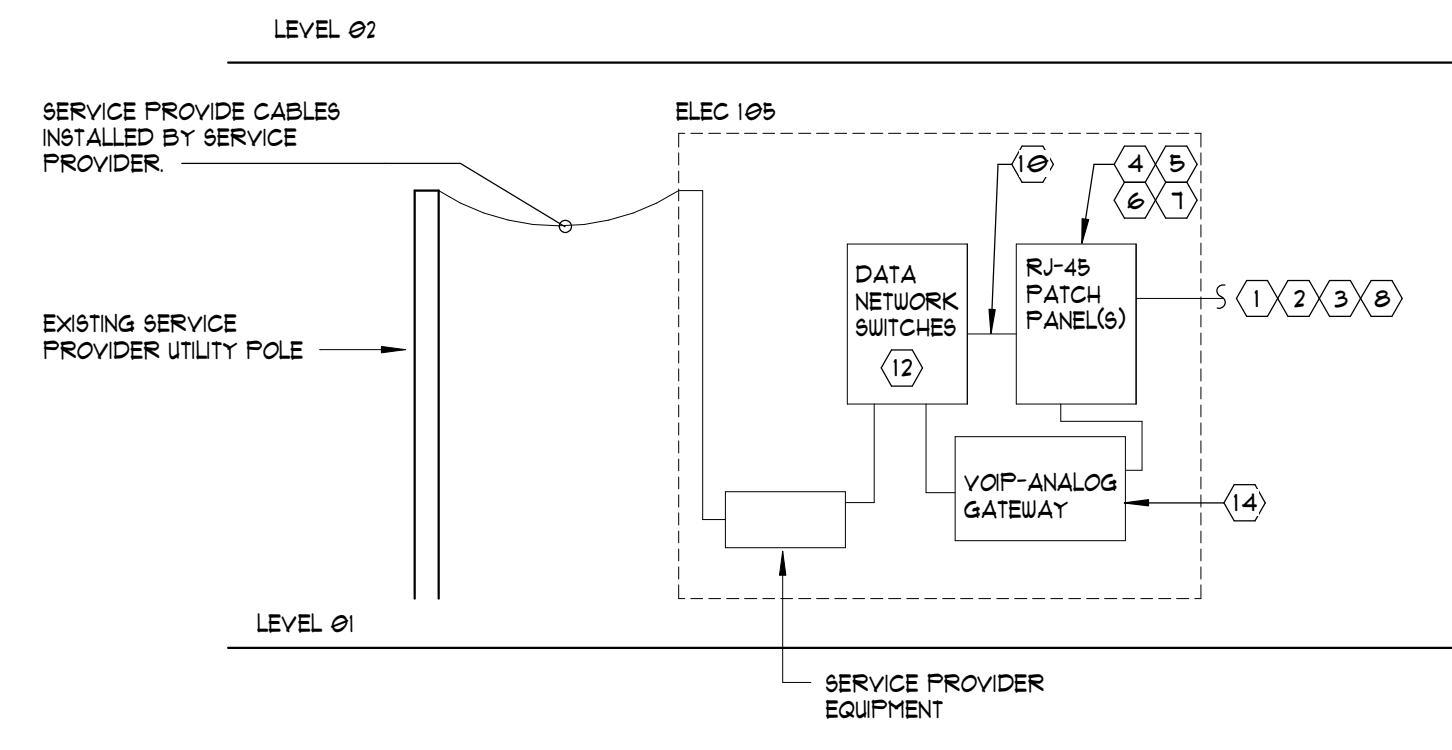


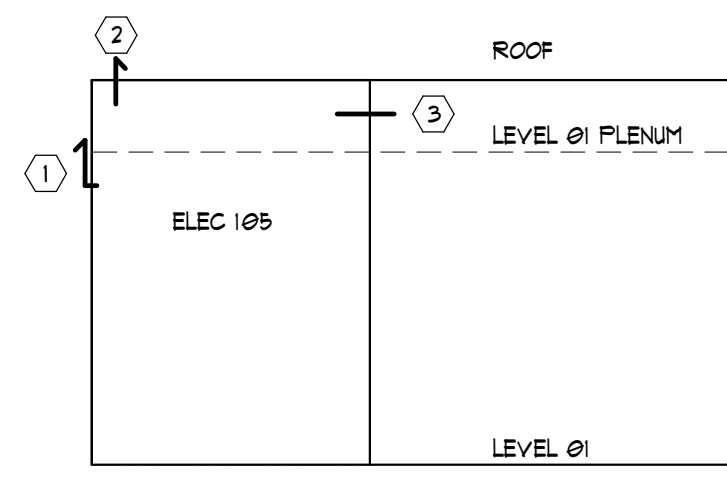
NO.	DATE	ISSUANCE / REVISIONS

KEY NOTES:

- PROVIDE CATEGORY 6 COMPLIANT FOUR-PAIR CABLE FROM CATEGORY 6 COMPLIANT PATCH PANEL IN TELECOM ROOM TO STATION OUTLET LOCATIONS. CABLE TO BE PLENUM RATED AND AWG 23 CONDUCTOR SIZE. SEE FLOOR PLAN AND LEGEND FOR ADDITIONAL REQUIREMENTS. GROUP HORIZONTAL CABLES TOGETHER SEPARATE FROM SPECIALTY SYSTEMS.
- PROVIDE CATEGORY 6 COMPLIANT CABLE FROM CATEGORY 6 COMPLIANT PATCH PANEL IN TELECOM ROOM TO IP VIDEO SURVEILLANCE CAMERAS. CABLE TO BE PLENUM RATED AND 23 AWG CONDUCTOR SIZE. SEE FLOOR PLAN AND LEGEND FOR ADDITIONAL REQUIREMENTS. GROUP CAMERA CABLES TOGETHER ON SEPARATE PATCH PANEL.
- PROVIDE TWO (2) CATEGORY 6 COMPLIANT CABLES FROM CATEGORY 6 COMPLIANT PATCH PANEL IN TELECOM ROOM TO UNRECESSED POINTS (UAP). CABLE TO BE PLENUM RATED AND 23 AWG CONDUCTOR SIZE. SEE FLOOR PLAN AND LEGEND FOR ADDITIONAL REQUIREMENTS.
- PROVIDE TELECOM OUTLET PATCH PANELS. PANELS TO BE CATEGORY 6, 48 PORT, STANDARD DENSITY TYPE. PROVIDE QUANTITY OF CATEGORY 6 COPPER PATCH PANELS AS REQUIRED TO ACCOMMODATE STATION CABLES INDICATED PLUS CAPACITY FOR 20% SPARES.
