAPABILITIES

- A. Photosensor devices configurable to control a local zone.
- B. Photosensor-Based Control: The photosensor will automatically adjusts dimming output in response to photometric readings, to maintain a minimum light level consisting of both electric light and daylight sources. Photosensor response can be adjusted using the programming application.

2.06 TIME-BASED EVENTS CAPABILITIES

- A. The system shall be able to trigger actions at user-defined time.
- B. The following actions can be defined with a time-based event:
 - 1. Enable/Disable Wallstations
 - 2. Select Occupancy Actions
 - 3. Select Scene for one or multiple areas/zones.
 - 4. Set White Tuning Level for one or multiple areas/zones.
 - 5. Set Zone Level for one or multiple zones.
 - 6. Enable/Disable Occupancy Detection
 - 7. Enable/Disable Manual Timer
 - 8. The system shall allow user to define recurring actions. The user can define daily, weekly, yearly and a specific date. The system shall support definition of start date, end date, end after "n" recurrences, or never ending.
 - 9. The system shall be able to allow users to schedule events based on sunrise and sunset. The Sunrise/sunset times automatically derived from location of the building using an astronomical clock. The system shall be able to support buildings located in different geographies. The system shall also allow the definition of timed offsets relative to sunrise or sunset.
 - 10. The lighting management software application shall offer a graphical calendar view of scheduled event. profile schedules for each control zone. The system shall support daily, weekly and monthly calendar views.

2.07 GENERAL CHARACTERISTICS

A. System capable of providing a visible "blink warning" prior to a light turning off if required by the sequence of operations.

2.08 SYSTEMS SOFTWARE INTERFACES

A. The system shall allow users to program and manage the system via a mobile app and latest web browser from Apple, Googe and Microsoft.

2.09 PROGRAMMING

- A. The system shall support the following features:
 - 1. Creating, editing and deleting the building elements, i.e. building, floor, areas and zones, occupancy groups and daylight groups.
 - 2. Discovery of the control devices, connected luminaires, area hubs and area controller.
 - 3. Blink identification of control devices, area hubs and connected luminaires by blinking them or devices connected to them.
 - 4. Ability to add one or many devices to a defined area.

- 5. Switch, occupancy sensor, and photosensor zone configuration.
- 6. Defining high- and low-end trim levels
- 7. Ability to adjust an occupancy sensor hold time and PIR sensitivity.
- 8. Ability to define the sensor occupancy mode (occupancy or vacancy)
- 9. Ability to enable or disable an occupancy sensor or group of occupancy sensors.
- 10. Ability to enable/disable a daylight sensor or group of daylight sensors.
- 11. Ability to adjust the photocell setpoints and transition time delays.
- 12. Ability to calibrate the photocell and auto-setpoint.
- 13. Definition of scene values for each area.
- 14. Definition of time-based events to turn the lights on/off for one or many
 - a. The system shall allow users to easily identify the devices using its attributes:
 - b. Device Type
 - c. Device Description
 - d. Model description.
 - e. Serial number or network ID.
 - f. Device Name that can be edited
 - g. The system shall display live status of control devices
 - 1) and connected luminaires:
 - h. Luminaire on/off status.
 - i. Dim level.
 - j. Occupancy sensor status.
 - k. Photosensor reading.
 - I. Device health status

2.10 USER MANAGEMENT

- A. The system shall include user management module allowing users to:
 - 1. Create user accounts.
 - 2. Assign the user account to a specific role.
 - 3. Create custom roles based on pre-determined permissions.
 - 4. Restrict access for user accounts to specific areas within the system.

2.11 CYBERSECURITY

- A. The IP network connectable products within the Wireless Lighting Control system can comply with the IEC 62443-4-2 cybersecurity standard. A letter of compliance by an IEC authorized certification lab shall be provided for all IP connectable products. Self-certification to the standard will not be accepted.
- B. All wireless communication between lighting control components supports the following five tiers of security measures:
 - 1. Data encryption.
 - 2. Firmware protection.
 - 3. Tamper-proof hardware.
 - 4. Authenticated user access.
 - 5. Mutual device authentication
- C. Wireless devices use AES encryption to secure communication with a unique encryption key generated for each programmed site.
- D. Wireless devices use signed firmware to ensure that unmodified, authentic software is always installed.

2.12 WIRELESS DEVICES

- A. Wireless Dimming Switchpack
 - 1. Basis-of-design Product: WaveLinx PRO Universal Dimming Switchpack with one 0-10V Dimming channel [RSP-P-010-347] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Plenum-rated

- 4. Integrated, self-contained unit consisting internally of an isolated load switching control relay [and a power supply to provide low-voltage power].
- 5. Input Voltage: 120/277/347 VAC
- 6. Relay Output:
- 7. 20amp 120/277/347VAC General Purpose
- 8. 16amp 120/277/347VAC electronic ballast (LED load)
- 9. Dimming Output: Single Class 2 0-10V dimming output
- 10. Sink Current: 120mA at 0-10 VDC.
- 11. Mounting: Integral 1/2 inch chase nipple.
- 12. Calculated energy consumption data available through the WaveLinx CORE
- 13. Shall be compatible with electronic ballast, LED, incandescent, magnetic, or electronic low-voltage, magnetic or electronic fluorescent, and motor loads.
- 14. Shall be capable of controlling up to 20-amp receptacle or plug loads.
- 15. Controls incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and restored.
- 16. Environmental regulations:
 - a. FCC certified.
- B. Wireless Dimming Switchpack with Dry Contact Closure
 - 1. Basis-of-design Product: WaveLinx PRO Universal Dimming Switchpack with Dry Contact Closure [WSP-CA-010] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Plenum-rated
 - 4. Integrated, self-contained unit consisting internally of an isolated load switching control relay [and a power supply to provide low-voltage power].
 - 5. Relay Output:

6.

