

three inches = one foot

one and one half inch = one foot

one inch = one foot

three quarters inch = one foot

three eighths inch = one foot

one quarter inch = one foot

one eighth inch = one foot

TELECOMMUNICATIONS SYMBOL LEGEND			
▼XX	DATA COMMUNICATIONS OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		WALL MOUNTED DOUBLE FACE CLOCK
▼XX	FLUSH FLOOR MOUNT DATA OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		CLOCK FLUSH MOUNTED
▼XX	TELECOMMUNICATIONS OUTLET* W-WALL MOUNTED TELEPHONE JACK A- ADMINISTRATIVE TELEPHONE S- STAFF TELEPHONE PBX - PBX PHONE PS - PAY STATION H- HANDS FREE (WALL MOUNT) PI - INMATE TELEPHONE J- JACK ONLY SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET	 	COMBINATION P/A SPEAKER AND CLOCK DEVICE  TV - CATV
▼XX	FLUSH FLOOR MOUNT TELEPHONE/INTERCOM OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		LOCAL ORIGATION CATV OUTLET
▼XX	DATA AND TELEPHONE COMBINATION OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		VIDEO SPLITTER
▼XX	FLUSH FLOOR MOUNT COMBINATION OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		MICROPHONE OUTLET F- FLOOR MOUNT C- CEILING MOUNT
▼XX	CEILING MOUNTED DATA OUTLET* SUB TEXT REFERS TO CABLING CONFIGURATIONS REFER TO COMMUNICATIONS DETAIL SHEET		WIRELESS ACCESS POINT (DATA DROP AND JACK LOCATION)
FF ▼	POKE THROUGH MOUNTED DEVICE		INTERCOM STATION F = DOOR FRAME/MULLION MTG. L = LOCAL (STAND-ALONE) M = MASTER STATION P = PEDESTAL MOUNTED V = VIDEO CAPABLE VP = PEDESTAL MOUNTED W/VIDEO # = NUMBER OF BUTTONS
S	PUBLIC ADDRESS LOUDSPEAKER A = AUDIO ENHANCEMENT SPEAKER V = VOX CONTROLLED SPEAKER VC = VOLUME CONTROL EQUIPPED SPEAKER		CARD READER
S <sub>E</sub>	AUDIO ENHANCEMENT SPEAKER		ELECTRIC STRIKE
S <sub>E</sub>	PUBLIC ADDRESS LOUDSPEAKER EXTERIOR, FLUSH WALL MOUNTED IN WEATHERPROOF ENCLOSURE		SECURITY DOOR CONTACT
VG	SPEAKER VOLUME CONTROL DEVICE		TELECOMMUNICATIONS GROUNDING BUSBAR
AUX SS	AUXILIARY LOCAL SOUND SYSTEM CONSOLE		POWER POLE - DATA SIDE XX- NUMBER OF DROPS
	AUXILIARY LOCAL SOUND SYSTEM SPEAKERS		PATIENT WANDERING/EMERGENCY DURESS SYSTEM ANTENNAS
	SOUND SYSTEM SPEAKER, CLUSTER TYPE		
	WIREMOLD RACEWAY (TYPICAL)		
	THROUGH-WALL CONDUIT PENETRATION SLEEVE		
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR		
NOTES: * REFER TO FLOOR PLANS FOR EXACT JACK LOCATION. * COORDINATE THE INSTALLATION OF ALL DATA COMMUNICATION JACKS WITH THE LOCATION OF ALL 120VAC CIRCUITS PROVIDED FOR THE PROPER CONNECTION OF ALL COMPUTERS, PRINTERS, COPIERS AND FAX MACHINES. ** REFER TO ELECTRICAL POWER DRAWINGS AND FURNITURE PLANS FOR EXACT DEVICE LOCATIONS.  WIREMOLD RACEWAY AND POWER POLES ARE TO BE PROVIDED BY FURNITURE CONTRACTOR. COORDINATE WITH ELECTRICAL CONTRACTOR AND FURNITURE SYSTEMS PROVIDER FOR ALL INSTALLATION REQUIREMENTS.			
THIS IS A STANDARD SYMBOL LIST. ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT.			