- PROVIDE SECURITY NETWORK PATCH PANELS. PATCH PANELS TO BE CATEGORY 6, 24 PORT, STANDARD DENSITY TYPE. PROVIDE QUANTITY OF CATEGORY 6 COPPER PATCH PANELS AS REQUIRED TO ACCOMMODATE STATION CABLES INDICATED PLUS CAPACITY FOR 20% SPARES.
- PROVIDE UAP PATCH PANELS. PANELS TO BE CATEGORY 6, 24 PORT, STANDARD DENSITY TYPE. PROVIDE QUANTITY OF CATEGORY 6 COPPER PATCH PANELS AS REQUIRED TO ACCOMMODATE STATION CABLES INDICATED PLUS CAPACITY FOR 20% SPARES.
- GROUP CABLES AT PATCH PANELS PER TIA-609-C. UTILIZE CABLE MANAGEMENT DEVICES. THE USE OF ZIP-TIE STYLE CABLE STRAPS IS NOT PERMITTED.
- SEE OUTLET DETAILS FOR TERMINATION REQUIREMENTS.
- NOTE NOT USED.
- PROVIDE ONE (1) CATEGORY 6 PATCH CABLE 3-FEET IN LENGTH FOR EACH TERMINATED CATEGORY 6 HORIZONTAL CIRCUIT. CABLE LENGTH MAY BE REDUCED AT OWNER'S DISCRETION.
- NOTE NOT USED.
- DATA SWITCHES PROVIDED BY OWNER.
- NOTE NOT USED.
- PROVIDE VOIP TO ANALOG PHONE LINE GATEWAY IN EACH TELECOM ROOM AS REQUIRED TO PROVIDE ANALOG PHONE LINES WHERE INDICATED ON PLANS.