- a. 20amp 347VAC General Purpose
- b. 16amp 347VAC electronic ballast (LED load)
- Dimming Output: Single Class 2 0-10V dimming output
- 7. Sink Current: 30mA at 0-10 VDC.
- 8. Contact Closure Input: 1 input interface to support wired low-voltage sensor or maintained contact closure signal.
- 9. Mounting: Integral 1/2 in chase nipple
- 10. Calculated energy consumption data based on maximum connected power available through the WaveLinx CORE
- 11. Shall be compatible with electronic ballast, LED, incandescent, magnetic, or electronic low-voltage, magnetic or electronic fluorescent, and motor loads.
- 12. Shall be capable of controlling up to 20Amp receptacle or plug loads.
- 13. Controls incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and restored.
- 14. Standards/Environmental regulations:
 - a. FCC certified.
 - b. cULus Listed.
 - c. RoHS
- C. Wireless Ceiling Occupancy Sensor
 - 1. Basis-of-design Product: WaveLinx PRO Ceiling Occupancy Sensor [CWPD-1500] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Input power: Two (2) AA standard alkaline batteries.
 - 4. Sensing technologies:
 - a. Motion sensing:

- b. PIR multiple-segmented lens, with internal grooves to eliminate dust and residue build-up.
- c. Products tested in identical manner, compliant with NEMA WD 7 -2011 Occupancy Motion Sensors Standards
- d. Sensor shall have time delays from 10 to 20 min.
- e. Sensor battery life shall be ten years based on approximately 30 daily activations and wireless signals.
 - 1) Daylight Sensing:
- f. Open-loop daylight sensor
- g. 100-900lux
- h. Light input within 60° cone
- 5. Power failure memory: Device shall incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and subsequently restored. Programming is stored in each sensor in addition to the Area Controller.
- 6. Sensor reports the following data to the area controller:
 - a. Battery life
 - b. Occupancy status
 - c. Ambient light level
- 7. LED indicators: LED indicators always provides a visual means to verify that motion is being detected during both testing and normal operation.
- 8. Sensors shall be fully adaptive with the ability to have the sensitivity and timing to be remotely adjusted to ensure optimal lighting control for any use of the space.
- 9. Sensors have remotely adjustable settings for dimming levels, occupied/unoccupied light levels, occupancy/vacancy sensing, and sensitivity to changes in motion and changes in ambient light levels.
- 10. Sensors may remotely adjust the light output to reduced levels and remain at that reduced level for an adjustable period before turning off when the space is unoccupied.
- 11. Standards/Environmental regulations:
 - a. FCC certified.
 - b. cULus Listed
 - c. RoHS
- D. Wireless Personal Control Interfaces
 - 1. Basis-of-design Product: WaveLinx PRO Line-Voltage Wallstation [W-Series], [WW-Series] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. <Insert manufacturer's name>
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Input power: 120-1277VAC
 - 4. Shall provide individual button LED indication of status and wireless communication and selected button.
 - 5. Controls incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and restored.
 - 6. WaveLinx PRO Line-Voltage Wallstation shall be a Class 1 device.
 - 7. Wireless momentary pushbutton switches in 1, 2, 3, 4, 5 and 6 button configurations; available in white, ivory (W-series only), grey (W-series only) and black (W-series only); compatible with wall plates with decorator opening. WaveLinx PRO Line-Voltage Wallstations shall include the following features:
 - a. Multi-level scene selection
 - b. Scene raise/lower
 - c. Toggle ON/OFF
 - d. Removable buttons for field replacement with engraved buttons and/or alternate color buttons. Button replacement may be completed without removing the switch from the wall.
 - e. Intuitive button labelling to match application and load controls.
 - f. Pre-defined digital button configurations. Each wallstation is shipped with pre-defined digital button configurations, automatically mapped to specific area/zone controls when added to an area in the WaveLinx Mobile Application.

- 8. Multiple WaveLinx PRO wallstations may be installed in an area by simply connecting them to the WaveLinx PRO network. No additional configuration will be required to achieve multi-way switching.
- 9. WaveLinx PRO Line-Voltage Wallstations are delivered with pre-defined functions, including raise, lower, Half Lights, Full Lights, Read, Relax, Dimmed, Night, manual and scene control.
- 10. WaveLinx PRO Line-Voltage Wallstations may also be delivered with field-programmable generic labelled buttons such as Scene 1, Scene 2, etc.
- 11. Optional custom labelling is available for application or location-specific wallstation button labels.
- 12. Environmental regulations:
 - a. FCC certified.
- E. Wireless Battery Powered Wallstation
 - 1. Basis-of-design Product: WaveLinx PRO Battery Powered Wallstation or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Input power: Four (4) AAA standard alkaline batteries (WB-Series) or two (2) CR123A alkaline batteries (WWB-Series)
 - 4. Shall provide individual button LED indication of status (WB-Series only) and wireless communication LED status.
 - 5. Controls incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and restored.
 - 6. WaveLinx PRO Battery Powered Wallstation shall be FCC certified.
 - 7. Wireless momentary pushbutton switches in 1, 2, 3, 5 and 6 button configurations; available in white; compatible with wall plates with decorator opening. WaveLinx PRO Battery Wallstations shall include the following features:
 - a. Multi-level scene selection
 - b. Scene raise/lower
 - c. Toggle ON/OFF
 - d. Intuitive button labelling to match application and load controls.
 - 8. Multiple WaveLinx PRO wallstations may be installed in an area by simply connecting them to the WaveLinx PRO network. No additional configuration will be required to achieve multi-way switching.
 - 9. WaveLinx PRO Battery Powered Wallstations are field programmable with specific labelling (FULL LIGHTS, HALF LIGHTS, etc.) or generic labelled buttons (Scene 1, Scene 2, etc.)
 - 10. Optional custom labelling is available for application or location-specific wallstation button labels.
- F. Wireless In-Fixture Indoor Sensor
 - 1. Basis-of-design Product: WaveLinx PRO Integrated Sensor or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. Communication: Wireless IEEE 802.15.4
 - 3. Sensing mechanism:
 - a. Infrared: Utilize multiple-segmented lens with internal grooves to eliminate dust and residue build-up.
 - b. Photocell: Utilize integrated photocell to provide closed-loop daylight dimming control. Each WaveLinx PRO Integrated Sensor provides an individual daylight dimming zone to provide
 - 1) highly accurate daylight levels at the work surface throughout the entire space.
 - c. Bluetooth radio: Utilize additional internal Bluetooth radio capable of offering Real-Time Location Services (RTLS) IoT Software Upgrade Required
 - 4. Power failure memory: Controls incorporate non-volatile memory. Settings and parameters saved in protected memory shall not be lost should power be interrupted and subsequently restored.
 - 5. Products tested in identical manner, compliant to NEMA WD 7 -2011 Occupancy Motion Sensors Standards

