SECTION 28 13 00 – SECURITY AND ACCESS CONTROL SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

A. Division 28 Contractor shall furnish and install a complete Security and Access Control System as shown on the Drawings and as specified herein. Provide all accessories and equipment as necessary for a complete system. **The access control system shall match the current Kantech system by Tyco.**

B. System shall be complete with control panels, door contacts, motion detectors, keypads, power supplies, batteries, phone line dialer, audible devices, supervised wiring, and all other items required for a complete fully functioning system. The connection to the intrusion devices shall be fully supervised and support normally open, normally closed, supervised and non-supervised circuits.

C. The system shall connect to all reader and alarming devices to support the following:
   1. The system shall support Standard Cards, Biometric technologies as well as Government cards with the following specifications:
      a. Proximity (125 KHz),
      b. MIFARE®, MIFARE DESFire®, MIFARE DESFire® EV1 (13.56 MHz),
      c. Biometric Identification & Authentication (1:1 and 1:N multi-factor),
      d. HID® iCLASS®,
      e. NFC,
      f. Magnetic Swipe,
      g. Barcode (1D linear, 2D datamatix, US & International formats),
      h. PIV, PIV-II, TWIC, CAC (Transition, Endpoint) HSPD-12 FIPS 201 Compliant

D. Electric strikes/latches and power supplies are provided by the door hardware supplier. This Contractor is required to coordinate with door hardware supplier and Division 26 Contractor, and is responsible for final connections to access control system including integration with automatic handicap door operators.

E. The security system shall provide monitor and control interface to the CCTV System (28 23 00). The input interface shall monitor selected video motion alarm contact closures from the CCTV System, causing an alarm when un-authorized motion is detected by the CCTV System. The output interface shall provide contact closures to the CCTV System to start video recording at full speed for selected cameras when an alarm occurs.

F. The Security System shall be designed and installed to not interfere with egress requirements for life safety nor interfere with intrusion or fire alarm systems.

1.02 QUALITY ASSURANCE

A. The system shall be UL listed and approved for the application intended and shall be compliant with all standards and regulations that may apply. These listing and approvals shall include, but not be limited to, FCC, CE, UL 1950, UL 294, and UL 1076. The latter UL 1076 will be applied only to the overall system, including the host when available.

B. The contractor shall be a Kantech Global partner. All contractor installation technicians shall be Kantech Corporate certified and will meet all training required by the manufacture.

1.03 SUBMITTALS

A. For Review:
1. Product data sheets of all components
2. Wiring Diagrams
3. Full Size Layout Drawings

B. To be included in Record and Information Manuals:
1. One (1) copy of each approved submittal
2. Test results
3. Certificate of System Completion
4. Certificate of Material Receipt

1.04 MANUFACTURERS

A. Security and Access Control System
1. Kantech KT-400

B. Proximity Card Reader
1. HID – iCLASS
2. WaveLynx Ethos ET20

C. Power Supplies
1. Altronix
2. LifeSafety Power
3. ASSA ABLOY

PART 2 PRODUCTS

2.01 CONTROL UNIT

A. Control unit shall contain all necessary components to provide complete control, testing and indicating facilities for the entire security alarm and access control system. The unit shall have battery back-up providing four hours of continuous operation during power outages.
1. The unit shall have processing capabilities to remain completely operational in an offline mode should the communications link become non-functional,
2. The unit shall have as a part of their standard package the ability to communicate with servers and other local controllers via an Ethernet based TCP/IP protocol.
3. The unit shall have the capability to interface standard Wiegand devices, as well as provide I/O to various serial protocols, including but not limited to RS-485, RS-422, and RS-232,

4. The unit shall have as a part of their standard package the ability to communicate with servers and other local controllers via an Ethernet based TCP/IP protocol,
5. The unit shall have peripheral I/O panels that provide additional digital I/O both logic level and form-C contacts.
6. The unit shall be Kantech KT-400.

B. The Contractor shall provide sufficient cabinets, card, and related hardware to control all doors, door contacts and other related devices indicated on the drawings, plus spare capacity of 25% per Telecommunications Room (TR). This spare capacity shall be distributed throughout the system control panels on a TR by TR basis, i.e. each TR shall contain the available spare capacity as defined above.

C. To ensure continued, one-call support, the system shall be constructed of sensing components provided directly by the system manufacturer, such as power supplies, motion detectors, door and window position switches, glass break detectors, or other sensing devices that the manufacturer offers.

D. The Contractor shall include all power supplies, batteries and other peripheral devices required to provide a fully functional system as described herein, and indicated on the Drawings.

E. The system shall support user interaction by way of a keypad, web browser, system software, key switch, or radio frequency wireless control, using integrated or auxiliary devices provided by the system manufacturer.

2.02 CREDENTIAL READERS AND CREDENTIALS

A. The credential reader shall be a read only multi-technology contactless smart card reader and be designed to securely read, interpret, and authenticate access control data from 13.56 MHz contactless smart card credentials and 125 kHz proximity cards.
1. Customized security protection through support of the device-independent Secure Identity Object™ (SIO) portable credential methodology to provide enhanced security and performance features.
2. Backwards compatibility with legacy 13.56 MHz contactless smart card and 125 kHz proximity access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and HID Corporate 1000 formats). Compatibility across the product line shall be assured without the need of special programming.
3. The multi-technology contactless smart card reader shall be configurable to provide multiple hierarchical degrees of key compatibility for accessing the smart card access control data.
4. The multi-technology contactless smart card reader shall provide simultaneous support for 125 kHz proximity FSK (HID Proximity, AWID). PSK (Indala), and ASK (EM4102) 125 kHz technology to increase credential technology migration options.

B. The Credential shall be a 13.56MHz based proximity card.
1. The card shall be 2.125" x 3.370" x 0,030" ±0.003" nominal.
2. The card shall be constructed of polyvinyl chloride (PVC) laminate.
3. The card shall have an operating temperature of -50º to 160º F. and weigh 6.8g.
4. The card shall be RF programmable at 13.56MHz with customer specified ID numbers.
5. The card shall use passive technology allowing an infinite number of reads.
6. The card shall be capable of accepting either direct image or thermal printing.
7. The card shall be laser engraved with an external identification number.

C. Provide battery backup with batteries and battery charger as required to provide one-hour operation of the security system in the event of a power failure.

D. Proximity Card Readers shall read cards up to 4" away, fit in a standard 1-gang wall box, be black in color, and have bi-color LED indicator. Provide 100 proximity cards with the system. Programming of cards shall be included and coordinated with Owner.

2.03 ACCESS CONTROL SOFTWARE FUNCTIONS

A. General
1. The Web based CCAS shall operate on a dedicated server system **Supplied by Owner**. This dedicated server shall run network and Internet services for industry standard web browsers to use in order to administer personnel records. For reporting purposes, a browser-accessible reporting package shall be used. Dynamic on-line help shall be available within the software with step-by-step instructions available for common administration tasks.
2. A copy of all personnel records from the individual LCP's shall be stored in the CCAS and shall be available to all authorized operators. All hardware components/modules shall be commercial off-the-shelf products offered by recognized industry manufacturers. Systems utilizing proprietary hardware shall not be acceptable.
3. The client Web browser PC shall be 100% IBM compatible PC running MS Edge and network enabled. No proprietary or advanced computer hardware, i.e. high end video graphics cards, etc. shall not be necessary in order to retrieve and/or edit personnel records.
4. The CML provided server shall interface, through the network, with the existing Access Control hardware server

2.04 MISCELLANEOUS EQUIPMENT

A. Provide all cabling required for installation of complete system. See attached appendix A detail.

B. Provide I/O points for 8 inputs and 8 relay outputs for interface into the CCTV System (28 23 00).

C. Provide Lockdown switch (lever) for emergency door lockdown.
1. One lockdown switch (lever) device
2. Install under desk where indicated on drawings
3. Program to communicate through Kantech system
   a. Basis for design GRI GR3045 Panic Switch Set with Screw Terminals
   b. Engineer-approved equivalent.