1 LV - FUNCTIONAL DIAGRAM - VOIP/DATA
NOT TO SCALE



GENERAL NOTES:

- (APPLY TO THIS FUNCTIONAL ONLY)
- INSTALL PULL ROPES IN ALL CONDUITS.
 - SEAL AND FIREPROOF ALL WALL AND FLOOR PENETRATIONS AFTER CABLE INSTALLATION. SEAL ALL CONDUIT STUB-UPS WHEN CONDUIT IS ROUTED BELOW GRADE.
 - SEE SITE PLAN FOR OUTSIDE PLANT CONDUIT ROUTING. REFER TO OUTSIDE PLANT DETAIL SHEET FOR IN-GROUND ENCLOSURE AND CONDUIT DETAILS.
 - SEE TELECOM PATHWAY DETAILS SHEET FOR CONDUIT AND SLEEVE DETAILS.

KEY NOTES:

- (APPLY TO THIS FUNCTIONAL ONLY)
- ELECTRICAL CONTRACTOR TO PROVIDE ONE (1) - 2" CONDUIT TO PENETRATE EXTERIOR WALL ON BACK OF BUILDING. PROVIDE LB FITTING TO TURN CONDUIT UP ALONG BUILDING EXTERIOR. PROVIDE WEATHERHEAD AT TOP OF CONDUIT FOR SERVICE PROVIDER ENTRANCE.
 - ELECTRICAL CONTRACTOR TO PROVIDE TWO (2) - 3" CONDUITS TO THE ROOF FOR ERRCIS ANTENNAS. COORDINATE CONDUIT PENETRATION WITH ARCHITECT. DO NOT PENETRATE ROOF WITHOUT APPROVAL BY ARCHITECT.
 - ELECTRICAL CONTRACTOR TO PROVIDE THREE (3) - 4" CONDUIT SLEEVES FROM TELECOM ROOM CABLE TRAY TO PLENUM SPACE.