- 6. Sensor shall have time delays from 10 to 20 min
- 7. Sensor shall provide unique daylight calibration considering the light level at the sensors, work surface and integrated luminaire light output.
- 8. All sensors shall provide an LED as a visual means of indication to verify that motion is being detected during both testing and normal operation
 - a. Green LED indication when the sensor is in out-of-the-box operation mode
 - b. White LED indication when the sensor has been connected to the WaveLinx lighting control system
- 9. Test mode fifteen second time delay
- 10. Sensor shall provide out-of-the-box functionality of occupancy detection, directly controlling integrated fixture.
 - a. The occupied default light level is 75%
 - b. The unoccupied default light level is OFF
 - c. The occupancy default time out is 20 minutes
- 11. Sensors shall monitor changes in occupancy changes in ambient light levels and communicate digital control commands to light fixtures according to a control strategy.
- 12. Sensor shall wirelessly transmit occupancy status and light level to the WaveLinx Area Controller, which allows the data to be stored in a central location on-premises and displayed via the WaveLinx Mobile Application and the WaveLinx CORE software applications.
- 13. Calculated energy consumption data available on the WaveLinx CORE
- 14. Sensors shall be fully adaptive with the ability to have the sensitivity and timing to be remotely adjusted to ensure optimal lighting control for any use of the space.
- 15. Sensors have remotely adjustable settings for dimming levels, occupied/unoccupied light levels, occupancy/vacancy sensing, and sensitivity to changes in motion and changes in ambient light levels.
- 16. Sensors may remotely adjust the light output to reduced levels and remain at that reduced level for an adjustable period before turning off when a space is vacant.
- 17. Default programming is stored in each sensor in addition to the WaveLinx Area Controller. Sensors operate independently from WaveLinx Area Controller, so single-point failure cannot be. Systems must operate so there is no single point of failure.
 - a. Standards/Environmental regulations:
 - b. FCC certified
 - c. cULus Listed
 - d. RoHS

2.13 AREA CONTROLLER

- A. Area Controller
 - 1. Basis-of-Design Product: WaveLinx Area Controller [WAC2-POE] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Lutron
 - 2. An appliance that allows users to discover, program, and manage WaveLinx wired and wireless control devices and connected luminaires.
 - 3. Communication:
 - a. Wireless IEEE 802.15.4 to communicate with WaveLinx wireless devices
 - b. Wireless IEEE 802.11 a/b/g/n to communicate with mobile devices with compatible browser and/or WaveLinx Mobile Apps
 - c. 1 x RJ45 to communicate with the area hub and supervisory appliance via ethernet
 - 4. Power source: standardized Power over Ethernet (IEEE802.3af) input, enables building PoE network switches (by others) or a PoE injector [WPOE2-120] (accessory by Cooper Lighting Solutions) for power and network connection.
 - 5. Maximum Ethernet (CAT5 or better) cable distance between the WaveLinx Area Controller and a network PoE switch is 328 feet (100 meters). Care shall be taken when routing the cable not to exceed the 328 feet (100 meters) limitation, including travel distance up and down structures.
 - The Wi-Fi access point allows users to use the WaveLinx mobile app to program the system.
 a. The user shall be able to disable/enable the Wi-Fi access point.
 - 7. 2.4 GHz Transceiver for IEEE 802.15.4 wireless radio to connect devices and sensors.

- 8. Shall support AES 128-bit encryption
- 9. Shall use industry-standard HTTPS security with AES-128 encryption safeguards the entire system's integrity.
- 10. LED indicators for the status of various wireless radios and communications.
- 11. Shall be FCC Part 15 Class A, RoHS certified.
- 12. WaveLinx Area Controller connection cables shall be plenum rated.
- 13. Shall be Class 2 devices.
- 14. Shall have IEC62443-4-2 certification by a third-party IEC authorized lab. Self-certification will not be accepted.
- 15. Spaces defined within the WaveLinx area controller shall be equipped with a control device to shut off lighting in those areas automatically. This automatic control device shall function on either:
 - a. A timeclock scheduling basis where the interior and exterior lights controlled by the WaveLinx Area Controller are changed based on the time of day or the astronomic (sunrise and sunset).
 - 1) The astronomical time clock shall be integrated into the WaveLinx Area Controller and shall not require any internet connection to maintain its time.
 - 2) After a power loss, the timeclock programming and time clock settings shall be retained.
 - 3) The time clock shall allow weekly recurrences
 - 4) Time clock events can be scheduled to:
 - (a) Set areas to desired scenes
 - (b) Zone light levels to the desired light level
 - (c) Zone light levels when occupied
 - (d) Zone light levels when unoccupied
- 16. An occupancy basis where the interior and exterior lights controlled by the WaveLinx Area Controller are changed based on the occupancy set status. The occupancy set is composed of one or more occupancy sensors, and it shall turn lighting off within 20 minutes of an occupant leaving a space
- 17. A manual command basis where a user or a program sends an override command using a wireless wallstation, the mobile application, or BACnet/IP or Public API. The BACnet/IP and Public API signal will be received via the Insight Manager/supervisory system.
- 18. Shall allow users to backup the programming to prevent data loss and restore fixtures to operational modes.
- 19. Construction Grouping
 - a. PAIR button to allow automatic creation of Construction Group allowing simplified automatic control of all connected devices and sensors.
 - b. The patent-pending Construction Grouping mode permits contractors to complete a quick system start-up to confirm that the devices have been installed correctly instead of waiting for factory-trained technicians to get the lights on a project in working order. Contractors follow a simple process to pair the wireless devices with the appropriate WAC and initiate occupancy-based lighting control functionality. This saves lighting energy during the project's construction phase by ensuring that the lights are turned off when the area is unoccupied.
 - c. Construction grouping visually indicates to the installer that devices have received wireless communication from the WaveLinx Area Controller and received a unique individual address. Systems that do not provide a visual indication of device connection status shall not be acceptable.
 - d. Construction grouping provides an automatic grouping of connected devices to provide simple occupancy-based and wallstation control of all devices without requiring a factory-trained technician. Systems that require special software or training to group wireless devices shall not be acceptable.
- 20. Scalability and Data Integrity
 - a. The WaveLinx Area Controller can be deployed as a dedicated installation managing up to 150 wireless devices (connected devices, connected sensors). When deployed as a dedicated installation, the WaveLinx Area Controller acts as a local wireless access point for the Wi-Fi connection method to the WaveLinx Mobile Application.

b. The WaveLinx Area Controller can be deployed as a network installation managing up to 150 wireless devices (connected devices, connected sensors) per WaveLinx Area Controller. When deployed as a network installation, the WaveLinx Area Controller connects to the building LAN or wireless network as a client using DHCP. The maximum number of WaveLinx Area Controllers on the building network depends on the building network configuration.