D. Provide Duress Alarm/Panic Button for under-desk installation.
1. Silent operation
2. Double-pole double-throw contacts for multi-notifications
3. Twin 45° screw terminals with EOL resistor splicing terminal
4. Fully supervised
5. Basis For design: Potter HUB-M 2020130 – Panic button for immediate distress notification
6. Engineer-approved equivalent

E. Provide Duress Alarm for wall installation.
1. Stainless steel backplate.

2. Curved design helps protect against accidental activation
3. Red illuminating button can be used as a status light, indicating activation.
4. Basis For design: STI-SS2421EM-EN
5. Engineer-approved equivalent

PART 3 EXECUTION

3.01 INSTALLATION

A. Division 28 Contractor shall install Security System as shown on the Drawings in accordance with Manufacturer's written instructions. **See figure 1 and 2 attached**

B. All wiring shall be installed in conduit.

C. All delayed egress equipped doors will be monitored by the Security System for device power supply status, fire alarm relay status, device arm/disarm status, device alarm status, and door position.

D. **All Telecommunications Room (TR) doors will be monitored by the Security System for device power supply status and door position. If not part of the door hardware, Division 28 Contractor shall supply request-to-exit (REX) sensor on interior/TR side to ensure proper Kantech EntraPass door notification.**

E. **Division 28 Contractor shall input door names into Kantech EntraPass system using naming convention supplied by Owner. Input process will be completed in conjuction with Owner Kantech EntraPass administrator.**

3.02 TESTING

A. Division 28 Contractor shall provide a complete functional test of all components in accordance with Manufacturer's recommendations.

B. Operate system for a minimum of seven (7) consecutive days with no problems before claiming Contract Completion.

C. Refer to Section 26 08 40, "Electrical Tests, Adjustments, Inspection."

3.03 SPARE PARTS

A. Division 28 Contractor shall furnish one (1) spare device for each type used, including keypad, passive infrared detector, and door contacts.

B. Obtain a signed copy of the Certificate of Material Receipt from Section 28 00 99, "Requirements for Contract Completion."

C. Coordinate the I/O interface, programming and wiring with CCTV System supplier (28 23 00) for control and monitor of the CCTV System.

3.04 EQUIPMENT DEMONSTRATION

A. After all system tests have been completed, schedule an instruction period with the Owner. Instruction to be provided by Manufacturer's authorized field technician. Provide up to four

separate sessions of four hours each. Record sessions on flash drive and furnish two copies to Owner.

B. Instruction shall include:
1. Location of all components of the system and explanation of their function
2. Demonstration of equipment
3. Maintenance and repair procedures
4. Programming procedures
5. Review of documents in Record and Information Manuals

C. Division 28 Contractor shall have all participants sign the Certificate of System Completion in Section 28 00 99, "Requirements for Contract Completion."

3.05 WARRANTY OF WORK

A. The Division 28 Contractor shall warrant all materials, equipment, and workmanship for a period of one (1) year from date of completion. Refer to Section 28 00 00.

END OF SECTION (FIGURE 1 AND 2 ATTACHED)

Figure 1

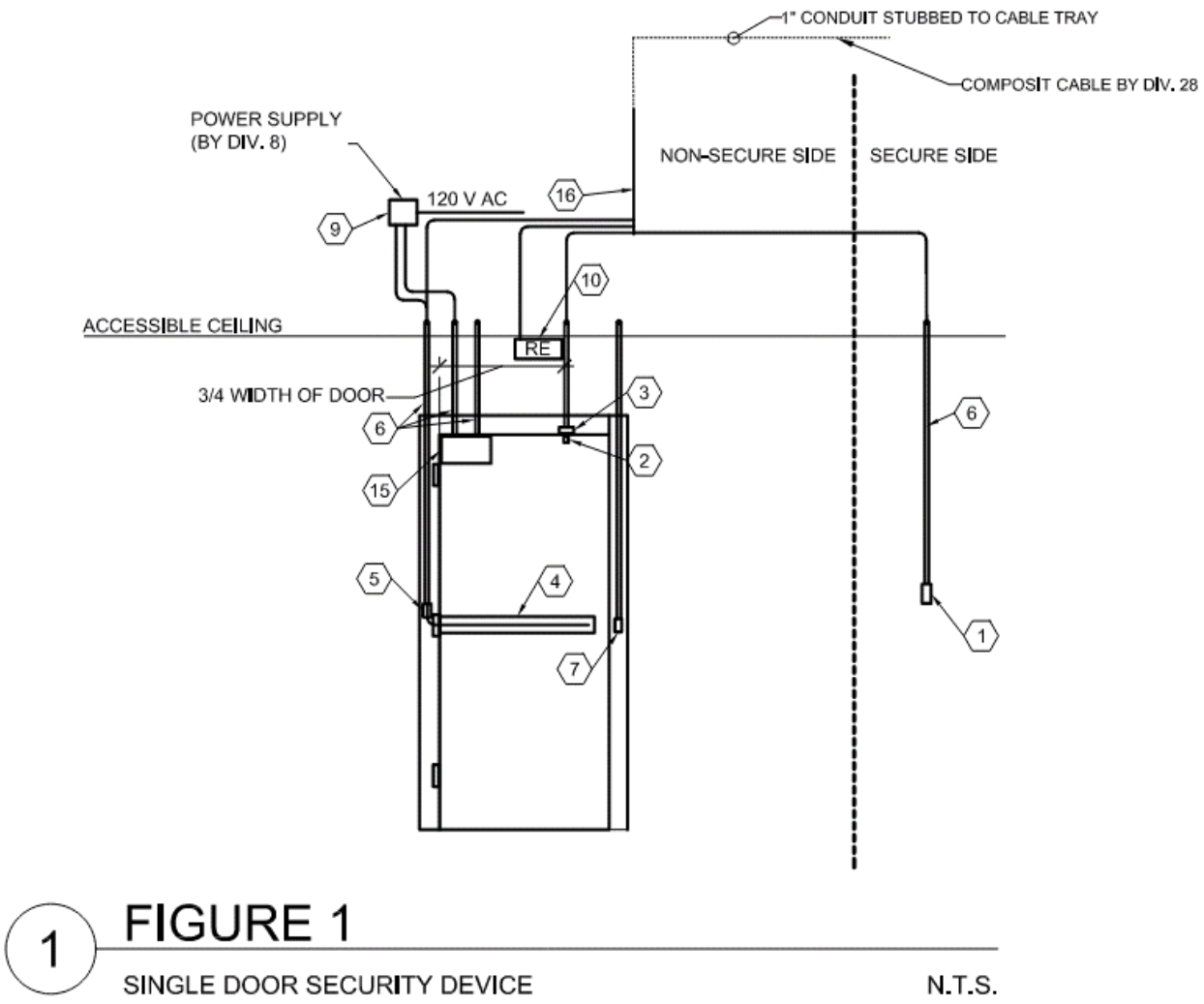
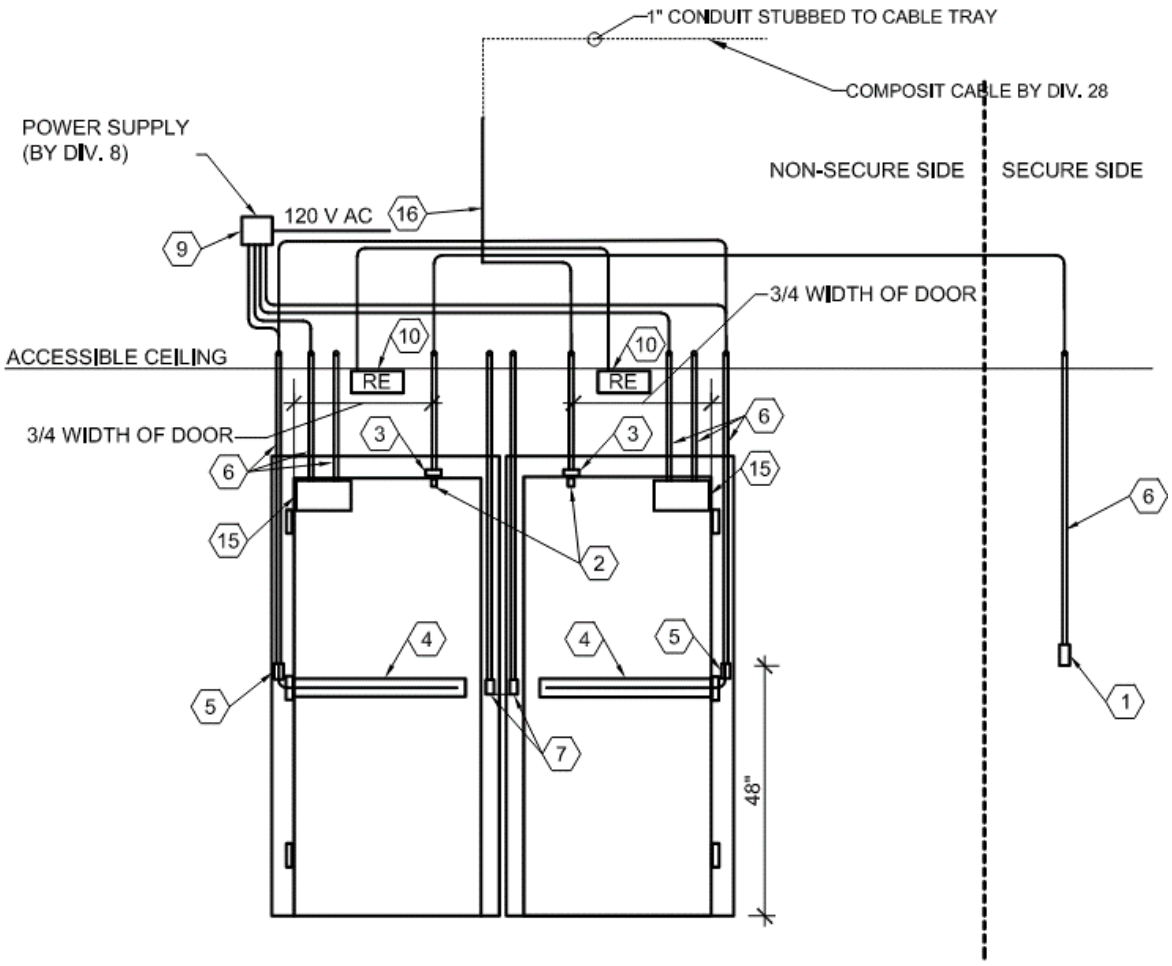