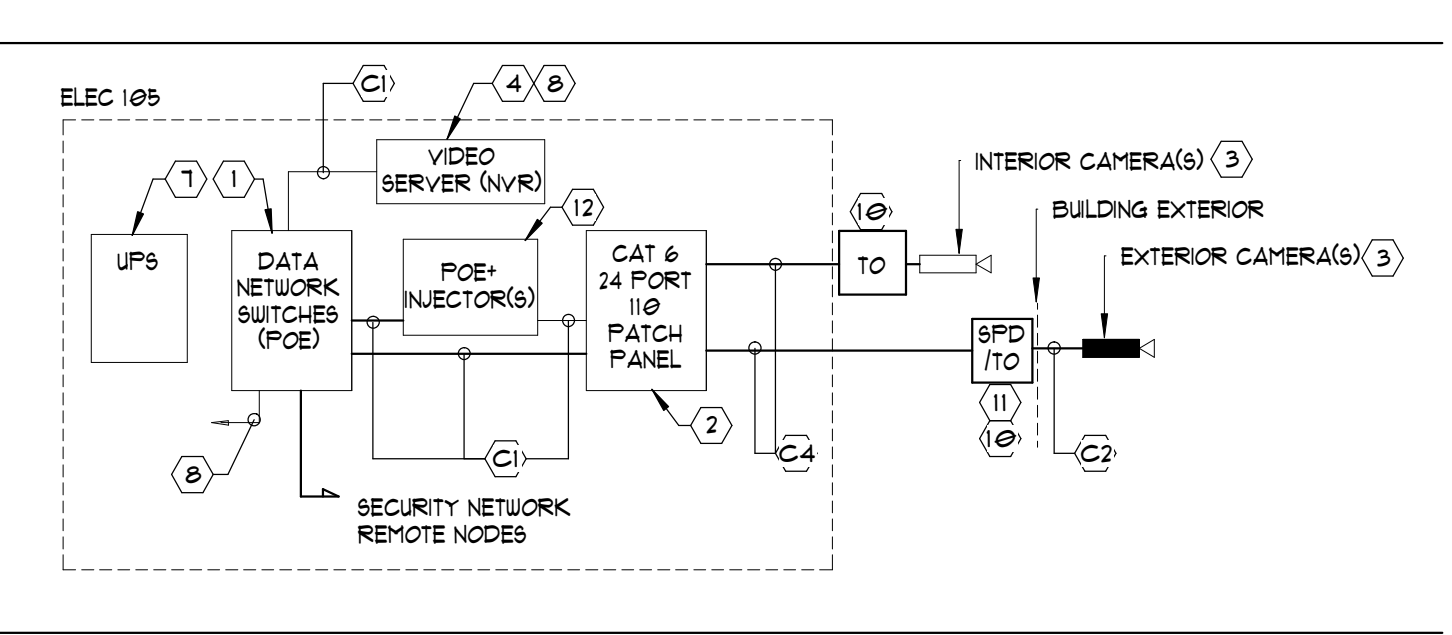
2 LV - FUNCTIONAL DIAGRAM - PATHWAYS
NOT TO SCALE

KEYNOTES:

- POWER OVER ETHERNET (POE) SWITCHES PROVIDED BY OWNER'S SECURITY CONTRACTOR. CONTRACTOR TO COORDINATE WITH OWNER INFORMATION TECHNOLOGY STAFF FOR SWITCH PORT CONFIGURATION.
- 24 PORT PATCH PANEL PROVIDED BY TELECOM CONTRACTOR FOR SECURITY CAMERA CABLE TERMINATION.
- VIDEO SURVEILLANCE CAMERA FURNISHED AND INSTALLED BY OWNER'S SECURITY CONTRACTOR. CAMERAS SHALL BE POWERED BY POE. CAMERAS SHALL PROVIDE WIDE DYNAMIC RANGE FOR DAY AND NIGHT OPERATION. CONTRACTOR TO PROVIDE BURGE PROTECTION FOR ALL EXTERIOR CAMERAS.
- OWNER'S SECURITY CONTRACTOR TO PROVIDE NETWORK VIDEO RECORDER (NVR) AND STORAGE SERVER ARRAY HARDWARE AS REQUIRED. NVR SYSTEM MUST BE SIZED AND LICENSED FOR THE TOTAL NUMBER OF CAMERAS PLUS 10% SPARE CAPACITY. SEE PROJECT SPECIFICATION FOR STORAGE THE REQUIREMENTS.
- SECURITY SYSTEM VIDEO SURVEILLANCE REVIEW WORKSTATION PROVIDED BY OWNER. OWNER'S SECURITY CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND CONFIGURING VIDEO MANAGEMENT SYSTEM (VMS) SOFTWARE AND ACCESS CONTROL CLIENT APPLICATION SOFTWARE ON UP TO SIX OWNER PROVIDED WORKSTATIONS. COORDINATE WITH OWNER ON WORKSTATION QUANTITIES AND LOCATIONS.
- VIDEO SURVEILLANCE MONITORING STATION PROVIDED BY OWNER'S SECURITY CONTRACTOR. PROVIDE NETWORK VIDEO DECODER FOR EVERY TWO DISPLAYS. OWNER'S SECURITY CONTRACTOR TO COORDINATE WITH OWNER FOR VMS TO DISPLAY. MOUNT VIDEO DECODER BEHIND DISPLAY.
- OWNER'S SECURITY CONTRACTOR PROVIDED UNINTERRUPTED POWER SUPPLY (UPS). UPS SHALL BE SIZED TO PROVIDE A MINIMUM OF 15 MINUTES OF BATTERY BACKUP FOR ALL SECURITY EQUIPMENT IN THE IT ROOM. UTILIZE TELECOM RACK UPS IF CO-LOCATED IN TELECOM RACK. PROVIDE OWNER CREDIT IF UPS IS BID AND NOT INSTALLED.
- STRUCTURED CABLING FOR FACILITY NETWORK INSTALLED UNDER COMMUNICATIONS (VOIP/DATA) SCOPE OF WORK. SEE VOIP/DATA FUNCTIONAL DIAGRAM.
- OWNER'S SECURITY CONTRACTOR SHALL PROVIDE ALL CONFIGURATION AND PROGRAMMING FOR CAMERAS AND NVR SYSTEM.
- TELECOM CONTRACTOR PROVIDED MODULAR TELECOM OUTLET (TO) IN J-BOX. REFER TO CCTV DETAIL SHEETS.
- TELECOM CONTRACTOR PROVIDED ELECTRICAL CONTRACTOR INSTALLED SURGE PROTECTIVE DEVICE (SPD) IN J-BOX. REFER TO CCTV DETAIL SHEETS.
- OWNER'S SECURITY CONTRACTOR PROVIDED POE INJECTORS. POE INJECTORS SHALL BE PROVIDED FOR MULTI-SENSOR PTZ AND FIXED CAMERAS WITH IR ILLUMINATOR / ENVIRONMENTAL OPTIONS. OWNER'S SECURITY CONTRACTOR SHALL PROVIDE A P/E BUDGET ESTIMATE FOR EACH SWITCH DURING SUBMITTAL PHASE AND AN ACTUAL POE USAGE REPORT FOR AS-BUILTS.
- TELECOM CONTRACTOR PROVIDED FIBER PATCH PANEL WITH INTEGRAL LOOM SIZED PER FIBER TYPE AND COUNT.