GENERAL SYMBOLS LEGEND			
PB	OUTDOOR PULLBOX	JB	JUNCTION BOX
	120 VAC EMERGENCY ELECTRICAL DUPLEX OUTLET		JUNCTION BOX / PULL BOX STACKED FOR CONNECTION OF CELL EQUIPMENT
	120 VAC EMERGENCY ELECTRICAL QUADRUPLEX OUTLET		ROUGH IN ONLY
	120 VAC EMERGENCY ELECTRICAL CONNECTION		SPECIFIC CONSTRUCTION ITEM NOTE INDICATOR
	ABOVE GRADE/SLAB HOMERUN		BELOW GRADE/SLAB ENCLOSED IN CONDUIT
	ABOVE GRADE/SLAB HOMERUN ENCLOSED IN CONDUIT		EQUIPMENT CABINET, RACK OR PANEL GROUND
NOTE: THIS IS A STANDARD SYMBOL LIST. ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT.			

### STANDARD MOUNTING HEIGHTS

CEILING		SPEAKERS, WIRELESS ACCESS POINTS, TV AND LCD PROJECTOR CONNECTIONS
8' A.F.G.		EXTERIOR SPEAKERS,
7'-5" A.F.F.		CLOCKS, COMBINATION CLOCK/SPEAKERS, TRUMPET SPEAKERS
7'-0" A.F.F.		VISUAL NOTIFICATION DEVICES (CENTER OF DEVICE)
5'-6" A.F.F.		TOP OF PLYWOOD TELEPHONE BACKBOARD
5'-4" A.F.F.		ANNUNCIATOR PANELS, CONTROL PANELS AND DISPLAYS, TACTILE DISPLAYS
4'-8" A.F.G. MAX		PEDESTAL MOUNT INTERCOM
4'-0" A.F.F.		19" TELEPHONE OUTLETS (TOP OF COIN SLOT) WALL MOUNTED TELEPHONE OUTLETS, INTERCOM STATIONS, CALL STATIONS, RESCUE ASSISTANCE PANELS (CENTER OF DEVICE)
1'-5" A.F.F.		DATA/TELEPHONE JACKS, LOW TELEVISION JACKS, MICROPHONE JACKS
0'-0"		IN FLOOR JUNCTION BOXES FLUSH TO FINISHED FLOOR (FF) (DATA, TELEPHONE, MICROPHONE, MEDIA)

1. IN MASONRY CONSTRUCTION THE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO THE NEAREST BLOCK OR BRICK COURSING.
2. THE ABOVE MOUNTING ELEVATIONS ARE TO CENTER OF DEVICE AND SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS AND/OR SPECIFICATIONS.
3. COORDINATE THE INSTALLATION AND MOUNTING ELEVATIONS OF ALL EQUIPMENT, DEVICES, CONTROLS AND APPURTENANCES WITH ARCHITECT AND ALL AFFECTED TRADES PRIOR TO INSTALLATION. DOCUMENT ALL MOUNTING ELEVATIONS FOR ALL EQUIPMENT, DEVICES, CONTROLS AND APPURTENANCES AT THE TIME OF SHOP DRAWING SUBMITTAL.