Figure 2



2 FIGURE 2

DOUBLE DOOR SECURITY DEVICE N.T.S.

NOTES FOR FIGURE 1 AND 2

GENERAL NOTES

1. EACH DOOR DOES NOT CONTAIN EACH DEVICE DEPICTED. SEE DOOR HARDWARE SCHEDULE AND FLOOR PLANS FOR MORE INFORMATION

CODED NOTES:

1. CARD READER BY DIV. 28. BACKBOX BY DIV. 26.
2. DOOR CONTACT BY DIV. 28.
3. BACKBOX AND 3/4" CONDUIT FROM BACKBOX TO ABOVE ACCESSIBLE CEILING BY DIV. 26. UTILIZE FOR DOOR CONTACT (AND MAG LOCK IF APPLICABLE

4. ELECTRIC CRASH BAR (IF APPLICABLE) INSTALLED BY DIV. 8 AND WIRED TO POWER BY DIV. 28
5. BACKBOX MOUNTED IN DOOR FRAME (IF ELECTRIC CRASH BAR UTILIZED) BY DIV. 26
6. 3/4" CONDUIT FROM BACKBOX TO ABOVE CEILING (IF DEVICE UTILIZED) BY DIV. 26
7. BACKBOX AND 3/4" CONDUIT FROM TO ABOVE ACCESSIBLE CEILING FOR DOOR STRIKE (IF APPLICABLE) BY DIV. 26
8. N/A
9. OWER SUPPLY INSTALLED AND WIRED TO 120 V AC BY DIV. 26
10. REQUEST TO EXIT MOTION DETECTOR (IF APPLICABLE) BY DIV. 28 MOUNT TO CEILING CENTERED ABOVE DOORWAY WHENEVER POSSIBLE, IF CEILING IS NOT POSSIBLE, WALL MOUNT WITH A SINGLE GANG BOX AT 108" AND EXTEND A ¾" CONDUIT TO ABOVE ACCESSIBLE CEILING BY DIV. 26
11. N/A
12. REQUEST TO EXIT BUTTON (IF APPLICABLE) BY DIV. 28. SINGLE GANG MASONRY BACKBOX (IF APPLICABLE) BY DIV. 26
13. N/A
14. N/A
15. POWER OPERATED DOOR OPERATOR (IF WALL ACTIVATOR UTILIZED) BY DIV. 8
16. ACCESS CONTROL CABLE CONNECTED TO DOOR CONTROLLER KT-400 INSTALLED IN TECHNOLOGY ROOM BY DIV. 28

END OF ATTACHMENTS

SECTION 28 15 00 – INTRUSION DETECTION

PART 1 GENERAL

1.01 DESCRIPTION

A. Division 28 Contractor shall furnish and install a complete Security Intrusion Detection System as shown on the Drawings and as specified herein. Provide all accessories and equipment as necessary for a complete system. The contractor is required to provide and coordinate any required licenses and services as part of the contract.

B. The systems shall notify, by means of cellular communications network with connection to the Owner's approved central office.

C. The system shall utilize keypads to arm and disarm the zones. The keypads shall be located as indicated on the Drawing, and shall be programmed to arm/disarm the zone with which it is associated.

D. The Digital Alarm Communicator System (DACS) specified herein shall include a Digital Alarm Communicator Transmitter (DACT), test timer, battery charging/voltage supervision circuitry, powered two-wire smoke detector circuit, diagnostics displays, lightning/EMI protection circuits, and the associated optional modules and components for a complete DACS system.

E. The DACT firmware shall support programmable "software" features as detailed in section 2.2 System Features/Capability Summary. The following describes the general functional requirements of the DACS system:
   1. The DACS shall support the connection and reporting of intrusion and commercial fire detection devices.
   2. The DACS shall provide identification, annunciation, and communication of alarmed detectors by point.
   3. The DACS shall be "modularly" expandable using hard-wired modules and wireless receivers or connected to a command center.
   4. The DACS shall have electrically-supervised detection loops and power supplies (mains and battery(s)).This supervision shall be programmable for the purposes of reporting this information to the DACR. The battery supervision must include missing-battery supervision. The mains supervision reporting must be able to be suppressed until another signal is sent to the Digital Alarm Communicator Receiver (DACR) (tag along reporting).
   5. The DACS shall be capable of reporting and communicating alarm or trouble event data by reporting to one or two (2) off-site remote (DACR) via dial-up analog telephone lines. Pulse or Dual-Tone Multi-Frequency (DTMF) dialing option is required.
   6. The DACS shall be capable of sending (manually or automatically) test and status reports to remote DACRs. Automatic tests shall be capable of being sent daily, weekly or once each 28 days. Automatic test times shall be capable of being set as an offset of up to 24 hours from the current time. Automatic test reports shall be capable of being deferred by one test interval if any other report is transmitted in the current interval.
   7. The DACS shall be programmable locally or remotely. Programming shall be accomplished via a command center or a computer with a remote programmer and diagnostic software package. The Contractor shall provide a fully licensed copy of this

software to the Owner at no additional cost to the Owner. The Contractor shall install and configure the software to be fully functional to the Owner on a PC as assigned by the Owner. An on-site user must be able to initiate remote programming while on-line with the servicing location. The remote programming device must provide a compare feature and allow for downloading either the stored program or the (un)modified program copied from the panel. The number of system programmers shall be severely restricted via the use of program locking features and passwords. Passcode protection in excess of sixteen million combinations is required. The panel must allow the local programming option to be disabled and must provide a method to program a panel, while no one is home, when the panel shares a line with an answering machine

8. The DACS shall annunciate alarm, trouble, service reminders, and other relevant system status messages in English text at the command center. Point description text is to be sixteen custom characters per point.
9. The motion sensors specified shall be a PIR detector designed for commercial indoor applications. The unit shall consist of a self-locking two-piece enclosure with a built in two-way bubble level. The detector shall sense a field of coverage that encompasses the associated windowed wall. The detector shall incorporate:
    a. Sensor data fusion technology to ensure that the detector sends alarm condition based only on precise information
    b. Tri-focus optics technology to eliminate coverage gaps
    c. Multi-Point Anti-mask with Integrated Spray Detection protects the detector against masking attempts.