TYPICAL CABLE/CONDUCTORS:

- CAT 6 PATCH CABLE BY SECURITY CONTRACTOR.
- CAT 6 WET RATED PATCH CABLE BY SECURITY CONTRACTOR.
- 5M FIBER HN (3-PAIR), WET RATED/LOOSE TUBE CABLE BY TELECOM CONTRACTOR.
- CAT 6 CMP CABLE BY TELECOM CONTRACTOR.
- 5M FIBER HN (6-PAIR), TIGHT BUFFER CMP CABLE BY TELECOM CONTRACTOR. COORDINATE WITH OWNER'S SECURITY CONTRACTOR IF SECURITY BACKBONE CAN BE CO-LOCATED FIBER IN DATA/VOIP FIBER BACKBONE.



3 LV - FUNCTIONAL DIAGRAM - VIDEO SURVEILLANCE (OWNER PROVIDED)
NOT TO SCALE

KEYNOTES:

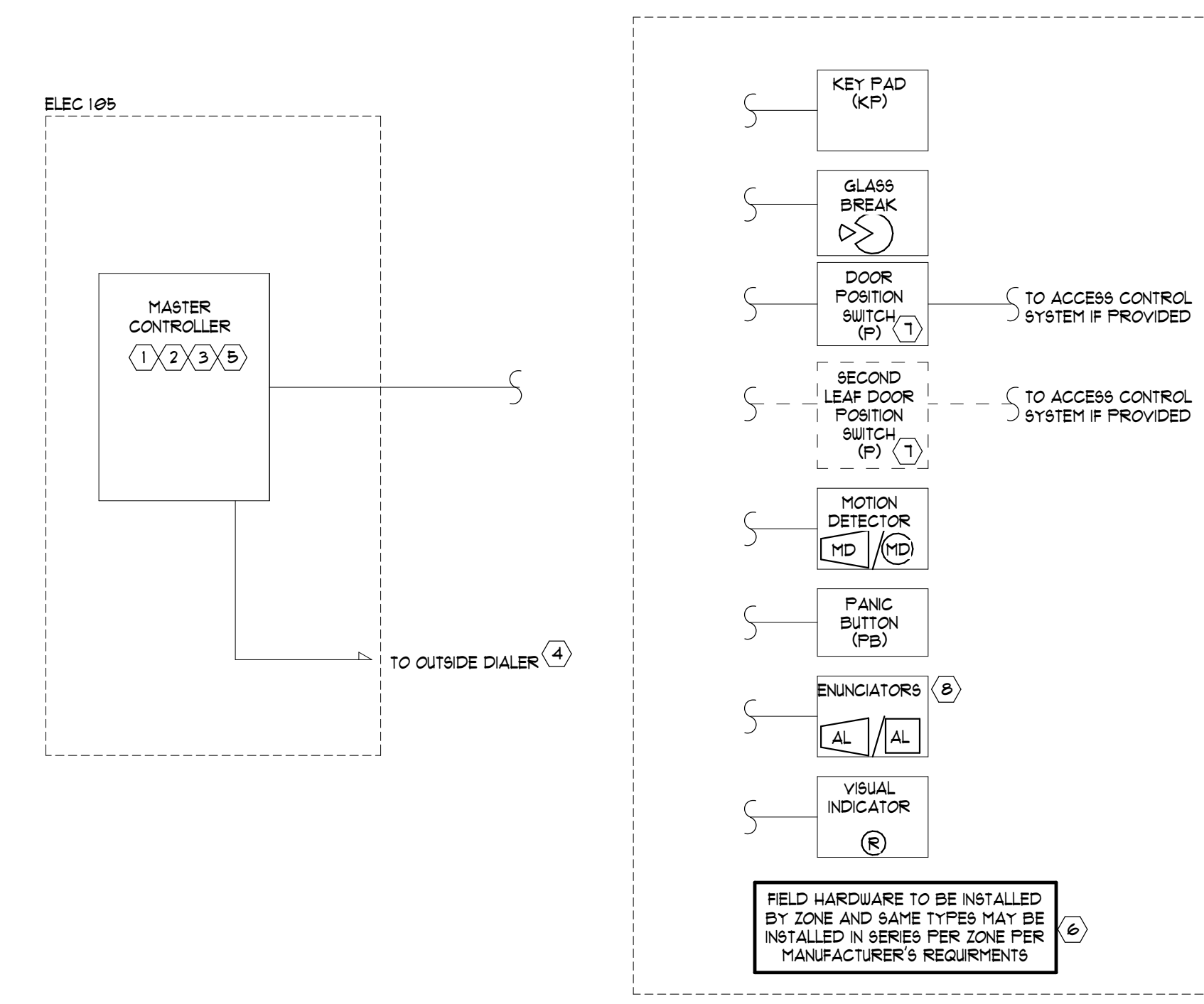
- (APPLY TO THIS FUNCTIONAL ONLY)
- PROVIDE BATTERY BACKUP FOR MASTER CONTROL BOARD. SIZE BACKUP FOR 48-HOURS UNLESS OTHERWISE NOTED. SYSTEMS ON STAND-BY GENERATOR SHALL BE SIZE FOR 8-HOURS.
 - SECURITY CONTRACTOR TO PROVIDE AN IDS AS INDICATED IN THE SPECIFICATIONS. CONTROLLERS SHALL BE INSTALLED IN A LOCKING NEMA 1 ENCLOSURE WITH TAMPER SWITCHES. SECURITY SHALL COORDINATE WITH OWNER FOR PROGRAMMING REQUIREMENTS.
 - SECURITY CONTRACTOR TO PROVIDE ANY I/O EXPANSION BOARDS AND ELEVATOR CONTROL INTERFACES AS NEEDED. SECURITY CONTRACTOR SHALL COORDINATE WITH ACCESS CONTROL AND CCTV CONTRACTOR FOR SYSTEM INTEGRATION.