### ABBREVIATIONS


above finished floor above finished grade accent adjustable alternating current aluminum American wire gauge ammeter ampere approximately asymmetric attenuation/crosstalk ratio automatic transfer switch	AFF AFG ACC ADJ AC AL AWG AM A/AMP APPROX ASY ACR ATS	far end crosstalk fire alarm fire alarm annunciator panel fire alarm control panel fire alarm graphic annunciator panel false floor fluorescent footcandles full load amperes full voltage non-reversing general contractor generator ground ground fault interrupter	FEXT FA FAAP FACP FAGP FXT FL FLOUR FT FLA FVNR GC GEN GND/G GFI	National Electric Manufacturer Association National Electric Code Near End Crosstalk  night light normally opened Not Available/Not Applicable not in contract not to scale on center overhead overhead heater element	NEMA  NEC NEXT  NL NO NA NIC NTS  OC OH OL
battery below finished ceiling black bracket breaker	BATT BFC BLK BRKT BKR	hand hole heating ventilating air conditioning hertz high intensity discharge high power factor high voltage honespower	HH HVAC HZ HID HPF HV HP	panel peewee plywood pole polyvinyl chloride potential transformer power panel pull box	PNL PEW PLY P PVC PT PB
cabinet cable television ceiling circuit circuit breaker clear closed circuit television column communication conduit cool white copper current limiting fuse current transformer	CAB CATV CEL CRK/CT CB CLR CCTV COL COMM C CW CU CLF CT	incandescent isolated ground junction box klover (reactance) kloverit ampere kilowatt kilowatt hour meter inverter power supply	INCAN IG JB KVAR KVA KW KWH IPS	rapid start receptacle reflector required rigid galvanized steel conduit room rough in only	RS REC/RECTPT REFL REQD  RGS RM RIO
decibel dedicated diameter direct current disconnect distribution panel double pole double-throw downtight drawing dual element	DB DED DA DC DISC DP DPOT DNL DWG DE	light lighting lighting arrester low voltage light emitting diode main circuit breaker main distribution panel main lugs only main hole manual transfer switch electrical electrical contractor electrically operated elevator emergency energy saving ballast equipment exhaust fan explosion proof Electronics Industry Association	LT LTG LA LV LED MCB MDP ME EA EWC ELEC EC MC ELEV E EMERG ESB EQIP EF EP EIA	schedule single pole double throw single pole single throw solid state ballast switch switchboard switchgear  telephone transformer tin tube typical Telecommunications Industry Association Technical Service Bulletin twisted shielded pair  unshielded twisted pair UL Underwriter's Laboratories uninterruptible power supply unless otherwise noted	SCHED/SCH SPST SPDT SSB SW SWBD SWGR  TELE XFMR TT TYP TIA TSB TSP  UTP UL UPS UON  vapor proof volt voltmeter  warm white watt weatherproof with within without

