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ABBREVIATIONS			
ABBREV.	DEFINITION	ABBREV.	DEFINITION
ACEG	ALTERNATING CURRENT ELECTRICAL GROUND	LL	LINE LEVEL LEFT CHANNEL AUDIO
ACLSG	ACCESSIBLE CEILING SPACE	LM	LINE LEVEL MONO AUDIO
ACT	ACOUSTIC CEILING TILE	LPS	LOCK POWER SUPPLY
AFF	ABOVE FINISHED FLOOR	LR	LINE LEVEL RIGHT CHANNEL AUDIO
AHJ	AUTHORITY HAVING JURISDICTION	MAG	MAGNETIC LOCK
APC	ANGLE POLISHED CONNECTOR	MECH	MECHANICAL
ARCH	ARCHITECT	MED	MEDICAL EQUIPMENT
AVC	AUDIOVISUAL CONTRACTOR	MFR	MANUFACTURER
AWG	AMERICAN WIRE GAUGE	MIC	MICROPHONE LEVEL AUDIO
BAS	BUILDING AUTOMATION SYSTEM	MIN	MINIMUM
BB	BACKBONE	MM	MULTIMODE FIBER OPTIC CABLE
BEP	BUILDING ENTRANCE PROTECTOR	(N)	NEW
BLDG	BUILDING	NA	NOT APPLICABLE
BO	BY OTHERS	NACLSG	NON ACCESSIBLE CEILING SPACE
CAB	CABINET	NEC	NATIONAL ELECTRIC CODE
CATV	CABLE TELEVISION	NS	NETWORK SWITCH
CC	CONTACT CLOSURE	NVR	NETWORK VIDEO RECORDER
CCTV	CLOSED CIRCUIT TELEVISION	O	OWNER
CLG	CEILING	OB	OVERRIDE BUTTON
COM	COMMON	OC	ON CENTER
COMM	COMMUNICATION	OD	OUTSIDE DIAMETER
CR	CARD READER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CT	COUNT	OFI	OWNER FURNISHED, OWNER INSTALLED
DB	DIRECT BURIAL	OSP	OUTSIDE PLANT
(D)	DEMOLISH	PA	PUBLIC ADDRESS
DIA	DIAMETER	POE	POWER OVER ETHERNET
DP	DISPLAY PORT	PP	PATCH PANEL(S)
DPS	DOOR POSITION SWITCH	PR	PAIR
DR	DOOR RELEASE	PS	POWER SUPPLY
DVR	DIGITAL VIDEO RECORDER	PWR	POWER
DWG	DRAWING	(RL)	REMOVE AND RELOCATE
(E)	EXISTING TO REMAIN	(RE)	REMOVE
EB	EXIT BUTTON	REV	REVISION
EC	ELECTRICAL CONTRACTOR	REX	REQUEST TO EXIT SWITCH
ECL	ELECTRIC CYLINDER LOCK	RM	ROOM
ECP	ELEVATOR CONTROL PANEL	RMC	RIGID METALLIC CONDUIT
EF	ENTRANCE FACILITY (DEMARC)	RNC	RIGID NONMETALLIC CONDUIT
EIB	EMERGENCY INFORMATION BOARD	RW	CABLE RUNWAY
ELEC	ELECTRICAL	RW-A	CABLE RUNWAY, ALTERNATE SPACING
ELV	ELEVATOR	SC	SECURITY CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING	SCHED	SCHEDULE
ENCL	ENCLOSURE	SM	SINGLEMODE FIBER OPTIC CABLE
EQPMT	EQUIPMENT	SMT	SURFACE MOUNT
ER	EQUIPMENT ROOM	SP	SURGE PROTECTOR
ES	ELECTRIC STRIKE	SPEC	SPECIFICATION
(F)	FUTURE	SPKR	LOUDSPEAKER LEVEL AUDIO
FAC	FIRE ALARM CONTRACTOR	SR	SURFACE RACEWAY
FACP	FIRE ALARM CONTROL PANEL	STP	SHIELDED TWISTED PAIR
FB	FIBER BACKBONE, FLOOR BOX	TB	TERMINATION BLOCK(S)
FD	FLOOR DISTRIBUTOR	TBB	TELECOMMUNICATIONS BONDING BACKBONE
FLEX	FLEXIBLE CONDUIT	TBD	TO BE DETERMINED
FPA	FLOOR PENETRATION ASSEMBLY	TC	TELECOMMUNICATIONS CONTRACTOR
FS	FURNITURE SUPPLIER	TEL	TELEPHONE
FSD	FIRE STOP DEVICE	TR	TELECOMMUNICATIONS ROOM (IDF, FD)
G	GROUND	TYP	TYPICAL
GC	GENERAL CONTRACTOR	U	UNIT
HB	HANDICAP BUTTON	UGND	UNDERGROUND
HC	HORIZONTAL CABLE	UON	UNLESS OTHERWISE NOTED
IF	INTERFACE PLATE	UPS	UNINTERRUPTIBLE POWER SUPPLY
IG	ISOLATED GROUND	UTP	UNSHIELDED TWISTED PAIR
IMC	INTERMEDIATE METAL CONDUIT	VB	VOICE BACKBONE
IP	INTERNET PROTOCOL	VGA+A	HD ANALOG VIDEO TYP 15 PIN D-SUB & 3.5MM TRS
ISP	INSIDE PLANT	VMS	VIDEO MANAGEMENT SYSTEM
IWC	IN-BUILDING WIRELESS CONTRACTOR	VOIP	VOICE OVER INTERNET PROTOCOL
KS	KEYSWITCH	WP	WEATHER PROOF
LC	LOW VOLTAGE/SPECIALTY CONTRACTOR		