1.02 QUALITY ASSURANCE

A. The system shall be the standard product of one manufacturer, and the manufacturer shall have been in business manufacturing similar products for at least five years.
    1. All equipment, systems, and materials furnished and installed shall be new and installed in accordance with the applicable standards of:
        a. National codes: NEC, NFPA, UBC
        b. Approvals and listings: UL
        c. Security Industry Association (SIA)
        d. Local Authorities Having Jurisdiction

1.03 SUBMITTALS

A. For Review:
    1. Product data sheets of all components
    2. Wiring Diagrams
    3. Full Size Lay-out Drawings

B. To be included in Record and Information Manuals:
    1. One copy of each approved submittal
    2. Test results
    3. Certificate of System Completion
    4. Certificate of Material Receipt

1.04 MANUFACTURERS

A. Intrusion Detection Products
    1. DSC

2. Bosch

PART 2 PRODUCTS

2.01 SYSTEM FEATURE/CAPABILITY SUMMARY

A. Security Industry Association (SIA) False Alarm Reduction Compliance: By factory default settings, the DACS shall be compliant with SIA's Control Panel Standard for False Alarm Reduction (ANSI/SIA CP-01- 2000, © 1994-2000 SIA).

B. Number of Loops/Sensors: 40 separately-identifiable points. Eight are on-board loops and up to 40 are offboard addressable points connected to five point expansion modules (max) and/or two RF Receivers (max).

C. Programming Point Functionality: Each point in the system shall provide for the following matrix of selectable type of response in the system.

Type	Response	Options
24-hour, Fire	No Alarm Response	No Point Options
24-hour, Fire Alarm with Verification	Reports	Trouble on Open
24-hour, Voice Active	Alarm Report Delay	Trouble on Short
24-hour, Tamper	Swinger Bypass	Trouble on Open or Short
24-hour, Emergency	Smart Swinger Bypass	Cross Point
24-hour, Visible Panic	Alarm Output	Part Arming
24-hour, Invisible Panic	Log Event	Pulse Count/Time
24-hour, Burglary		Sensor Monitor Trouble
24-hour, Independent Point Control		
Controlled, Keyswitch		
Controlled, Entry/Exit Delay 1		
Controlled, Entry/Exit Delay 2		
Controlled, Follower		
Controlled, Instant		
Controlled, Instant (Part On Mode)		

D. Configurable Independent Areas: The DACS shall provide a maximum of four areas that may be configured independently of the other three areas.

E. RF Compatibility: The DACS shall be compatible with RF/wireless detection devices, smoke detectors, command centers and keyfobs.

F. Number of Command Centers: A maximum of eight command centers, each capable of displaying custom English text on liquid crystal or vacuum fluorescent (VF) displays and sounding different patterns of audible alarm for different events, shall be required. LED Command Centers may also be used to display point status and arm/disarm status, and carry out user command functions.

G. Number of User Passcodes: Up to 32 different passcodes shall be required. Passcodes shall be 3 to 7 digits in length. Passcodes shall be assigned one of four different authority levels to carry out functions such as changing passcodes from the command center, activating one-time passcodes and changing watch tone responses. These passcodes shall also be required

for performing various system functions such as arming/disarming the system, transmitting a duress code, and silencing sounders.

H. Communication Formats: The Modem IIIa2 format shall be utilized for optimum system performance. The DACT shall report to a Commercial Central Station using an alarm receiver that supports the Modem IIIa2 communication format. Said receiver shall be as manufactured by the intrusion detection system manufacturer, specifically for use in the system being provided. One such advantage is point identification information transmission to DACRs (Alarms, Troubles, and Restorals by point). Others include actual point number; point text; actual user number; bypassed points; relay activation; and opening/closing reports by user.

I. Testing, Diagnostic, and Programming Facilities: Automatic test reports and remote system access for diagnostics, and programming shall also be supported via a remote central station computer utilizing the dedicated software.

J. Reports: Reports to DACRs at commercial central stations as a result of system supervision shall include alarm, trouble, missing modules, restoral, system status, AC failure and low battery. The DACS shall also transmit test reports once every hour, 24 hours, 7 days, or 28 days. CPU failure shall be annunciated locally.

K. "Phone Routing": The DACS shall have the capability of communicating with up to 2 different DACRs (destinations). Each destination can support up to two phone numbers. Each phone number can be up to 32 digits long. The DACS reports shall be classified into 24 sub-categories or "report groups." Each DACR shall be designated as a primary or duplicate destination for each report group. The transmission of events allows the reporting of different types of information to different remote DACRs. The report groups shall be as follows:

- 24-hour, Fire
- 24-hour, Fire Alarm w/ Verification
- 24-hour, Independent Point Control
- 24-hour, Tamper
- 24-hour, Emergency
- 24-hour, Visible Panic
- 24-hour, Invisible Panic
- 24-hour, Burglary
- 24-hour, Voice Active
- Controlled, Keyswitch
- Controlled, Entry/Exit Delay 1
- Controlled, Entry/Exit Delay 2
- Controlled, Follower
- Controlled, Instant
- Controlled, Instant (Part On Mode)
- System Status Reports
- Walk Test Start/End Reports
- ABC Key/Duress Reports
- Test Reports
- Open/Close Reports
- Alarm Reports
- Restoral Reports
- Bypass/Force Bypass Reports
- Point trouble/Point Trouble Restoral Reports

L. Number of Programmable Outputs: The DACS shall provide a minimum of four on-board programmable outputs, which may be expanded to 20 by connecting up to two output modules to the DACS. Each output module shall provide eight fully programmable Form "C" outputs for a total of sixteen outputs (eight per output module). The following functions can be executed:

- Arming
- Arming Beeps (kysw & RF arming)
- Auto Arm Pre-Arming Alert
- Follow Command Center Sounder
- Duress
- User Tamper
- Bell Time
- Strobe
- Panel Off-Hook
- Ring Detect
- Voice Request
- Ready to Arm

- Entry/Exit Delay
- Bell Test on Close
- Phone Line Fail
- Ack Received
- AC Fail
- Low/Missing Battery
- Siren Supervision Fail
- Sensor Trouble Monitor
- Silent Alarm
- Alarm/Fire Alarm
- Fire Verification
- System Trouble
- RF Keyfob Functions
- ABC Key Functions
- Unsuccessful Dialing Attempts
- Comm Fail Event
- Watch
- Exit Error
- AC 60 Hz
- Ground Start
- Follow Point Index
- Follow Passcode
- Sked Only
- Change Outputs

The Contractor shall provide a minimum of one output for each of the exterior door contact indicated, plus four (4) spare contacts. These contacts shall be interfaced to the Video Surveillance System to trigger pre-programmed pan/tilt/zoom presets, if applicable, to set the exterior cameras to allow for recording of appropriate events. It shall be the responsibility of the Intrusion Detection Contractor to provide all cabling and hardware to route the cabling to the DVR, and provide all necessary programming to provide the necessary closures of the contacts. Final termination of the cabling and programming of the DVR shall be by the Video Surveillance contractor. The Intrusion Detection Contractor shall verify all requirements of the interface with the Video Surveillance Contractor, and fully test all functionality prior to Owner's final acceptance of the system.

M. Output Mode: The DACS shall provide outputs with the following mode functions:
- Steady
- Latch
- Toggle
- One Shot
- One Shot with Re-Trigger
- One Shot with Reset Pulse

Output modes shall also perform reverse logic functions (output activate/deactivate states are reversed).

N. Alarm Output Selections: Two different types of alarm output selections shall be supported by the DACS: Steady and Temporal Code 3.

O. Miscellaneous Features: The DACS shall provide programmable Swinger count (1, 2, 3 or 4), separate programmable swinger counts for alarm output and alarm reporting, smart swinger option and momentary and maintained keyswitch on/off operation. See below for keyswitch arming states:
- Maintained, All On, Off from Any
- Maintained, All On, No Off
- Maintained, No On, Off from Any
- Maintained, Part On, Off from Any
- Maintained, Part On, No Off
- Maintained, No On, Off from Part On/Part 2 On On/Part 2 On
- Momentary, All On, Off from Any
- Momentary, All On, No Off
- Momentary, No On, Off from Any
- Momentary, Part On, Off from Any
- Momentary, Part On, No Off
- Momentary, No On, Off from Part

P. DACS Power Ratings: The DACS shall provide 600 mA of auxiliary power and 1.85 A of alarm power, both rated at 12 VDC. Additional auxiliary power shall be provided by adding battery/charger modules up to a maximum of 2 amps. The Contractor shall verify exact power requirements for the project and provide all necessary power devices required to provide 100% of the power required by the initial installation, as well as spare capacity of 20%.