2.14 SOFTWARE APPLICATIONS

- A. Mobile Application
 - 1. Basis-of-Design Product: WaveLinx Mobile Application [WAPP] or comparable product by one of the following:
 - a. Acuity Brands
 - b. Legrand
 - c. Lutron
 - 2. iOS and Android mobile application allowing users to program the areas being controlled by WaveLinx wired and wireless control devices.
 - 3. The Mobile Application shall support the following features:
 - a. Discovery of the control devices, connected luminaires, area hubs and area controller.
 - b. Blink identification of control devices, area hubs and connected luminaires by blinking them or devices connected to them.
 - c. Identified connected devices and sensors will indicate on the WaveLinx Mobile Application their selection by the device icon pulsing on the screen.
 - d. Unique administrative login credentials for each area controller.
 - e. Discovery of wireless devices per area controller (Find Devices).
 - f. Creation of up to fifty (50) areas per area controller.
 - g. Ability to utilize drag and drop, multi-select and filter capabilities for the easy association of connected devices and sensors to a defined area.
 - h. Creation of up to sixteen (16) zones per area up to 200 total zones per area controller.
 - i. Creation of up to six (6) occupancy sets per area up to 100 total occupancy sets per area controller.
 - j. Creation of daylight sets per area.
 - k. Creation of Demand Response values for each area.
 - I. Definition of scene values for each area.
 - m. Definition of time-based events to turn the lights on/off for one or many areas.
 - 4. Automatic Code Commissioning features include:
 - a. Automatic association of all devices added to an area to provide a California Title 24 code-compliant sequence of operations.
 - b. All occupancy sensors are joined together to provide an Automatic ON to 50% light level
 - c. All occupancy sensors are joined together to provide an Automatic OFF of all luminaires and plug loads after 20 minutes with no occupancy detected.
 - d. Automatic closed-loop daylighting to approximately 500 lux (46 footcandles)
 - e. Automatic wallstation button mapping provides the dominant button providing a 50% light level all other buttons provide multi-level dimming control from 30%-100%
 - f. Additional screens if needed to adjust Automatic Code Commissioning settings

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The control system shall be installed and fully wired as shown on the plans by the installing contractor. The contractor shall complete all electrical connections to all control circuits.
- B. Install the work of this Section in accordance with the manufacturer's printed instructions unless otherwise indicated.
- C. Provide written or computer-generated documentation on the commissioning of the system, including room by room description including:
- D. Sensor parameters, time delays, sensitivities, and daylighting setpoints.
- E. A sequence of operations, (e.g., manual ON, Auto OFF. Etc.).
- F. Load parameters (e.g., blink warning, etc.).

3.02 PRODUCT SUPPORT AND SERVICE

A. Factory telephone support shall be available at no cost to the owner. Factory assistance shall solve programming or application questions concerning the control equipment.

3.03 FACTORY COMMISSIONING

- A. Upon completion of the installation, the system shall be commissioned by the manufacturer's factory authorized representative, who will verify a complete, fully functional system.
- B. The electrical contractor shall provide both the manufacturer and the electrical engineer with twenty-one (21) working days' written notice of the system start-up and adjustment date.
- C. Upon completion of the system commissioning, the factory-authorized technician shall provide the proper training to the owner's personnel on the adjustment and maintenance of the system.
- D. Qualifications for factory certified field service engineer:
- E. Certified by the equipment manufacturer on the system installed.
- F. Make the first visit upon completion of the installation of the WaveLinx Connected Lighting system:
- G. Verify locations of WaveLinx Area Controllers
- H. Verify implementation of Construction Group process
- I. Identify connected devices and programs using WaveLinx Mobile Application and Automatic Code Commissioning.
- J. Verify that system operation control is based on the defined Sequence of Operations (SOO).
 - 1. Obtain sign-off on system functions.
 - 2. Make a second visit (optional) to demonstrate and educate the owner's representative on system capabilities, programming, fine-tuning and maintenance.
- K. Due to building operations, the start-up of the WaveLinx Connected Lighting system may be required outside of normal business hours (Monday through Friday, 7 a.m. to 5 p.m.).

3.04 CLOSEOUT ACTIVITIES

- A. Training Visit
- B. Lighting control system manufacturer to provide one (1) day of additional on-site system training to site personnel. This shall be a part of the second visit by field service to the site. A separate third visit will require an additional charge.
- C. During this visit, the manufacturer's Field Service Engineer will perform tasks at the request of the facility representative or Commissioning Agent, such as demonstrating wall control functions explain or describing occupancy and/or daylight sensor functionality.
- D. On-site Walk-through