TERMS AND DEFINITIONS			
GENERAL		GENERAL CONT.	
A	ACCEPTED/ACCEPTABLE: WORK OR MATERIALS CONFORMING WITH THE INTENT OF THE PROJECT, AND IN GENERAL, CONFORMING TO THE PERTINENT INFORMATION IN THE CONSTRUCTION DOCUMENTS.	AA	THE PROJECT: THE TOTAL CONSTRUCTION OF WHICH THE WORK PERFORMED UNDER THE CONTRACT DOCUMENTS MAY BE THE WHOLE OR A PART, AND WHICH MAY INCLUDE CONSTRUCTION BY THE OWNER AND/OR SEPARATE CONTRACTORS.
B	ACCESSIBLE: EASY ACCESS. ACCESS ATTAINED WITHOUT REQUIRING EXTENSIVE REMOVAL OF OTHER MATERIALS TO GAIN ACCESS.	AB	PROVIDE: TO FURNISH AND INSTALL, COMPLETE, TESTED AND READY FOR INTENDED USE.
C	ACCESSIBLE CEILING: ACOUSTICAL TILE HANGING CEILINGS ("HARD-LID" CEILINGS (CONCEALED SPINE OR SHEETROCK/GYPSUM CEILINGS), EVEN WHEN PROVIDED WITH ACCESS PANELS, ARE NOT CONSIDERED AN ACCESSIBLE CEILING.)	AC	ROUGH-IN: PROVIDE THE COMMUNICATIONS PATHWAY SYSTEM, INCLUDING (BUT NOT LIMITED TO) DEVICE BOXES, PULL BOXES, WALL BOXES, FLOOR BOXES, POKE-THROUGH DEVICES, CONDUIT, ENCLOSURES, CABLE TRAY, DUCTS/DUCTBANKS, MAINTENANCE HOLES, HAND HOLES, AND OTHER PATHWAYS AND ITEMS INDICATED (OR AS REQUIRED) FOR ROUTING, SUPPORTING, AND INSTALLING COMMUNICATIONS CABLES, DEVICES, OR EQUIPMENT WHICH SHALL BE PROVIDED BY OTHERS OR PROVIDED UNDER A SUBSEQUENT SET OF CONTRACT DOCUMENTS.
D	APPROVED/APPROVAL: THE WRITTEN APPROVAL OF THE ENGINEER.	AD	SUBSTANTIAL COMPLETION: THE DATE WHEN ALL WORK REQUIRED BY THE CONSTRUCTION DOCUMENTS SHALL BE COMPLETE (SUBJECT TO THE FINAL PUNCH LIST TO BE PREPARED BY THE ENGINEER) AND ON WHICH THE APPLICABLE JURISDICTIONAL AUTHORITIES HAVE ISSUED A TEMPORARY CERTIFICATION OF OCCUPANCY.
E	AGREEMENT: THE CONTRACTUAL AGREEMENT BETWEEN THE OWNER AND THE CONTRACTOR.	AE	SECTION: AN INDIVIDUAL SECTION OF THE SPECIFICATIONS.
F	COMMUNICATIONS (OR TECHNOLOGY) GROUNDING SYSTEM: INCLUDES (BUT IS NOT LIMITED TO) PROVIDING A PERMANENT GROUNDING AND BONDING INFRASTRUCTURE FOR THE COMMUNICATIONS CABLING SYSTEM.	AF	SHOWN ON DRAWINGS: NOTED, INDICATED, SCHEDULED, DETAILED, OR ANY OTHER WRITTEN REFERENCE MADE ON THE DRAWINGS.