Q. DACS Fault Detection: The DACS shall provide a programmable point scan time at either 300 ms or 20 ms.

R. User-Programmable Features: The DACS shall provide a "user-friendly" interface for operating the system to the operational criteria of the application. A service passcode with the appropriate authority level can be assigned to the servicing agent allowing him limited access to system functions. User programmable/activated functions assigned by authority level include:

1. Arming the System: The required authority level can perform the following arming functions:

• All/Part/Part 2 On with Delay
• All/Part/Part 2 On with Delay, no Exit Tone
• All/Part/Part 2 On with no Delay

2. Disarming the System: The required authority level may disarm the system and perform one-time system disarm.
3. Disable Open/Close Reports: The sending of opening/closing reports may be restricted by authority level.
4. Force Arm/Bypass Points: The required authority level may force arm or bypass faulted points.
5. Arm/Disarm All Areas by Command Function: The required authority level may arm and disarm all areas using a command function.
6. System Operation Command Functions: The required authority level may perform the following system operations via command functions:

• View Alarm Memory
• System Test
• View System Trouble
• Remote Program
• Walk Test
• Reset Sensors
• View Point Trouble
• Set Time and Date
• Change Skeds
• Renew One-Time Passcodes
• Change/Add Other Passcodes
• Delete Passcodes
• Set Watch Tone
• Set Watch Points
• Set Part 2 Points
• Toggle Auto Call Forwarding On/Off
• Auto Call Forwarding Enable
• Auto Call Forwarding Disable
• Adjust Command Center keystroke volume/display ltg
• Toggle Watch Feature On/Off

7. Move to Area Command Function: The required authority level may perform the Move to Area command function.
8. Extend Close Command Function: The required authority level may perform the Extend Close (Automatic Arming) function.
9. View Log Function: The required authority level may view the system log.

S. Auto Call Forwarding: The DACS shall provide an automatic call forwarding feature that dials the entered digits to activate the telephone company's call forwarding service when the system is armed All On. The enabling/disabling of this feature may be restricted by authority level.

T. 254 Event Log: The DACS shall provide a history log capable of holding up to 254 events, including alarm events, arming the system, and disarming the system.

U. Programmable Skeds: The DACS shall provide up to 8 programmable scheduled events (skeds) that occur at a specific time of day and day of week. These events can be used to automatically arm/disarm the system or control output functions.

V. Sequential Entry Delay: The DACS shall commence the Entry Delay sequence when the location with an Entry/Exit Delay point type is faulted and continues with the faulting of consecutive locations (lowest to highest) assigned to Follower point types. The sequence of

point types must be consecutive and without any gaps. For example, Location sequence 2, 3, 4, and 5 with Location 2 as an Entry/Exit point type and Locations 3 to 5 as Follower point types is OK. A location sequence of 2, 3, 5 with Location 4 as a Fire point type is not a valid sequence.

2.02 SYSTEM INTERFACE REQUIREMENTS

A. Grounding: The Contractor shall properly earth ground the DACS.

B. Primary power: The Contractor shall provide a dedicated 120 VAC power circuit to the DACS system. This circuit shall be connected to the emergency power system. The 120 VAC is stepped down to 18 VAC to power the DACS panel using a class two, plug-in transformer. This power circuit shall be properly rated to continuously power all points and functions indefinitely in full alarm condition.

C. Primary power supervision: When the primary power source fails, the system can be configured to report an "AC Fail" message to a commercial central station. The creation of this message is suppressed if the AC Failure is less than 60 seconds. The message can be programmed to "tag-along" with another message transmitted to the central station. The system will always display a loss of primary power on the command center and may be configured to provide additional audible warning.

D. Secondary power (standby battery): The Contractor shall provide adequate battery power as defined by the relevant application criteria, (UL 985 and 865 for alarm installations or NFPA 72 chapters for fire applications). Appropriate battery chargers shall be provided consistent with the battery backup capacity. The battery capacity shall be a minimum of 4 hours at full capacity, unless other jurisdictional requirements exceed this minimum. The Contractor shall verify the duration required of the battery capacity and provide the required capacity at no additional cost to the Owner.

E. Secondary power supervision: When the secondary power source experiences an 85% depletion of its standby capacity, the system can be configured to report a "Low Battery" message to a commercial central station. The system will always display a low battery condition on the command center and may be configured to provide additional audible warning.

F. Wiring: The contractor shall provide cables consistent with the manufacturer's recommendations. The following general guideline shall be followed for wiring installation: Wiring shall be appropriately color-coded with permanent wire markers, and shall be compliant with all ratings required by all applicable codes and the local authority having jurisdiction.

G. EMI/Lightning Protection: The DACS system shall be protected from EMI and lightning surges.

H. Auxiliary function control interfaces: Auxiliary functions such as activating bells, strobes, or lights shall be accomplished using the optional relay modules. These auxiliary interfaces shall be electrically isolated to avoid inter-system interference or damages.

I. Non-Volatile Backup: Functional criteria programmed into system memory shall be backed up to internal non-volatile RAM. Additionally, the number of system programmers shall be severely restricted via the use of program locking features and passwords.

2.03 SYSTEM SENSOR REQUIREMENTS

A. Door Contacts
1. Where still accessible door contacts shall be recessed round ¾" plug type door contacts by DSC, DMP, Bosch or Honeywell.

B. Motion Sensors
1. The motion sensors shall be listed and approved by UL, ULC, CE, FCC, IC, and EN50131-2-4 grade 2.
2. The motion sensor shall operate on 9 VDC-15 VDC, with a maximum current draw of 25 mA.
3. The motion sensor shall be capable of operating in temperatures ranging from -20ºF to +130ºF.
4. The motion sensors shall utilize both infrared and microwave technologies, as well as light level sensors.
5. The motion sensors shall utilize active white light suppression to combine infrared disturbance with visible light spectrum to minimize false triggers caused by transient sources such as passing automobile headlights.
6. The motion sensors shall utilize adjustable optics with 86 zone tri-focus optic configuration.
7. The microwave sensors shall have adjustable sensitivity and supervised control.
8. The sensor shall provide automatic temperature compensation.
9. **The approved manufacturer and series shall be Bosch Professional Series, with equals by DSC and Ademco. The Contractor shall verify the appropriate coverage range and provide the required unit.**
   a. **Basis for design 360° coverage: Bosch DS9360**
   b. **Basis for design 180° coverage: Bosch DS778**

C. Wireless Glass Break Sensor
1. **Wireless Glass Break detectors shall be DSC WLS922L-433 or equivalent**
   a. **Lithium batteries included**
   b. **Test using AFT-100 glass break simulator**

PART 3 EXECUTION

3.01 INSTALLATION

A. Division 28 Contractor shall install security system as shown on the Drawings in accordance with Manufacturer's written instructions.

B. All wiring shall be installed in conduit.

3.02 TESTING

A. Division 28 Contractor shall provide a complete functional test of all components in accordance with Manufacturer's recommendations.

B. Operate system for a minimum of seven consecutive days with no problems before claiming Contract Completion.

C. Refer to Section 26 08 40, "Electrical Tests, Adjustments, Inspection."

3.03 SPARE PARTS

A. Division 28 Contractor shall furnish one spare device for each type used, including keypad, passive infrared detector and door contacts.

B. Obtain a signed copy of the Certificate of Material Receipt from Section 28 00 99, "Requirements for Contract Completion."

3.04 EQUIPMENT DEMONSTRATION

A. After all system tests have been completed, schedule an instruction period with the Owner. Instruction to be provided by Manufacturer's authorized field technician. Provide four separate sessions of four hours. Record sessions on thumb drive and furnish two copies to owner.