END OF SECTION 26 0940



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6EN	VERAL ABATEMENT NOTES:	
1.	THE INFORMATION PROVIDED WITH RESPECT TO HAZARD ASSESSMENT, QUANTITIES, AND LOCATIONS OF ACM, PCB-CONTAINING CAULK, AND LCM WERE DERIVED FROM A LIMITED HAZARDOUS MATERIALS SURVEY CONDUCTED BY ATLANTIC	
	TESTING LABORATORIES, LIMITED (ATL REPORT NO. WT6340CE-01-08-23, DATED AUGUST 22, 2023). THESE DOCUMENTS ARE AVAILABLE TO THE CONTRACTOR AND GENERAL PUBLIC FOR REVIEW. THE OWNER AND ARCHITECT, AS THE OWNER'S	
	REPRESENTATIVE, DISCLAIM RESPONSIBILITY FOR ANY OPINIONS, CONCLUSIONS, INTERPRETATIONS, OR DEDUCTIONS THAT MAY BE EXPRESSED OR IMPLIED OF THE INFORMATION MADE AVAILABLE. IT IS EXPRESSLY UNDERSTOOD THAT THE MAKING OF DEDUCTIONS, INTERPRETATIONS, AND CONCLUSIONS FOR ALL THE ACCESSIBLE FACTUAL INFORMATION IS SOLELY THE CONTRACTOR'S RESPONSIBILITY	
2.	PERFORM ALL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL RULES, REGULATIONS, AND GUIDELINES.	
3.	ALL MATERIALS MEASUREMENTS AND/OR QUANTITIES AND LOCATIONS ARE APPROXIMATE. INFORMATION PROVIDED ON DRAWINGS IS FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING MEASUREMENTS AND EXISTING CONDITIONS PRIOR TO INITIATING ABATEMENT ACTIVITIES.	
4.	ADJOINING AREAS MAY REMAIN OCCUPIED IN PART (BY THE OWNER) DURING THE ABATEMENT PROCESS. WORK MUST BE COORDINATED APPROPRIATELY.	
5.	ALL MOVABLE ITEMS WITHIN THE WORK AREAS WILL BE MOVED AND STORED BY THE OWNER UNLESS THE REMOVAL IMPACTS OR WILL DISTURB THE ACM. IF BUILT-IN ITEMS WILL IMPACT ACM, THE A.A.C. WILL BE REQUIRED TO REMOVE THE ITEM. ALL BUILT-IN ITEMS REQUIRING REMOVAL FOR THE PERFORMANCE OF THE ASBESTOS ABATEMENT WORK MUST BE REMOVED BY THE A.A.C.)
6.	PERFORM ALL WORK IN SUCH A MANNER AS TO MINIMIZE THE RISK OF EXPOSURE TO PERSONNEL, TO PREVENT EXPOSURE TO OCCUPANTS, AND TO MINIMIZE THE RISK OF RELEASE OF HAZARDOUS MATERIALS TO THE ENVIRONMENT.	
7.	PRESERVE AND PROTECT EXISTING BUILDING MATERIALS AND FINISHES, FACILITY EQUIPMENT, FURNISHINGS, AND VEGETATION AND LANDSCAPING THAT ARE NOT REMOVED, ABATED, OR SCHEDULED FOR DEMOLITION. PERFORM DEMOLITION WORK WITHOUT DAMAGE TO THE BUILDING MATERIALS TO REMAIN INTACT OR CONTAMINATION OF ADJACENT AREAS. WHERE SUCH AREAS ARE CONTAMINATED, SPECIFIED PROCEDURES FOR CONTAINMENT MUST BE FOLLOWED, AND CONTAMINATION MUST BE CLEANED UP. WHERE ADJACENT AREAS ARE DAMAGED, COORDINATE WITH THE OWNER AND CONSTRUCTION MANAGER FOR RESTORATION.	
8.	COORDINATE ALL ABATEMENT AND REMOVALS WITH SCHEDULED DEMOLITION, RENOVATIONS, AND NEW CONSTRUCTION. PERFORM WORK TO INCLUDE ABATEMENT OR REMEDIATION OF MATERIALS THAT MUST BE DISTURBED TO ACCOMMODATE THE SCHEDULED PROJECT RENOVATIONS.	
9.	COMPLETE ALL ABATEMENT WORK PRIOR TO DEMOLITION OR RENOVATION WORK WITHIN THE WORK AREAS.	
10.	NOTIFY EMPLOYEES AND SUBCONTRACTOR(S) OF THE PRESENCE OF ACM, PCB-CONTAINING CAULK, AND LCM. CONTROL/PREVENT THE DISTURBANCE OF KNOWN OR ASSUMED HAZARDOUS MATERIAL-CONTAINING ITEMS SCHEDULED TO REMAIN.	
11.	MAINTAIN AND SAFEGUARD THE EXISTING EXIT PATHWAYS AND FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH CHAPTER 13 OF THE EXISTING BUILDING CODE OF NYS AND CHAPTERS 4 AND 14 OF THE FIRE CODE OF NYS.	
12.	COORDINATE THE LOCATION OF DECONTAMINATION ENCLOSURES FOR SPECIFIED WORK AREAS WITH THE ABATEMENT PROJECT MONITOR, OWNER, AND CONSTRUCTION MANGER.	
13.	COORDINATE WORK AREA NEGATIVE AIR EXHAUST LOCATION WITH ABATEMENT PROJECT MONITOR, OWNER, AND CONSTRUCTION MANAGER. SEAL ALL EXTERIOR OPENINGS WITHIN 25 FEET OF EXHAUST, TO PREVENT CONTAMINANTS FROM RE-ENTERING THE BUILDING.	
14.	COORDINATE THE LOCATION OF ANY SITE STORAGE OF MATERIAL, EQUIPMENT, AND WASTE TRAILER/DUMPSTER WITH THE OWNER.	
. – .		
1.	REFERENCE SECTION 028213 OF THE PROJECT SPECIFICATIONS FOR REQUIREMENTS PERTAINING TO THE ABATEMENT OF ACM.	
2.	REFERENCE TABLE HM-01A OF THIS SHEET FOR A SUMMARY OF THE IDENTIFIED ACM IN THE AREAS OF WORK. THE ABATEMENT PLAN DRAWINGS AND NOTES PROVIDE ADDITIONAL DESCRIPTION OF AREAS WHERE ABATEMENT IS REQUIRED	
3.	ANY SITE-SPECIFIC VARIANCE TO BE OBTAINED FOR THE PROJECT WILL BE PREPARED BY THE ASBESTOS PROJECT DESIGNER, RETAINED DIRECTLY BY THE OWNER.	
4.	IDENTIFIED ACM IN AREAS OF SCHEDULED WORK WILL REQUIRE ABATEMENT PRIOR TO PERFORMANCE OF OTHER WORK.	
5.	PERFORM ASBESTOS ABATEMENT WORK IN ACCORDANCE WITH 12 NYCRR PART 56 (NYS CODE RULE 56), AS AMENDED EFFECTIVE MARCH 21, 2007, AND INCLUDING INFORMATION PRESENTED IN GUIDANCE DOCUMENT 2.0 DATED JANUARY 30, 2009	
6.	ISOLATION AND CRITICAL BARRIERS ARE TO BE INSTALLED PURSUANT TO REQUIREMENTS OF NYS CODE RULE 56. DETAILS FOR ISOLATION BARRIERS AT HARD CEILING AND ACT CEILING ARE SHOWN ON THIS SHEET	
7.	FOR WORK AREAS WITH THE ABATEMENT OF MULTIPLE MATERIALS, REMOVE MATERIALS UTILIZING SEQUENTIAL REMOVAL AS DESCRIBED IN SECTION 56-8.6 OF NYS CODE RULE 56.	
10.	THE ABATEMENT CONTRACTOR MUST REMOVE ANY BUILT-IN ITEMS AND/OR ADHERED/AFFIXED MATERIALS WHERE SUCH REMOVED MAY IMPACT OR DISTURB KNOWN OR SUSPECT ACM.	
11.	UPON COMPLETION OF ABATEMENT ACTIVITIES AND SATISFACTORY CLEARANCE/INSPECTION, COMPLETELY REMOVAL ALL ADHESIVES, TAPE, AND RESIDUE RESULTING FROM THE INSTALLATION OF CRITICAL BARRIERS/CONTAINMENTS. IN THE EVENT THAT SURFACES ARE DAMAGED AS A RESULT OF THE ABOVE, THE A.A.C. WILL BE RESPONSIBLE FOR THE REPAIR/CLEANUP OF THESE SURFACES TO THE COMPLETE SATISFACTION OF THE OWNER AND ARCHITECT.	•
12.	IDENTIFIED MATERIALS WITH TRACE ASBESTOS (I.E., LESS THAN 1% ASBESTOS BY WEIGHT) DO NOT REQUIRE ABATEMENT PER 12 NYCRR PART 56 REQUIREMENTS, BUT MUST BE MANAGED PURSUANT TO OSHA 29 CFR 1926.1101. PERFORM WORK ACTIVITIES AFFECTING MATERIALS WITH TRACE ASBESTOS IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF OSHA 29 CFR 1926.1101	\$

REFERENCE TABLE HM-01B OF THIS SHEET FOR A SUMMARY OF

IDENTIFIED MATERIALS WITH TRACE ASBESTOS.