G	ELECTRICAL FOR COMMUNICATIONS SYSTEMS ALSO REFERRED TO AS COMMUNICATIONS (OR TECHNOLOGY) PATHWAY SYSTEM: INCLUDES (BUT IS NOT LIMITED TO) DILL BOXES, PULL BOXES, CONDUIT, CABLE TRAY, DUCT/DUCTBANK, AND OTHER PATHWAY AND RACEWAY COMPONENTS NECESSARY TO PROVIDE PATHWAY FOR, SUPPORT, AND ROUTE COMMUNICATIONS CABLES.	AG	SPECIFICATIONS: THE PORTION OF THE CONTRACT DOCUMENTS CONSISTING OF THE WRITTEN REQUIREMENTS FOR MATERIALS, EQUIPMENT, CONSTRUCTION SYSTEMS, STANDARDS AND WORKMANSHIP FOR THE WORK AND PERFORMANCE OF RELATED SERVICES.
H	COMMUNICATIONS (OR TECHNOLOGY) SYSTEMS: INCLUDES (BUT IS NOT LIMITED TO) AUDIOVISUAL SYSTEM, COMMUNICATION CABLING SYSTEM, ELECTRICAL FOR COMMUNICATIONS SYSTEMS (PATHWAY AND GROUNDING), <HEALTHCARE SYSTEMS>, <LOW VOLTAGE SYSTEM>, <IN-BUILDING WIRELESS SYSTEM (IWS)>, SECURITY SYSTEM, STRUCTURED CABLING SYSTEM (SCS).	AH	SPECIFICATION SECTION(S): ONE OR MORE SECTIONS OF THE SPECIFICATIONS.
I	CONCEALED: HIDDEN FROM SIGHT IN INTERSTITIAL BUILDING SPACES, CHASES, FURRED SPACES, SHAFTS, CRAWL SPACES, ETC.	AI	SECTION(S): AN ABBREVIATED FORM OF SPECIFICATION SECTION(S).
J	CONSTRUCTION DOCUMENTS: COLLECTIVE TERM FOR THE ENTIRE SET OF BOUND OR UNBOUND MATERIAL DESCRIBING THE CONSTRUCTION AND SERVICES REQUIRED, INCLUDING ALL DRAWINGS, SPECIFICATIONS, ADDENDA ISSUED PRIOR TO EXECUTION OF THE CONTRACT, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT (SUCH AS CHANGE ORDERS, CONSTRUCTION CHANGE DIRECTIVES, SUPPLEMENTAL INSTRUCTIONS, ETC.).	AJ	THE WORK: THE CONSTRUCTION AND SERVICES REQUIRED BY THE CONTRACT DOCUMENTS, WHETHER COMPLETED OR PARTIALLY COMPLETED, AND ALL OTHER LABOR, MATERIALS, EQUIPMENT AND SERVICES PROVIDED OR TO BE PROVIDED BY THE CONTRACTOR TO FULFILL THE CONTRACTOR'S OBLIGATIONS. THE WORK MAY CONSTITUTE THE WHOLE OR A PART OF THE PROJECT.
K	CONTRACT DOCUMENTS: THE AGREEMENT (INCLUDING OTHER DOCUMENTS LISTED IN THE AGREEMENT), CONDITIONS OF THE CONTRACT (GENERAL, SUPPLEMENTARY AND OTHER CONDITIONS), AND THE CONSTRUCTION DOCUMENTS.		
L	THE CONTRACT: THE CONTRACT DOCUMENTS FORM THE CONTRACT. THE CONTRACT REPRESENTS THE ENTIRE AND INTEGRATED AGREEMENT BETWEEN THE OWNER AND THE CONTRACTOR AND SUPERSEDES ANY PRIOR NEGOTIATIONS, REPRESENTATIONS OR AGREEMENTS, EITHER WRITTEN OR ORAL. THE CONTRACT SHALL NOT BE CONSTRUED TO CREATE A CONTRACTUAL RELATIONSHIP OF ANY KIND (1) BETWEEN THE ENGINEER AND THE CONTRACTOR, (2) BETWEEN THE OWNER AND A SUBCONTRACTOR, OR (3) BETWEEN ANY PERSONS OR ENTITIES OTHER THAN THE OWNER AND CONTRACTOR.		