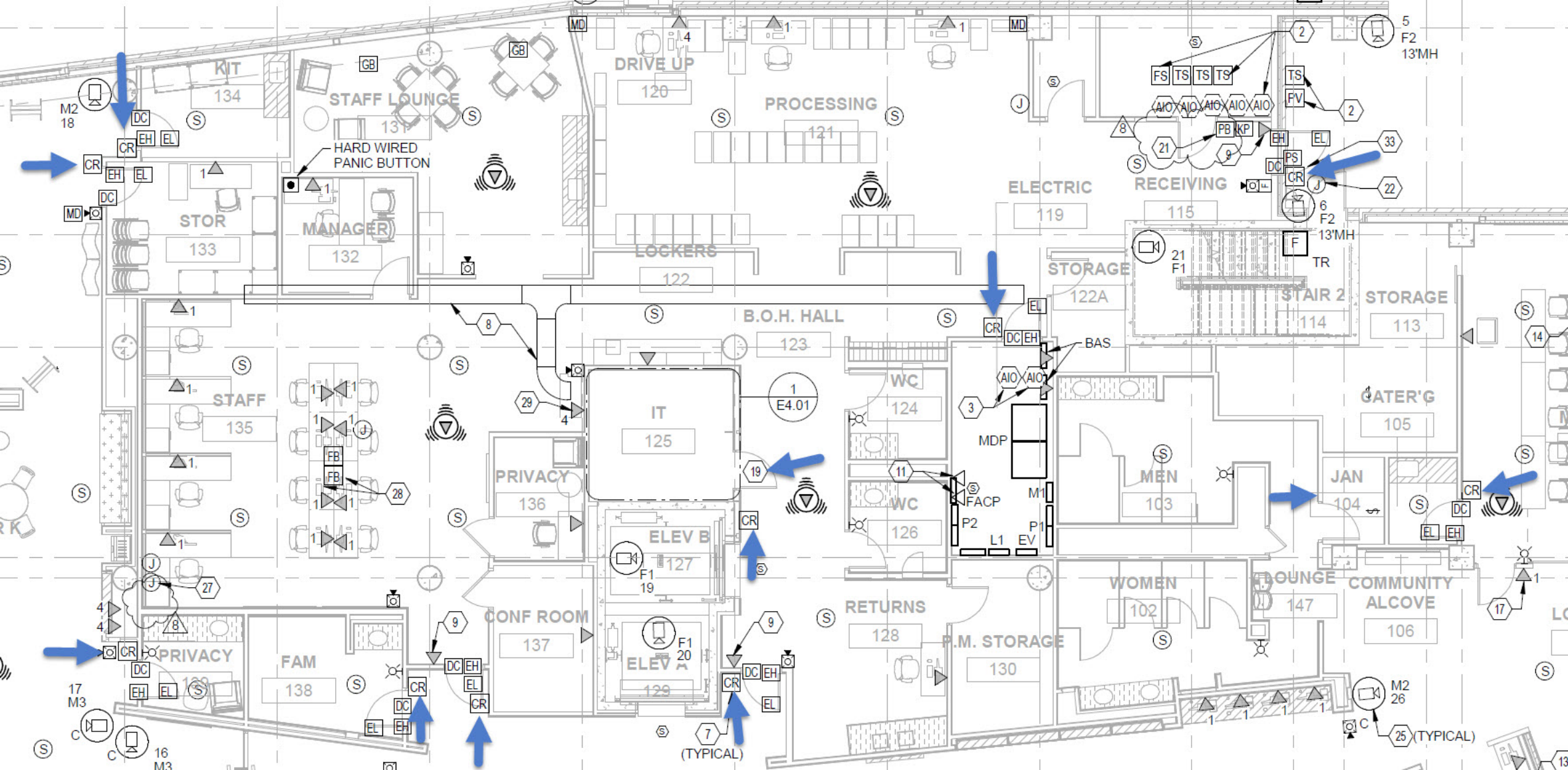
B. Instruction shall include:
1. Location of all components of the system and explanation of their function
2. Demonstration of equipment
3. Maintenance and repair procedures
4. Programming procedures
5. Review of documents in Record and Information Manuals

C. Division 28 Contractor shall have all participants sign the Certificate of System Completion in Section 26 00 99, "Requirements for Contract Completion."

3.05 WARRANTY OF WORK

A. All components, parts, and assemblies supplied by the Manufacturer and installed by the Contractor shall be warranted against defects in material and workmanship for a period of at least 36 months (parts and labor), commencing upon date of acceptance by Owner. A qualified factory-trained service representative shall provide warranty service.