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GENERAL AWARENESS NOTES FOR PCB-CONTAINING CAULK:

- 1. SAMPLING AND ANALYSIS OF SUSPECT PCB-CONTAINING CAULK MATERIALS WAS PERFORMED FOR THIS PROJECT. THE LABORATORY ANALYSIS RESULTS FOR THE SAMPLED CAULK MATERIALS DID NOT IDENTIFY CONCENTRATIONS OF PCB EXCEEDING 50 PPM. CAULK MATERIALS WITH PCB WITH PCB LESS THAN 50 PPM ARE PRESENT, AS SHOWN IN TABLE HM-02 ON THIS SHEET .
- 2. CAULK MATERIAL CONTAINING PCB AT LESS THAN 50 PPM ARE NOT CLASSIFIED AS HAZARDOUS WASTE, HOWEVER, DISPOSAL OF WASTE STREAMS WITH THIS MATERIAL SHALL BE VERIFIED FOR ACCEPTANCE BY THE SELECTED DISPOSAL FACILITY.

GENERAL LEAD HAZARD CONTROL AND ABATEMENT NOTES:

- 1. REFERENCE SECTION 028313 OF THE PROJECT SPECIFICATIONS FOR REQUIREMENTS PERTAINING TO THE MANAGEMENT OF LCM AND ABATEMENT OF LBP.
- TESTING OF SELECTED REPRESENTATIVE SURFACES FOR LEAD WAS PERFORMED FOR THIS PROJECT AND THE RESULTS ARE PROVIDED IN THE LIMITED HAZARDOUS MATERIALS REPORT. REFERENCE THE LIMITED HAZARDOUS MATERIALS REPORT FOR ADDITIONAL DETAILS PERTAINING TO TESTED LOCATIONS. FOR PAINTED/COATED SURFACES NOT TESTED, ASSUME THE MATERIAL CONTAINS LEAD.
- 3. PERFORM WORK ACTIVITIES DISTURBING LCM IN ACCORDANCE WITH OSHA 29 CFR 1926.62 AND LEAD-SAFE WORK PRACTICES. REFERENCE TABLES HM-03B AND HM-03C ON THIS SHEET FOR A SUMMARY OF MATERIALS TO BE MANAGED AS LCM.
- 4. PERFORM ABATEMENT OF IDENTIFIED LBP WHERE AFFECTED BY THE SCHEDULED WORK. REFERENCE TABLE HM-03A ON THIS SHEET FOR A SUMMARY OF MATERIALS DETERMINED TO BE LBP.
- 5. PROVIDE FOR REPRESENTATIVE SAMPLING OF LEAD-CONTAINING WASTE, AND LABORATORY ANALYSIS FOR TCLP LEAD TO CLASSIFY WHETHER HAZARDOUS OR NON-HAZARDOUS RELATIVE TO LEAD. BASED ON RESULTS OF TCLP LEAD ANALYSIS, AND PENDING OTHER TYPES OF WASTE THAT MAY BE CO-MINGLED WITH THE LEAD, PROVIDE FOR APPROPRIATE TRANSPORT AND DISPOSAL IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS.

LIST OF ABBREVIATIONS:

A.A.C.	ASBESTOS ABATEMENT CONTRACTOR
ACM	ASBESTOS-CONTAINING MATERIALS
ACT	ACOUSTICAL CEILING TILE
CFR	CODE OF FEDERAL REGULATIONS
EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
F.R.	FIRE RATED
GWB	GYPSUM WALL BOARD
HEPA	HIGH EFFICIENCY PARTICULATE AIR
LBP	LEAD-BASED PAINT
LCM	LEAD-CONTAINING MATERIALS
mg/cm ²	MILLIGRAMS PER SQUARE CENTIMETER
NYCRR	NEW YORK CODES, RULES AND REGULATIONS
NYSDOL	NEW YORK STATE DEPARTMENT OF LABOR
O.C.	ON CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
РСВ	POLYCHLORINATED BIPHENYLS
POLY	POLYETHYLENE
PPM	PARTS PER MILLION
TCLP	TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TSI	THERMAL SYSTEMS INSULATION
TYP.	TYPICAL



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		TABLE HM-01A: ASBESTOS ABATE	EMENT SCHEDU
DRAWING NOTE ID	TYPE OF ACM	LOCATION	ESTIMATED QUANTITY
01-A	BLACK COATING ON SINKS AND DRINKING FOUNTAINS	ROOM NOS. 106, 107, 108, 109, AND 111 - SINK AND DRINKING FOUNTAINS	15 SQUARE FEET
02-A	OFF-WHITE WITH PURPLE 12- BY 12-INCH FLOOR TILE AND ASSOCIATED BLACK MASTIC	ROOM NO. 124A	100 SQUARE FEET
03-A	BLACK SINK COATING	ROOM NO. 211C	6 SQUARE FEET
04-A	GRAY TSI DEBRIS AND GRAY MUDDED TSI PIPE FITTING DEBRIS	ROOM NO. B-6	1 SQUARE FOOT
05-A	GRAY MUDDED PIPE TSI FITTINGS	ROOM NO. B-5	9 LINEAR FEET
06-A	BLACK TERMINATION BAR CAULK	ROOF A1, ROOF A2, AND ROOF E2	35 SQUARE FEET
07-A1	BEIGE 12- BY 12-INCH MOTTLED FLOOR TILE AND ASSOCIATED BLACK MASTIC	ROOM NOS. 102C, 104, AND 106	2,600 SQUARE FEET
<u> 707-A2</u>	ASSOCIATED BLACK MASTIC	KOOKINOS. 107, 408, 709, 174, 174, 412, AND 179	TO SQUAKE PREY
08-A	CHALK/CORK BOARD AND ADHESIVE	ROOM NO. 120	24 SQUARE FEET

TABLE HM-01B: IDENTIFIED MATERIALS WITH TRACE ASBESTOS			
DESCRIPTION OF MATERIAL	LOCATION		
WHITE WINDOW FRAME CAULK	ROOM NO. B-1 (EXTERIOR WINDOW CONVERTED TO INTAKE LOUVER)		