M	CONTRACTOR: THE PARTY RESPONSIBLE FOR PROVIDING THE COMMUNICATION SYSTEM(S) AS INDICATED HEREIN.		
N	DRAWINGS: THE GRAPHIC AND PICTORIAL PORTIONS OF THE CONTRACT DOCUMENTS, WHEREVER LOCATED AND WHENEVER ISSUED, SHOWING THE DESIGN, LOCATION AND DIMENSION OF THE WORK, GENERALLY INCLUDING (BUT NOT LIMITED TO) PLANS, ELEVATIONS, SECTIONS, DETAILS, SCHEDULES AND/OR DIAGRAMS.		
O	ENGINEER: THE PARTY RESPONSIBLE FOR PRODUCING THE COMMUNICATION SYSTEM(S) CONSTRUCTION DOCUMENTS.		
P	EXPOSED: NOT CONCEALED (SEE ABOVE) AND NOT INSTALLED UNDERGROUND.		
Q	FINAL COMPLETION: THE DATE WHEN THE ENGINEER CONFIRMS IN WRITING THAT THE CONTRACTOR HAS COMPLETED THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, INCLUDING COMPLETION OF ALL PUNCH LIST ITEMS, CLEANUP WORK AND DELIVERY OF ALL REQUIRED GUARANTEES, WARRANTIES, LICENSES, RELEASES AND OTHER REQUIRED DELIVERABLES.		
R	FURNISH: TO PURCHASE, SUPPLY, AND DELIVER TO THE PROJECT MATERIALS IN NEW AND OPERABLE CONDITION, READY FOR INSTALLATION.		
S	GOVERNING AUTHORITY: ENTITIES OR THEIR REPRESENTATIVES CHARGED WITH FORMATION AND/OR ENFORCEMENT OF GOVERNING REQUIREMENTS, SUCH AS THE AUTHORITY HAVING JURISDICTION (A/J).		
T	GOVERNING REQUIREMENTS: COLLECTIVE TERM FOR REGULATIONS, LAWS, ORDINANCES, CODES, RULES, STANDARDS, REQUIREMENTS, GUIDELINES, AND RECOMMENDATIONS THAT GOVERN THE INSTALLATION AND INSPECTION OF THE WORK DEFINED IN THE CONTRACT DOCUMENTS.		
U	HANGER/SUPPORT SYSTEM: ALL EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO SUPPORT THE RACEWAY/PATHWAY AND CABLING SYSTEMS, INCLUDING BUT NOT LIMITED TO METALLIC HANGERS AND SUPPORTS, CONDUIT, CABLE TRAY, CONDUIT, PULL BOXES, DEVICE BOXES, U-CHANNELS, THREADED RODS, CLAMPS, CONCRETE INSERTS, ANCHOR BOLTS, CABLES, BACKING BOARDS, ETC.		
V	INSIDE PLANT (ISP): INFRASTRUCTURE WITHIN A BUILDING.		
W	INSTALL: TO PLACE IN FINAL POSITION IN FULLY OPERABLE, TESTED CONDITION.		
X	OR EQUAL: MATERIALS APPROVED FOR USE BY THE ENGINEER AND WHICH ARE DIMENSIONALLY SUITABLE AND OPERATIONALLY IDENTICAL TO THE SPECIFIED ITEM.		
Y	OUTSIDE PLANT (OSP): INFRASTRUCTURE EXTERIOR TO A BUILDING.		
Z	OWNER: THE OWNER AND THE OWNER'S DESIGNATED REPRESENTATIVE(S).		