### GENERAL COMMUNICATIONS SYSTEM NOTES:

1. THE FOLLOWING GENERAL NOTES AS LISTED BELOW SHALL APPLY TO ALL COMMUNICATIONS SYSTEM REQUIREMENTS AS INDICATED ON ALL ET SERIES CONTRACT DRAWINGS.
2. DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC AND INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, CONDUITS, CABINET SIZES, PENETRATION SLEEVES, PULL BOXES, BACKBOXES AND JUNCTION BOXES MAY NOT BE SHOWN. INCLUDE ALL ITEMS WHERE REQUIRED BY CODE, MANUFACTURER AND RELATED SPECIFICATION SECTIONS FOR THE PROPER INSTALLATION OF ALL WORK.
3. DUE TO SCALE OF THE DRAWINGS, ALL COMMUNICATIONS DEVICE SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE IN THE FIELD THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CABLING. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS.
4. COORDINATE WITH ALL TRADES AND SYSTEM INTEGRATORS ANY CONDITIONS RELATED TO THE INSTALLATION OF ALL SYSTEMS. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE TRADE ALL INSTALLATION REQUIREMENTS IMPACTING THE PLACEMENT OF ALL SYSTEM COMPONENTS TO THE SATISFACTION OF ALL CONCERNED TRADES.
5. COORDINATE EXACT LOCATION OF ALL DESK OR COUNTER MOUNTED EQUIPMENT WITH OWNER AND ARCHITECT AND ALL AFFECTED TRADES PRIOR TO THE INSTALLATION OF ANY EQUIPMENT AND/OR CABLING.
6. COORDINATE EXACT LOCATION(S) OF ALL CEILING MOUNTED CABLE, CONDUITS, EQUIPMENT AND/OR DEVICES WITH ALL ARCHITECTURAL PLANS, REFLECTED CEILING PLANS AND ALL AFFECTED TRADES PRIOR TO INSTALLATION.
7. COORDINATE EXACT LOCATION(S) OF ALL DATA AND TELEPHONE OUTLETS, ELECTRICAL RECEPTACLES WITH THE ARCHITECTURAL PLANS, FURNITURE PLANS AND ALL AFFECTED TRADES PRIOR TO INSTALLATION.
8. ALL HORIZONTAL CATEGORY 6 UTP CABLE SHALL BE PLENUM RATED CABLE AND SHALL BE BUNDLED AND ROUTED THROUGH THE FACILITY AND SHALL TERMINATE AT THE NEAREST MD/IDF EQUIPMENT RACKS. ALL HORIZONTAL CABLE BUNDLES SHALL NOT CONTAIN ANY AC CONDUCTING CABLING. ALL HORIZONTAL CABLE DROPS SHALL NOT EXCEED 25ft FROM PATCH PANEL TO OUTLET TERMINATION AND SHALL BE TESTED AND CERTIFIED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION.
9. ALL FIBER OPTIC BACKBONE CABLING SHALL BE ROUTED THROUGH THE FACILITY VIA DEDICATED CONDUITS AND VERTICAL RISER CHASES INSTALLED IN PROTECTIVE INNERDUCT CONDUIT SYSTEM AND AND SHALL TERMINATE AT ALL APPROPRIATE MD/IDF EQUIPMENT RACKS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT RACK SPACE REQUIREMENTS, WITH THE APPROPRIATE SYSTEM INTEGRATORS AND ARCHITECT. ALL FIBER OPTIC CABLING SHALL BE TESTED AND CERTIFIED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. REFER TO RELATED SPECIFICATIONS SECTIONS FOR ADDITIONAL INFORMATION.
10. ALL CONDUITS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NFPA 70 AND PROJECT SPECIFICATIONS. ALL CONDUITS SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED.
11. ALL SYSTEM WIRING, CONDUITS AND EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AND BY ALL IEEE, EIA, NEC AND MANUFACTURER'S REQUIREMENTS. ALL WIRING SHALL COMPLY WITH ALL STATE AND LOCAL ELECTRICAL CODES AND SHALL TEST FREE FROM ALL GROUNDS, SHORTS STRAY VOLTAGES AND EMI.
12. PROVIDE ALL EQUIPMENT CLEARANCES IN ACCORDANCE WITH NEC REQUIREMENTS. ARRANGE EQUIPMENT TO FACILITATE UNRESTRICTED ACCESS FOR MAINTENANCE AND SERVICE AROUND ALL EQUIPMENT, COMPONENTS AND/OR CABLE TERMINATIONS.