TABLE HM-02: IDENTIFIED CAULK MATERIALS WITH TOTAL PCB DETECTED AT LESS THAN 50 PPM* ANALYTICAL RESULT FOR

DESCRIPTION OF PCB-CONTAINING CAULK	LOCATION	PREVIOUS SAMPLE (TOTAL PCB - PPM)			
WHITE FIXTURE CAULK	ROOM NOS. 36C, 102A, 102B, 131B, 144A, 144B, 214B, 234, AND 235	0.600			
BLACK TERMINATION BAR CAULK	ROOF A1 AND ROOF E2	0.199			
BLACK TERMINATION BAR CAULK	ROOF A2	0.146			
*MATERIAL IS NOT CLASSIFIED AS HAZARDOUS WASTE BASED ON PREVIOUS SAMPLE ANALYTICAL DATA FOR TOTAL PCB LESS THAN 50 PPM, BUT WASTE STREAM WITH THIS MATERIAL WILL REQUIRE DISPOSAL AT A FACILITY PERMITTED TO ACCEPT PCB-CONTAIING WASTE. SELECTED DISPOSAL FACILITY MAY REQUIRE ADDITIONAL SAMPLING AND ANALYSIS FOR WASTE PROFILE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND PROVIDING ANY ADDITIONAL WASTE PROFILE SAMPLING AND ANALYSIS THAT MAY BE REQUIRED BY SELECTED DISPOSAL FACILITY.					

TABLE HM-03A: COMPONENTS TESTED AND IDENTIFIED AS LEAD-BASED PAINT (GREATER THAN OR EQUAL TO 1.0 mg/cm²)

DRAWING NOTE ID	DESCRIPTION OF MATERIALS		LOCATION
01	WHITE WOOD DOOR		ROOM NO. V144
	MAN CERAMIC WALL TILE	\sim	ROOM NOS. 36C, 131B, 132, 144, 214A, AND 234
*REFER TO THE ARCHITECTURAL DEMOLITION DRAWINGS FOR REMOVAL LOCATIONS AND QUANTITIES.			
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TABLE HM-03B: IDENTIFIED LEAD-CONTAINING CAULK MATERIALS (MANAGE AS LCM)

DESCRIPTION OF MATERIALS	LOCATION	ANALYTICAL RESULTS FOR PREVIOUS SAMPLES (TOTAL LEAD - PPM)
WHITE FIXTURE CAULK	ROOM NOS. 36C, 36D, 36E, 102A, 102B, 131B, 144A, 144B, 214B, 234, AND 235	0.177
BLACK TERMINATION BAR CAULK	ROOF A1, ROOF A2, AND ROOF E2	2.08, 2.85
WHITE WINDOW FRAME CAULK	EXTERIOR WINDOW AT B-1	1.46

ISOLATION BARRIER DETAIL @ ACT CEILING

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LE		
ABATEMENT CONDITIO	NS	
REMOVE AND DISPOSE OF THE BLACK COATING, PER 12 N	YCRR PART 56 REQUIREMENTS.	
REMOVE AND DISPOSE OF THE FLOOR TILE AND MAST	TIC, PER 12 NYCRR PART 56	
REQUIREMENTS. REMOVE AND DISPOSE OF THE BLACK SINK COATING	E PER 12 NYCRR PART 56	
REQUIREMENTS.		
THIS MATERIAL EXISTS IN AN INCIDENTAL DISTURBANCI	E CONDITION. CLEAN UP THE	
FITTING DEBRIS, PER 12 NYCRR PART 56 REQUIREMENTS.	CONTRACTOR TO APPLY FOR	
REQUIREMENTS.		
REMOVE AND DISPOSE OF THE BLACK TERMINATION BAR	CAULK, PER 12 NYCRR PART 56	
REMOVE AND DISPOSE OF THE FLOOR TILE AND MASTI	C THROUGHOUT THE ROOM	
INDICATED, PER 12 NYCRR PART 56 REQUIREMENTS.	REMOVE ANY CABINETRY,	
COMPLETE REMOVAL OF THE FLOOR	DR TILE.	
	ASBESTOS-CONTAINING FLOOR	\sim
FLOOR TILE AND MASTIC, PER 12 NYCRR PART	56 REQUIREMENTS.	$\left[\right] \land$
REMOVE AND DISPOSE OF THE CHALK/CORD BOARD AND	ASSOCIATED ADHESIVE, PER	$\frac{2}{2}$
	NIS.	
TABLE HM-03C: COMPONENT	S TESTED AND	
IDENTIFIED AS I FAD-CONT	AINING PAINT	
$(\text{BET})/(\text{FEN}) \cap 1 = 0.0 \text{ ma}/(\text{cm}^2) / M$	ANAGE ASICM	
DESCRIPTION OF MATERIAL	LOCATION	
WHITE CERAMIC WALL TILE, BLACK CERAMIC WALL TILE	144A	
	V144	
	157	
PINK CFRAMIC WALL TILF	102R	
WHITE CERAMIC WALL TILE	102A	
OFF-WHITE CERAMIC WALL TILE	234	
TAN PLASTER WALL	206	
OFF-WHITE CERAMIC WALL TILE	124	
OFF-WHITE PLASTER WALL	124D	KEY PLAN:
GRAY PLASTER WALL	124A	\mathcal{R}
GRAY PLASTER WALL, WHITE CEILING PLASTER	124B	
CREAM METAL LOCKER	124C	
LIGHT BLUE PLASTER WALL	211A	
	211B	
	250B	
	35	
WHITE PLASTER WALL WHITE PLASTER WALL	35G	
CREAM PLASTER WALL, CREAM CERAMIC SINK	34C	
SILVER METAL PIPE, SILVER METAL I-BEAM	B3	
OLIVE METAL PIPE, OLIVE METAL I-BEAM	В9	
LIGHT BLUE PLASTER WALL	120	SED NO. 22-14-01-04-7-999-002
CREAM PLASTER WALL	119	THIS SHEET INCORPORATES COLOR GRAPHICS WHICH INDICATE
CREAM PLASTER WALL	118	REPRODUCED BY A CONTRACTOR.
CREAM PLASTER WALL	117	BCA Architects & Engineers
CREAM PLASTER WALL	131	Watertown Ithaca Saratoga Springs Rochester
CREAM PLASTER WALL	127	WWW.THEBCGROUP.COM COPYRIGHT © 2023 - BCA ARCHITECTS & ENGINEERS, WARNING - IT IS A VIOLATION OF
	113	THE NEW YORK STATE EDUCATION LAW FOR ANY UNAUTHORIZED ALTERATIONS TO THIS DOCUMENT AS PER ARTICLE 145 AND 147.
	111	
	109	
CREAM PLASTER WALL	100	
WHITE PLASTER WALL, ORANGE PLASTER WALL	121	
WHITE CERAMIC WALL TILE, WHITE PLASTER WALL	121A	Engineering ARCHITECTS
GRAY PLASTER WALL	112	
CREAM PLASTER WALL	110	ENGINEERS
CREAM PLASTER WALL, CREAM GYPSUM WALL	109B	
LIGHT GREEN BLOCK WALL, CREAM PLASTER WALL	117	
GRAY BLOCK WALL, GRAY PLASTER WALL	116	Stall Com
GRAY PLASTER WALL, CREAM PLASTER WALL	140	
ORANGE PLASTER WALL, CREAM PLASTER WALL	209	1 Star
	210	KNIGHTS
CREAM PLASTER WALL	200	
GRAY GYPSUM WALL. CREAM GYPSUM WALL	233	
GRAY GYPSUM WALL	231	LAFARGEVILLE CSD
CREAM GYPSUM WALL, CREAM METAL COLUMN	229	CAPITAL IMPROVEMENT PROJECT
GRAY GYPSUM WALL, CREAM GYPSUM WALL	228	K12 BUILDING
LIGHT GREEN GYPSUM WALL, LIGHT GREEN BLOCK WALL	226	LAFARGEVILLE - JEFFERSON - NEW YORK
LIGHT BLUE GYPSUM WALL	223	REV DATE DESCRIPTION
CREAM GYPSUM WALL	222	2 04/05/2024 ADDENDUM 2
YELLOW GYPSUM WALL	221	
CREAM GYPSUM WALL	201	
CREAM PLASTER WALL	202	J.FESSETTE 2022-052
	203	CHECKED BY DATE
UKEANI PLASTER WALL	204	
LIGHT BLUE PLASTER WALL	208	
LIGHT GREEN PLASTER WALL	217	
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		AA(0)