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ENGINEERING | TECHNOLOGY | LIFE SAFETY
BCER PROJECT 55519038

Owner
GREELEY FIRE STATION #2
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COMMUNICATIONS PROJECT NOTES

T
003



COMMUNICATIONS RESPONSIBILITY MATRIX					
COMPONENT	ENTITY		NOTES APPLY TO ALL ENTITIES	GENERAL NOTES	
	FURNISH	INSTALL			
COMMON WORK					
CABLE PATHWAY FIRE STOPPING DEVICE	EC	EC	1,7	<p>A. FURNISH AND INSTALL RESPONSIBILITIES ARE ONLY RECOMMENDATIONS AND PROVIDED AS A COURTESY TO CONTRACTOR.</p> <p>B. SOME COMPONENTS AND ASSOCIATED FURNISH AND INSTALL RESPONSIBILITIES MAY NOT BE INDICATED ON THIS MATRIX.</p> <p>C. THE DETAIL FURNISH / INSTALL CALLOUT ANNOTATION PROVIDES SPECIFIC RECOMMENDATIONS THAT SUPERSEDE GENERAL RECOMMENDATIONS FOUND IN THIS TECHNOLOGY RESPONSIBILITY MATRIX.</p> <p>D. EQUIPMENT SCHEDULES MAY CONTAIN ADDITIONAL FURNISH OR INSTALL RESPONSIBILITY RECOMMENDATIONS. THESE SUPERSEDE RECOMMENDATIONS FOUND IN DETAIL ANNOTATIONS AND THIS TECHNOLOGY RESPONSIBILITY MATRIX.</p> <p>E. CONTRACTOR IS RESPONSIBLE FOR FINAL DETERMINATION OF ALL COMPONENTS AND ASSOCIATED FURNISH AND INSTALL RESPONSIBILITIES REQUIRED FOR PROVISION OF COMPLETE COMMUNICATIONS SYSTEMS READY FOR OWNER'S USE. DETERMINATION OF SUCH SHALL OCCUR PRIOR TO BID.</p> <p>F. DETERMINATION AND EXECUTION OF ALL NECESSARY COMPONENTS AND ASSOCIATED FURNISH AND INSTALL RESPONSIBILITIES SHALL CONFORM TO PROJECT SCHEDULE.</p> <p>G. CABLING FOR COMPONENTS SHALL BE PROVIDED BY ENTITY INSTALLING COMPONENT UNLESS OTHERWISE INDICATED.</p> <p>H. EACH TRADE SHALL COORDINATE ROUGH-IN REQUIREMENTS (INCLUDING SLEEVES) WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.</p>	
CONDUIT SLEEVES	EC	EC	1		
FIRE RATED FLOOR PENETRATION ASSEMBLY	EC	EC	1,7		
HANGER SUPPORTS FOR CABLE SUPPORTS	TC	TC	2		
HANGER SUPPORTS FOR CONDUITS	EC	EC	1		
MISCELLANEOUS FIRE STOPPING MATERIAL	GC	GC	1,5,7		
PENETRATION	GC	GC	1,5,7		
PUTTY PADS	EC	EC	1,6		
STRAPS/SLINGS	TC	TC	2		
WIDE BASE CABLE SUPPORTS (J-HOOKS)	TC	TC	2		
ELECTRICAL FOR COMMUNICATIONS SYSTEMS					
BACKBOXES	EC	EC	1		
CONDUIT, FITTINGS, PULL STRINGS	EC	EC	1		
FLOOR BOXES	EC	EC	1,3		
GROUND BUS BAR	EC	EC			
GROUND RISER CONDUCTORS	EC	EC			
INNERDUCTS (SUBDUCTS)	EC	EC	1		
JUNCTION BOXES	EC	EC	1		
PLENUM ENCLOSURES	EC	EC	1		
POKE-THROUGHS	EC	EC	1,3		
PULL BOXES	EC	EC	1		
WALL BOXES (AV)	EC	EC	1		
TELECOMMUNICATIONS (COMMUNICATIONS CABLING SYSTEM)					
BACKBOARDS	GC	GC	8		
BUILDING ENTRANCE PROTECTION	TC	TC			
CABLE RUNWAY AND ACCESSORIES	TC	TC			
CONNECTORS BACKBONE CABLE	TC	TC			
CONNECTORS HORIZONTAL CABLE	TC	TC			
EQUIPMENT FRAMES AND ACCESSORIES	TC	TC			
EQUIPMENT RACKS AND ACCESSORIES	TC	TC			
FACEPLATES	TC	TC			
HORIZONTAL CABLING	TC	TC			
IDENTIFICATION	TC	TC			
OSP BACKBONE CABLING	TC	TC			
PATCH CORDS @ PATCH PANEL (MDF/IDF/TR/ETC.)	TC	O			
PATCH CORDS @ FAR END (OUTLET/DEVICE INCLUSIVE OF ALL SYSTEMS/ENDPOINTS)	TC	--	11		
PATCH PANELS	TC	TC			
SPLICE ENCLOSURES	TC	TC			
TELECOM ROOM EQUIPMENT GROUNDING AND BONDING	TC	TC			
TERMINATION BLOCKS	TC	TC			
WIRELESS ACCESS POINTS	O	O			
AUDIOVISUAL SYSTEM(S)					
STRUCTURAL SUPPORTS FOR AV EQUIPMENT	GC	GC	9		
IN-BUILDING WIRELESS SYSTEM					
CELLULAR PHONE INTEGRATION	O	O	10		
SECURITY SYSTEM(S)					
ACCESS CONTROL SYSTEM					
ACCESS CONTROL SOFTWARE	SC	SC			
ACCESS CONTROL SYSTEM CABLING (ANALOG)	SC	SC			
CARD READER / VERIFICATION DEVICE	SC	SC			
DOOR HARDWARE	GC	GC	5		
DOOR POSITION SWITCH	SC	SC			
HEAD END EQUIPMENT	SC	SC			
NETWORK BASED PATCH CORDS (AT DEVICE)	TC	SC			
NETWORK SERVER FOR ACCESS CONTROL SYSTEM	O	O			
NETWORK SWITCHES AND POE	O	O			
POWER SUPPLIES	GC	GC			
REQUEST-TO-EXIT	SC	SC			