13. PROPERLY GROUND ALL EQUIPMENT, RACKS, CABINETS, CONDUITS AND CABLE SHIELDS IN ACCORDANCE WITH ALL REQUIREMENTS OF THE NFPA 70 AND EQUIPMENT MANUFACTURER. ALL EQUIPMENT AND COMMUNICATIONS CIRCUITS SHALL BE PROPERLY SURGE PROTECTED AND GROUNDED TO MINIMIZE DAMAGE DUE TO LIGHTNING STROKES, SHOCK CURRENTS AND OTHER TRANSIENT VOLTAGE SPIKES. ALL SURGE PROTECTION AND GROUNDING SHALL BE IN ACCORDANCE WITH ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER, NEC, IEEE AND TIA/EIA.
14. WHERE EQUIPMENT AND/OR JUNCTION BOXES ARE INSTALLED ABOVE FINISHED CEILINGS, THE CONTRACTOR SHALL PROVIDE ACCESS HATCHES LISTED FOR THE INTENDED APPLICATION. ACCESS HATCHES SHALL BE LOCATED SO THAT SERVICE ACCESS TO THE EQUIPMENT AND/OR JUNCTION BOXES IS UNIMPEDED.
15. ALL PENETRATIONS OF WALLS AND/OR FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE ASTM AND NFPA REQUIREMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION. INSTALLATION OF FIRE STOPS SHALL BE PERFORMED BY AN APPLICATOR/INSTALLER QUALIFIED AND TRAINED BY THE MANUFACTURER. INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION PROCEDURES.
16. PROVIDE THE PROPER INTERFACES TO BUILDING FIRE ALARM, INTRUSION ALARM AND BUILDING AUTOMATION SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE LIFE SAFETY CODES AND MANUFACTURER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. COORDINATE WITH THE FIRE ALARM SYSTEM PROVIDER FOR ALL REQUIRED SYSTEM INTERATION REQUIREMENTS.
17. ALL EQUIPMENT ENCLOSURES LOCATED OUTSIDE OR IN ALL AREAS WITH HIGH HUMIDITY OR A RELATIVE HUMIDITY OF 75% OR GREATER SHALL BE NEMA 4X STAINLESS STEEL AND RATED FOR THAT APPLICATION.
18. ALL DEVICES, COMPONENTS OR EQUIPMENT INSTALLED ON THE EXTERIOR OF THE FACILITY SHALL BE PROVIDED IN ACCORDANCE WITH ALL MANUFACTURER'S REQUIREMENTS TO ENSURE THE PROPER OPERATION WHEN EXPOSED TO THE ENVIRONMENTAL CONDITIONS AND/OR AVERAGE ANNUAL LOWEST TEMPERATURE THAT CAN BE ANTICIPATED FOR THE GEOGRAPHIC REGION OF THE FACILITY.
19. ALL INTERIOR AND/OR EXTERIOR COMPONENTS, DEVICES OR SYSTEMS EQUIPMENT EXPOSED TO THE GENERAL POPULATION SHALL BE INSTALLED IN SECURED EQUIPMENT ENCLOSURES WITH TAMPER SWITCHES AND INSTALLED IN SUCH A MANNER THAT RESISTS TAMPERING AND/OR REMOVAL WITHOUT THE USE OF SPECIALIZED TOOLS.
20. FOR EQUIPMENT INSTALLATIONS REQUIRING COORDINATION WITH OTHER TRADES THE CONTRACTOR SHALL PROVIDE ALL TEMPLATES, BACKBOXES AND EQUIPMENT ANCHOR BOLTS FOR MOUNTING OR FLUSH MOUNTING PREPARATION. (E.G. PEDESTALS OR OTHER DEVICES REQUIRING MOUNTING ON WALLS, CONCRETE PADS OR OTHER MATERIALS). COORDINATE DELIVERY OF TEMPLATES AND EQUIPMENT WITH ALL AFFECTED CONTRACTORS.
21. ALL COMMUNICATIONS EQUIPMENT MUST HAVE TRANSIENT SURGE PROTECTION TO COMPLY WITH UL AND NFPA 70 REQUIREMENTS. WHERE ANY CIRCUITS LEAVE THE BUILDING, ADDITIONAL TRANSIENT PROTECTION MUST BE PROVIDED FOR EACH CIRCUIT. ALL TRANSIENT PROTECTION DEVICES MUST BE UL LISTED UNDER STANDARD #497B (ISOLATED LOOP PROTECTORS).
22. REFER TO ALL RELATED CONTRACT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND/OR REQUIREMENTS RELATED TO THE INSTALLATION, PROGRAMMING, TESTING, COMMISSIONING AND CERTIFICATION OF ALL COMMUNICATIONS SYSTEMS.

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