 - SECURITY CONTRACTOR TO COORDINATE WITH TELECOM CONTRACTOR FOR A DEDICATED ANALOG TO IP LINE FOR DIAL OUT AND A REDUNDANT CELLULAR MODEM. ANALOG TO IP LINE MAY BE EXCLUDED AT OWNER'S DISCRETION. PROVIDE 1-YEAR SUBSCRIPTION OF SERVICE AFTER PROJECT COMPLETION.
 - CONTRACTOR SHALL PROVIDE RUNTIME CALCULATIONS FOR EACH POWER SUPPLY DURING PRE-CONSTRUCTION SUBMITTALS. PROVIDE ADDITIONAL BATTERY CABINETS AS REQUIRED.
 - PROVIDE END OF LINE (EOI) DEVICES AS REQUIRED BY MANUFACTURER.
 - DOOR POSITION SWITCHES PROVIDED BY ACCESS CONTROL CONTRACTOR. IF ACCESS CONTROL IS IN PROJECT, OTHERWISE PROVIDED BY SECURITY CONTRACTOR. PROVIDE DOUBLE POLE DOUBLE THROW SWITCHES FOR EXTERIOR DOORS WITH CARD READERS. CONTRACTOR SHALL CONNECT ONE SET OF CONTACTS TO ACCESS CONTROL SYSTEM AND THE REMAINING SET OF CONTACTS TO THE INTRUSION DETECTION SYSTEM.
 - PROVIDE AUXILIARY POWER SUPPLIES FOR FIELD EQUIPMENT REQUIRING ADDITIONAL POWER. POWER SUPPLIES SHALL BE EQUIPPED WITH BATTERY AS OUTLINED IN KEY NOTE 1. INSTALL POWER SUPPLIES LOCAL TO MASTER CONTROLLER.