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COMMUNICATIONS SCHEDULES

T
004



EQUIPMENT SCHEDULE - COMMON WORK / ELECTRICAL					
27 04 05 - SLEEVES, PENETRATIONS AND FIRESTOPPING (FS)					
DESCRIPTION	MANUFACTURER / PART NUMBER				SPECIAL REQUIREMENTS
	HILTI	STI	WIREMOLD	--	
CABLE PATHWAY FIRESTOPPING DEVICE	Speed Sleeve	EZ-Path	FSx	--	4" (nominal) shall be the standard device size.
FIRE RATED FLOOR PENETRATION ASSEMBLY	Speed Sleeves thru ganged CP 680M/P Cast In Place Devices	EZ-Path Series 44+ Modular Floor Grid System	--	--	Provide in the configurations shown on the floor plans or as noted on the Communications Backbone Riser Diagram. Provide all Accessories and Kits for a complete and properly configured installation.
27 04 06 - HANGERS AND SUPPORTS (JS)					
DESCRIPTION	MANUFACTURER / PART NUMBER				SPECIAL REQUIREMENTS
	ERICO	ARLINGTON	HUBBELL	CPI	
HANGER/SUPPORT SYSTEM	See Special Rqmt	See Special Rqmt	--	See Special Rqmt	B-Line, Erico, Kindorf, Unistrut or approved equal
WIDE BASE CABLE SUPPORTS (J-HOOKS)	CADDY CableCat	--	--	See Erico	--
STRAPS/SLINGS (EXTERIOR TO COMM ROOMS)	CADDY CableCat	THE LOOP	--	See Arlington	--
STRAPS/SLINGS (WITHIN COMM ROOMS)	See Special Rqmt	See Special Rqmt	--	See Special Rqmt	Velcro, Siemens, Panduit or approved equal
27 05 26 - GROUNDING AND BONDING (GB)					
DESCRIPTION	MANUFACTURER / PART NUMBER				SPECIAL REQUIREMENTS
	CPI	ERICO	COOPER B-LINE	--	
TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) 20" X 4" X 1/4" (NOMINAL)	40153-020	TMGB-A20L27PT	SBTMGB20	--	--
ALL ACCESSORIES AND RELATED EQUIPMENT REQUIRED FOR A COMPLETE COMMUNICATIONS GROUNDING AND BONDING SYSTEM.	See Special Rqmt	See Special Rqmt	See Special Rqmt	--	Product shall be from the same manufacturer as the provided Grounding Busbars (CPI, Erico or Cooper B-Line).
27 05 33 - CONDUIT AND BOXES (CB)					
DESCRIPTION	MANUFACTURER / PART NUMBER				SPECIAL REQUIREMENTS
	WIREMOLD	HUBBELL	CHIEF	CARLON	
FLOOR BOX - SINGLE-SERVICE	886B	--	--	--	--
FLOOR BOX (8-GANG)	Evolution EF88S-xx	--	--	--	Provide the On-Grade (-OG) version for Slab-On-Grade installations; the Fire Classified (-FC) version for all Fire-Rated Slabs and the standard version for all other installations.
INNERDUCT, INSIDE PLANT	--	--	--	xF4XD1C	--
INNERDUCT, OUTSIDE PLANT	--	--	--	A5D2S1JNN	--
DISPLAY WALL BOX	--	--	PAC526FC	--	REFER TO THE AV CONDUIT RISER DIAGRAMS AND THE AV ROUGH-IN DETAILS. CONFIRM COLOR WITH ARCHITECT BEFORE ORDERING.
27 05 45 - MAINTENANCE AND HAND HOLES (MH)					
DESCRIPTION	MANUFACTURER / PART NUMBER				SPECIAL REQUIREMENTS
	Oldcastle Precast	Other	--	--	
HANDHOLE COVER	PB-230-6W	--	--	--	TIER 22 LOAD RATING
HANDHOLE FRAME	PB-230-6W	--	--	--	--

EQUIPMENT SCHEDULE - SECURITY			
DESCRIPTION	MANUFACTURER	PART NUMBER	SPECIAL RQMTS
PROXPOINT PLUS CARD READER	HID	6005BK00	
CONTROLLER / LOCK POWER SUPPLY	LIFESAFETY POWER	FPO SERIES (SIZE AS REQUIRED)	COORDINATE WITH DOOR CONTRACTOR FOR LOCK POWER SUPPLY REQUIREMENTS
PROCESSOR PANEL "MAIN BOARD"	BRIVO	ACS6008-MB	MATCH EXISTING SYSTEMS OR LATEST VERSION
DOOR CONTROLLER "DOOR BOARD"	BRIVO	ACS6000-DB	MATCH EXISTING SYSTEMS OR LATEST VERSION
POWER SUPPLY BATTERY BACKUP	ELK	SIZE AS REQUIRED	
ACCESS CONTROL SYSTEM CABLE	Per Manufacturer's Recommendations	PLENUM W/ BLACK OUTER SHEATH	CONDUCTOR QUANTITY AND GAUGE PER SYSTEM REQUIREMENTS