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DESIGN DEVELOPMENT (60%)



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				ABATEMENT KEY NOTES
DLING AND DISPOSAL: ORK ACTIVITIES AFFECTING L ATERIALS THAT ARE INCLUSIN	CM IN ACCORDANCE W /E OF LCM IN ACCORDA RENCE TABLES HM-03E	ITH OSHA 29 CFR 1926.62. E NCE WITH APPLICABLE FE AND HM-03C OF DRAWING	DISPOSE DERAL,	01-A REMOVE AND DISPOSE OF ASBESTOS-CONTAINING BLACK COATING ON SINKS/DRINKING FOUNTAINS.
SUMMARY OF IDENTIFIED LCI	M. <u> CAULK WITH PCB</u> INTIFIED AS HAVING LES	LESS THAN 50 PPM:	SUANT TO	02-A REMOVE AND DISPOSE OF ASBESTOS-CONTAINING OFF-WHITE WITH PURPLE 12- BY 12-INCH FLOOR TILE AND ASSOCIATED BLACK MASTIC.
FEDERAL, STATE, AND LOCAL WASTE RELATIVE TO EXISTIN H THIS MATERIAL WILL REQUI NING WASTE. REFERENCE TAN AULK MATERIALS WITH PCB L	REQUIREMENTS. MATE IG DATA FOR PCB CONC RE DISPOSAL AT A FAC BLE HM-02 OF DRAWING ESS THAN 50 PPM.	ERIAL IS NOT CLASSIFIED A CENTRATIONS; HOWEVER, V ILITY PERMITTED TO ACCE S NO. AA001 FOR A SUMMAN	S WASTE PT RY OF	07-A1 REMOVE AND DISPOSE OF ASBESTOS-CONTAINING BEIGE 12- BY 12-INCH MOTTLED FLOOR TILE AND ASSOCIATED BLACK MASTIC.
				07-A2 REMOVE CABINETRY UNDER ASBESTOS ABATEMENT CONDITIONS. IF SUSPECT ASBESTOS-CONTAINING FLOOR TILE AND/OR MASTIC IS PRESENT BENEATH THE CABINETRY, PERFORM REMOVAL AND DISPOSAL AS ACM.
			2	REMOVE AND DISPOSE OF ASBESTOS-CONTAINING CHALK/CORK BOARD FOR DOOR OPENING.
				01-L PERFORM ABATEMENT OF IDENTIFIED LBP IN ACCORDANCE WITH APPLICABLE EPA AND OSHA REGULATIONS. REFERENCE TABLE HM-03A ON SHEET AA001 FOR A SUMMARY OF IDENTIFIED LBP.
				KEY PLAN:
				AREA B
				SED NO. 22-14-01-04-7-999-002
				IMPORTANT INFORMATION AND SHALL BE PRINTED IN COLOR IF REPRODUCED BY A CONTRACTOR. BCA Architects & Engineers
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				BE certified company
				ENGINEERS
				REALS
				LAFARGEVILLE CSD CAPITAL IMPROVEMENT PROJECT
				K12 BUILDING LAFARGEVILLE - JEFFERSON - NEW YORK REV DATE 2 04/05/2024 Description Addendum 2
				DRAWN BY PROJECT NUMBER J.FESSETTE 2022-052
				CHECKED BY DATE C.DASHNAW 6/7/2023 FIRST FLOOR
				ABATEMENT PLAN SHEET NUMBER
			AD2	AA101 DESIGN DEVELOPMENT (60%)

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LCM HANDLING AND DISPOSAL:

PERFORM WORK ACTIVITIES AFFECTING LCM IN ACCORDANCE WITH OSHA 29 CFR 1926.62. DISPOSE OF WASTE MATERIALS THAT ARE INCLUSIVE OF LCM IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS. REFERENCE TABLES HM-03B AND HM-03C OF DRAWING NO. AA001 FOR A SUMMARY OF IDENTIFIED LCM.

MANAGEMENT AND DISPOSAL OF CAULK WITH PCB LESS THAN 50 PPM: MANAGE AND DISPOSE OF MATERIALS IDENTIFIED AS HAVING LESS THAN 50 PPM PCB, PURSUANT TO APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS. MATERIAL IS NOT CLASSIFIED AS HAZARDOUS WASTE RELATIVE TO EXISTING DATA FOR PCB CONCENTRATIONS; HOWEVER, WASTE STREAM WITH THIS MATERIAL WILL REQUIRE DISPOSAL AT A FACILITY PERMITTED TO ACCEPT PCB-CONTAINING WASTE. REFERENCE TABLE HM-02 OF DRAWING NO. AA001 FOR A SUMMARY OF IDENTIFIED CAULK MATERIALS WITH PCB LESS THAN 50 PPM.



DESIGN DEVELOPMENT (60%)

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