END OF SECTION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STORAGE
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B.O.H. HALL
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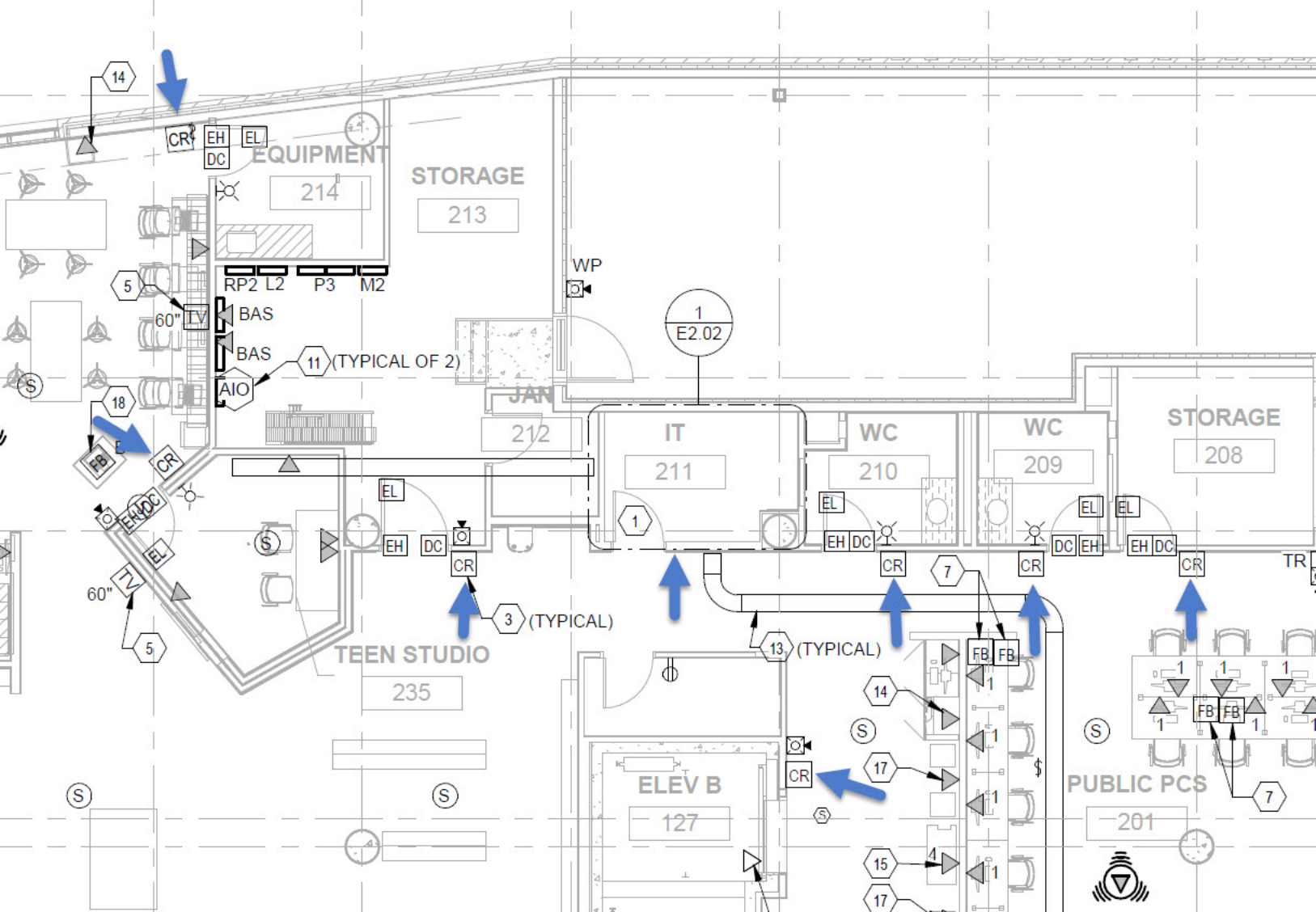
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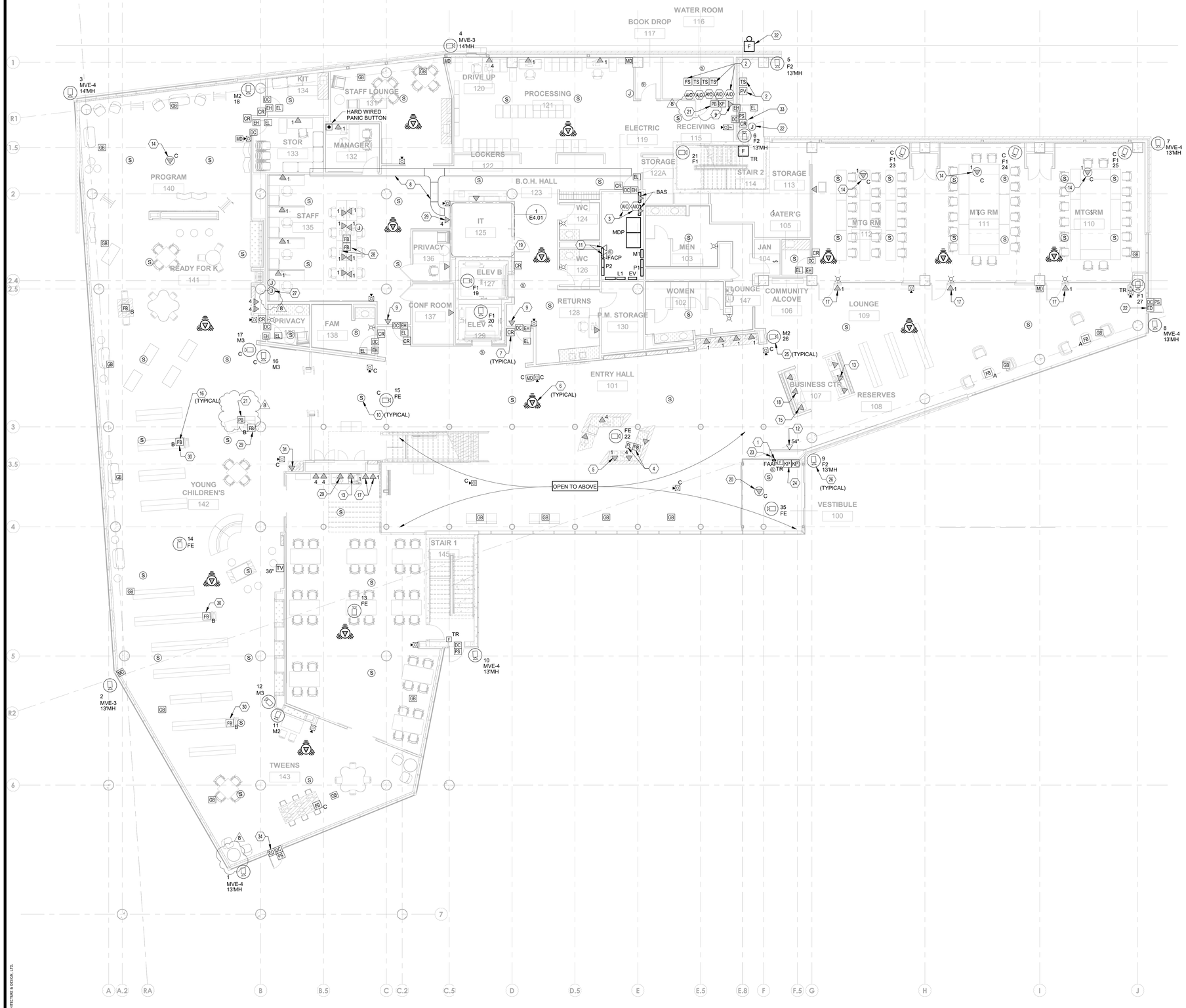

1 FIRST FLOOR PLAN - SYSTEMS

1/8" = 1'-0"

PLAN NORTH

GENERAL NOTES:

A. FIELD VERIFY EXACT LOCATIONS OF ALL DEVICES AND EQUIPMENT. REFER TO DRAWINGS AND SPECIFICATIONS OF OTHER CONSTRUCTION WORK TRADES FOR ADDITIONAL ELECTRICAL WORK INCLUDED IN DIVISIONS 27 AND 28.

B. COORDINATE ALL ROUGH-IN REQUIREMENTS OF DEVICES IN CASEWORK, FURNITURE AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ROUGH-IN.

C. COORDINATE ALL FINAL DEVICE COLOR AND FINISHES SELECTIONS WITH ARCHITECT AND OWNER.

D. ALL DATA CABLES SHALL BE ROUTED IN CABLE TRAY, J-HOOKS OR CONDUIT. CABLES SHALL BE ROUTED INCONSPICOUSLY, PARALLEL TO BUILDING STRUCTURES AND DUCTWORK, ETC.

E. ALL WIRE IN CONDUITS (INCLUDING FLEX CONDUIT) SHALL BE CONCEALED WHERE POSSIBLE. IF SURFACE CONDUIT IS USED IT MUST FIRST BE APPROVED BY A/E AND PAINTED TO MATCH WALL/CEILING FINISHES.

F. COORDINATE LOCKDOWN FUNCTIONS WITH ARCHITECTURAL DOOR HARDWARE SPECIFICATIONS FOR INTEGRATION IN THE ACCESS CONTROL SYSTEM.

G. ALL DATA CABLING SHALL BE HOMERUN TO IT ROOM ON THIS FLOOR. PROVIDE PATCH PANELS TO SERVE QUANTITIES OF OUTLETS SHOWN ON PLANS PLUS 20% SPARE.

H. COORDINATE ALL A/V DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH CML A/V VENDOR (NEW ERA).

I. PROVIDE SEALS AROUND ALL CONDUITS AND ALL ELECTRICAL PENETRATIONS.

J. COORDINATE FINAL FLOOR BOX LOCATION WITH ARCHITECTURAL FURNITURE PLANS.

CODED NOTES:

1. FIRE ALARM ANNUNCIATOR PANEL. MOUNT AT 54" A.F.F.
2. FIRE ALARM ADDRESSABLE MODULES FOR SPRINKLER SYSTEM TAMPER AND FLOW SWITCHES. REFER TO FIRE PROTECTION PLANS FOR EXACT REQUIREMENTS AND LOCATION.
3. FIRE ALARM ADDRESSABLE MODULES FOR BAS MONITORING OF ALARM, TROUBLE AND SUPERVISORY STATUS.
4. DURESS AND LOCKDOWN BUTTONS. DURESS SIGNALS SHALL BE TRANSMITTED TO 911 AND CML'S MAIN SECURITY CONTROL CENTER. FIELD COORDINATE EXACT LOCATION WITH CML SECURITY VENDOR PRIOR TO ROUGH-IN.
5. PROVIDE DATA FOR PUBLIC ADDRESS STATION (VOIP) AT CUSTOMER SERVICE DESK.
6. APPROXIMATE LOCATION OF CEILING MOUNTED WIRELESS ACCESS POINT (WAP) OUTLET (CAT6A). EXACT LOCATION TO BE DETERMINED BY WIRELESS SURVEY BY CML I.T. DEPARTMENT. PROVIDE 15 FEET OF CABLE LOOP AT OUTLET AND HOMERUN TO DEDICATED PATCH PANEL.
7. CARD READER BY CML SECURITY VENDOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
8. 18" WIDE, 4" DEEP CABLE TRAY SYSTEM WITH BOTTOM COVER. FIELD COORDINATE ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
9. PROVIDE DATA FOR VIDEO MONITOR TO VIEW INTERIOR AND EXTERIOR SPACES. MOUNT DEVICE ABOVE DOOR NEXT TO RECEPTACLE.
10. PROVIDE STEM MOUNTED DEVICE (WHERE APPLICABLE). ALL SPEAKERS SHALL BE SUSPENDED AT EQUAL HEIGHT. COORDINATE EXACT LOCATION WITH CML A/V VENDOR.
11. PROVIDE TELEPHONE DATA FOR IP/GSM COMMUNICATOR PANEL FOR FIRE ALARM SYSTEM. COORDINATE WITH CML PROPERTY MANAGEMENT FOR MONITORING STATION SUBSCRIPTION INFORMATION.
12. PROVIDE DATA FOR COURTESY PHONE.
13. PROVIDE DATA FOR PRINTER.
14. PROVIDE CEILING MOUNTED DATA OUTLET FOR PROJECTOR. COORDINATE LOCATION WITH CML A/V VENDOR.
15. PROVIDE DATA FOR VEN UNIT.
16. REFER TO SHEET E0.00 FOR FLOORBOX REQUIREMENTS.
17. PROVIDE DATA FOR ROOM SCHEDULER.
18. PROVIDE DATA FOR COPIER/PRINTER.
19. REFER TO E4.01 FOR CARD READER LOCATION.
20. PRVOIDE CEILING MOUNTED DATA TO FOR "PEOPLE COUNTER".
21. PANIC BUTTON BY CML SECURITY VENDOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
22. PROVIDE EGRESS WITH SOUNDER.
23. PROVIDE 1" CONDUIT TO SERVE BOOK SECURITY SYSTEM. ROUTE ABOVE CEILING TO NEAREST WALL. CABLING BY CML SECURITY VENDOR.
24. PROVIDE 1" CONDUIT TO SECURITY KEY PAD. MAKE FINAL CONNECTIONS WITH DOOR HARDWARE VENDOR.
25. PROVIDE INTERIOR CAMERA. ROUTE DATA CABLING BACK TO IT ROOM. FIELD COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH CML PRIOR TO ROUGH-IN.
26. PROVIDE EXTERIOR CAMERA. ROUTE DATA CABLING IN 1" CONDUIT SLEEVE STUBBED 6" INTO BUILDING, CABLING BACK TO IT ROOM. FIELD COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH CML PRIOR TO ROUGH-IN.
27. PROVIDE JUNCTION BOX IN WALL FOR POWER AND DATA CONNECTIONS TO SYSTEM FURNITURE.
28. PROVIDE JUNCTION BOX IN FLOOR FOR POWER AND DATA CONNECTIONS TO SYSTEM FURNITURE.
29. PROVIDE DATA FOR STAFF-KIOSK.
30. PROVIDE DATA FOR CATALOG PC.
31. PROVIDE DATA FOR SELF-CHECKOUT.
32. SPRINKLER BELL (BY OTHERS).
33. PROVIDE STI SS2421EM-EN KIT NEXT TO KEY PAD.

REVISION SCHEDULE		
#	DATE	REVISION DESCRIPTION
4	10.07.22	Bulletin 04
5	10.25.22	Bulletin 05
8	01.24.23	Bulletin 07

PROJECT NAME :

CML REYNOLDSBURG

1402 BRICE ROAD
REYNOLDSBURG, OHIO 43068

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BIDDING AND PERMITS

ISSUE DATE : 06/10/22

ADVANCED ENGINEERING CONSULTANTS
Mechanical | Electrical | Plumbing | Fire Protection
1405 Dublin RoadTel: (614) 486-4778
Columbus, Ohio 43215Fax: (614) 486-4082

STATE OF OHIO · GAVIN LIM · PROFESSIONAL ENGINEER · 6/9/2022

LEVEL 1 SYSTEMS PLAN

T1.01

1 SECOND FLOOR PLAN - SYSTEMS
1/8" = 1'-0"

PLAN NORTH

GENERAL NOTES:

A. FIELD VERIFY EXACT LOCATIONS OF ALL DEVICES AND EQUIPMENT. REFER TO DRAWINGS AND SPECIFICATIONS OF OTHER CONSTRUCTION WORK TRADES FOR ADDITIONAL ELECTRICAL WORK INCLUDED IN DIVISIONS 27 AND 28.

B. COORDINATE ALL ROUGH-IN REQUIREMENTS OF DEVICES IN CASEWORK, FURNITURE AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ROUGH-IN.

C. COORDINATE ALL FINAL DEVICE COLOR AND FINISHES SELECTIONS WITH ARCHITECT AND OWNER.

D. ALL DATA CABLES SHALL BE ROUTED IN CABLE TRAY, J-HOOKS OR CONDUIT. CABLES SHALL BE ROUTED INCONSPICOUSLY, PARALLEL TO BUILDING STRUCTURES AND DUCTWORK, ETC.

E. ALL WIRE IN CONDUITS (INCLUDING FLEX CONDUIT) SHALL BE CONCEALED WHERE POSSIBLE. IF SURFACE CONDUIT IS USED IT MUST FIRST BE APPROVED BY A/E AND PAINTED TO MATCH WALL/CEILING FINISHES.

F. COORDINATE LOCKDOWN FUNCTIONS WITH ARCHITECTURAL DOOR HARDWARE SPECIFICATIONS FOR INTEGRATION IN THE ACCESS CONTROL SYSTEM.

G. ALL DATA CABLING SHALL BE HOMERUN TO IT ROOM ON THIS FLOOR. PROVIDE PATCH PANELS TO SERVE QUANTITIES OF OUTLETS SHOWN ON PLANS PLUS 20% SPARE.

H. COORDINATE ALL A/V DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH CML A/V VENDOR (NEW ERA).

I. PROVIDE SEALS AROUND ALL CONDUITS AND ALL ELECTRICAL PENETRATIONS.

J. COORDINATE FINAL FLOOR BOX LOCATION WITH ARCHITECTURAL FURNITURE PLANS.

K. REFER TO E2.02 FOR FLOOR BOX INSTALLATION.

CODED NOTES:

1. REFER TO E4.02 FOR CARD READER LOCATION.
2. APPROXIMATE LOCATION OF WIRELESS ACCESS POINT (WAP) OUTLET (CAT6A). EXACT LOCATION TO BE DETERMINED BY WIRELESS SURVEY BY CML I.T. DEPARTMENT. PROVIDE 15 FEET OF CABLE LOOP AT OUTLET AND HOMERUN TO DEDICATED PATCH PANEL.
3. CARD READER BY CML SECURITY VENDOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
4. REFER TO SHEET E0.00 FOR FLOORBOX REQUIREMENTS.
5. PROVIDE DATA AND AV CONNECTIONS FOR DISPLAY MONITOR. COORDINATE MOUNTING HEIGHT WITH CML PRIOR TO ROUGH-IN. ROUGH-IN 4" X 4" X 2-5/8" DEEP JUNCTION BOX AND 1-1/2" CONDUIT STUB UP TO 3" ABOVE ACCESSIBLE CEILING FOR CABLING.
6. PROVIDE DATA FOR ROOM SCHEDULER.
7. PROVIDE DATA FOR STAFF KIOSK
8. PROVIDE STEM MOUNTED DEVICE (WHERE APPLICABLE). ALL SPEAKERS SHALL BE SUSPENDED AT EQUAL HEIGHT. COORDINATE EXACT LOCATION WITH CML A/V VENDOR.
9. PANIC BUTTON BY CML SECURITY VENDOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
10. PROVIDE PHONE FOR ELEVATOR CONTROLLER. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
11. FIRE ALARM ADDRESSABLE MODULES FOR BAS MONITORING OF ALARM, TROUBLE AND SUPERVISORY STATUS.
12. PROVIDE INTERIOR CAMERA. ROUTE DATA CABLING ABOVE ACCESSIBLE CEILING BACK TO IT ROOM ON THIS FLOOR. FIELD COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH CML PRIOR TO ROUGH-IN.
13. 18" WIDE, 4" DEEP CABLE TRAY SYSTEM WITH BOTTOM COVER. FIELD COORDINATE ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
14. PRVOIDE DATA FOR PRINTER.
15. PROVIDE DATA FOR COPIER/PRINTER.
16. PROVIDE DATA FOR CATALOG PC.
17. PROVIDE DATA FOR VEN UNIT.

REVISION SCHEDULE

#	DATE	REVISION DESCRIPTION
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5	10.25.22	Bulletin 05
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PROJECT NAME :

CML REYNOLDSBURG

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STATE OF OHIO GAVIN LIM E-[illegible] REGISTERED PROFESSIONAL ENGINEER 6/9/2022

LEVEL 2 SYSTEMS PLAN

T1.02