EQUIPMENT SCHEDULE - COMMUNICATIONS					
27 11 00 - EQUIPMENT ROOM FITTINGS (ER)					
DESCRIPTION	Manufacturer/Part Number				
	CPI	Cooper B-Line	Commscope NetConnect	Panduit	Special Rqmt/Notes
UNIVERSAL CABLE RUNWAY	10260-712	--	--	--	
RUNWAY BEND RADIUS	10723-712	--	--	--	
RADIUS DROP	12100-712	--	--	--	
BUTT SPLICE	16301-001	--	--	--	
RACK-TO-RUNWAY MOUNTING PLATE (3")	10595-712	--	--	--	
WALL ANGLE SUPPORT	11421-712	--	--	--	
FOOT KIT, CABLE RUNWAY	11309-001	--	--	--	
THREADED KIT, CABLE RUNWAY	11310-001	--	--	--	
CABLE RETAINING POSTS	10596-706	--	--	--	
PROTECTIVE END CAPS	10642-001	--	--	--	
EQUIPMENT RACK (7 2-POST)	48353-703	--	--	--	
SERVER CABINET	--	--	--	R4PCN	
HORIZONTAL POWER STRIP	--	--	--	CMRPSH20S	
HORIZONTAL CABLE MGMT PANEL (2U)	--	--	--	NCMHF2	
VERTICAL MANAGEMENT SECTION (FIBER)	--	--	--	HD FLEX ENCLOSURE	
VERTICAL MANAGEMENT SECTION (COPPER)	--	--	--	PRZVD10	

27 11 19 - TERMINATION EQUIPMENT (TE)					
DESCRIPTION	Manufacturer/Part Number				
	Commscope Systimax	Legrand/Sup. Essex nCompass	Berk-Tek/Leviton Technologies	Panduit/Gen. Cable "PanGen"	Special Rqmt/Notes
HORIZONTAL COPPER PATCH PANEL-CAT 6A (48 PORT, 2U, IDC TERMINATION, U/UTP)	--	--	--	CPPL48WBLY	
TERMINATION BLOCK -110 STYLE	--	--	--	P110KBx005	
TERMINATION BLOCK JUMPER TROUGH - 110-STYLE	--	--	--	P110JTW-X	

27 13 00 - BACKBONE CABLING (BC)					
DESCRIPTION	Manufacturer/Part Number				
	Commscope Systimax	Corning	Panduit/Gen. Cable "PanGen"	Belden	Special Rqmt/Notes
ISP COAXIAL/CATV (RG-6)	4112704/10	--	--	4694P	
OSP SM FIBER BACKBONE	TERASPEED: 7600039xx	ALTOS: xxxE1D-14122A20	--	FSSHxxx6G	

27 15 00 - HORIZONTAL CABLING (HC)					
DESCRIPTION	Manufacturer/Part Number				
	Commscope Systimax	Legrand/Sup. Essex nCompass	Berk-Tek/Leviton Technologies	Panduit/Gen. Cable "PanGen"	Special Rqmt/Notes
HORIZONTAL COPPER CABLE - CAT6A	--	--	--	PUP6AM04WHJUG	

27 15 43 - FACEPLATES AND CONNECTORS (FC)					
DESCRIPTION	Manufacturer/Part Number				
	Commscope Systimax	Commscope Uniprise	Berk-Tek/Leviton Technologies	Panduit/Gen. Cable "PanGen"	Special Rqmt/Notes
WALL MOUNT TELEPHONE FACEPLATE	--	--	--	KWP6PY	
FURNITURE OUTLET	--	--	--	CFPL4BL	
2-PORT WALL OUTLET	--	--	--	CFPL21WY	
BLANK INSERT	--	--	--	CMBIW-X	
KEYSTONE WALL PLATE WITH RJ45	--	--	--	CJ6X88TGYL	

27 16 19 - PATCH CORDS (PC)					
DESCRIPTION	Manufacturer/Part Number				
	Commscope Systimax	Commscope Uniprise	Berk-Tek/Leviton Technologies	Panduit/Gen. Cable "PanGen"	Special Rqmt/Notes
COPPER PATCH CORD (CAT6A - 7')	--	--	--	UTP28xxx	
COPPER PATCH CORD (CAT6A - 10')	--	--	--	UTP28xxx	

ACCESS CONTROL DOOR SCHEDULE						
DOOR INFORMATION	DIVISION 8		DIVISION 28			NOTES
	CONTROLLED (C)	SINGLE LEAF DOOR	ELECTRIFIED DOOR HARDWARE	CARD / KEYPAD READER (CR)	DOOR POSITION SWITCH (DPS)	
DOOR NUMBER	DOOR TAG	DOOR HARDWARE	SECURITY			
101A	C	X	1	1	1	SCHEDULED RELEASE
101B	C	X	1	1	1	
115	C	X	1	1	1	
128	C	X	1	1	1	
133D	C	X	1	1	1	
135C	C	X	1	1	1	