GENERAL NOTES:

- (APPLY TO THIS FUNCTIONAL ONLY)
- CONDUCTOR SIZE AND COUNT ARE TYPICAL AND SHALL BE ADJUSTED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. INCREASE WIRE GAUGE AS NEEDED TO SUCH THAT VOLTAGE DROP DOES NOT EXCEED 5%.
 - PROVIDE BURGE PROTECTION AS FOR ALL EXTERIOR DOORS / PORTALS.
 - SECURITY CONTRACTOR TO PROVIDE ALL PROGRAMMING FOR INTRUSION DETECTION SYSTEM AND SHALL COORDINATE WITH OWNER FOR ZONING. ALL ZONES AND DEVICES SHALL BE PROGRAMMED WITH LOGICAL NAMING CONVENTION PER AREA SERVED.
 - ALL SECURITY SYSTEM CABLING SHALL BE INSTALLED SPICE-FREE.
 - ALL SECURITY SYSTEM CABLING SHALL BE INSTALLED PER PROJECT REQUIREMENTS IN CONDUIT, IN CABLE TRAY, OR SUPPORTED BY J-HOOKS ON 4'-0" CENTERS UNLESS OTHERWISE NOTED.
 - REFERENCE FLOOR PLAN AND SITE PLAN DRAWINGS FOR DEVICE LOCATIONS AND QUANTITIES. ASSUME TYPICAL QUANTITY OF DEVICES.
 - ROUTE DEVICES CABLES THROUGH IDF ROOMS AND PROVIDE EXTENDER DEVICES OR SUB-PANELS AS REQUIRED.

ALL CONDUCTORS ARE BY OWNER'S SECURITY CONTRACTOR UON.

WHERE CONDUCTORS ARE TO BE INSTALLED EXTERIOR OR UNDERGROUND CABLE TYPE SHALL BE WET RATED.



FIELD HARDWARE TO BE INSTALLED BY ZONE AND SAME TYPES MAY BE INSTALLED IN SERIES PER ZONE PER MANUFACTURER'S REQUIREMENTS.

FIELD EQUIPMENT (REFER TO FLOOR PLANS)

4 FUNCTIONAL DIAGRAM - INTRUSION DETECTION SYSTEM (IDS) (OWNER PROVIDED)
NOT TO SCALE