GENERAL NOTES:

A NUMBERS DEPICTED WITHIN THIS SCHEDULE DENOTE QUANTITY OF DEVICES. DEVICES LISTED UNDER DIVISION 1, DIVISION 8 AND OTHER OPENING SPECIFICATIONS SHALL BE PROVIDED BY OTHERS. SECURITY CONTRACTOR SHALL PROVIDE DEVICES LISTED UNDER DIVISION 28. THE SECURITY CONTRACTOR SHALL PROVIDE CONNECTIVITY TO DOOR HARDWARE DEVICES INSTALLED BY OTHERS FOR INTEGRATION INTO THE ACCESS CONTROL SYSTEM.

B REFERENCE SECURITY DOOR DETAILS FOR CONDUIT AND BOX REQUIREMENTS. IF DOOR REQUIREMENTS ARE IN CONFLICT, PROVIDE MOST STRINGENT REQUIREMENTS TO MEET ALL POSSIBLE CONFIGURATIONS.

C POWER SUPPLIES FOR DOOR HARDWARE ARE INTENDED TO BE DISTRIBUTED FOR MULTIPLE DOORS. QUANTITIES INDICATED IN THIS SCHEDULE DO NOT REFLECT TOTAL NUMBER OF POWER SUPPLIES REQUIRED. THE SECURITY CONTRACTOR SHALL PROVIDE AND DISTRIBUTE ADEQUATE DOOR POWER PER MANUFACTURER REQUIREMENTS.

Central File: \\cumindata\01_P\Projects\55519038\00-Production\20-Model\55519038-GREELEY FIRE STATION #2-COMM_R18.rvt

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1	ADDENDUM 02	10/18/2019

COMMUNICATIONS SCHEDULES

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GENERAL NOTES	
A	REFER TO PROJECT NOTES ON THE BEGINNING SHEETS OF THESE DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO THIS SHEET.
B	COORDINATE WITH CIVIL UTILITY PLAN FOR ALL UTILITY WORK. PRIOR TO TRENCHING CONTRACTOR SHALL PROVIDE POTHOLE VISUAL VERIFICATION OF ALL EXISTING UNDERGROUND UTILITIES, CABLES AND DUCTS. PREPARE FIELD NOTES AND ASSOCIATED DOCUMENTATION, AND COORDINATE WITH OTHER TRADES. EXISTING UTILITIES OR CABLE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER, AND SHALL BE REPAIRED OR REPLACED WITHIN 4 HOURS OF THE DAMAGING EVENT.
C	IN THE EVENT THAT CONDITIONS ARE ENCOUNTERED ON THE SITE WHICH ARE BELOW GRADE OR OTHERWISE CONCEALED WHICH DIFFER MATERIALLY FROM THOSE CONTEMPLATED, THE CONTRACTOR SHALL CONTACT OWNER AND ENGINEER FOR APPROVAL PRIOR TO PROCEEDING. THE CONTRACTOR SHALL INCLUDE THEIR PRICE PER FOOT FOR THESE CONDITIONS WITH THEIR BID.
D	DUCTS SHALL SLOPE A MINIMUM OF 12.5 INCHES PER 100 FEET OR 0.125 INCH PER FOOT. SLOPES SHALL BE CONTINUOUSLY DOWNWARD AWAY FROM BUILDING ENTRANCES OR TOWARD UCV(S).
E	PROVIDE RNC SCHEDULE 80 OR PSC DUCTS FOR DIRECT BURIED (NON-CONCRETE ENCASED) APPLICATIONS. TRANSITION TO PSC AT STUB UP LOCATIONS, ENTRANCES TO BUILDING (A MINIMUM 10 FEET FROM BUILDING FOUNDATION) OR OTHER LOCATIONS WHERE THE RACEWAY CHANGES FROM ENCASED IN CONCRETE TO DIRECT BURIED OR EXPOSED CONDITIONS. TRANSITION TO PSC OR RGC FOR SHORT RADIUS BENDS (BENDS WITH LESS THAN 15 FOOT RADIUS SWEEPS).
F	DUCT BENDS SHALL BE FACTORY MANUFACTURED AND CONSIST OF A GENTLE SWEEP WITH A 15-FOOT RADIUS. WHERE A 15-FOOT RADIUS IS NOT POSSIBLE DUE TO EXISTING SITE CONDITIONS, RADIUS SHALL BE NO LESS THAN 10 TIMES THE INTERNAL DIAMETER OF THE DUCT. BENDS NOT LESS THAN 10 TIMES THE INTERNAL DIAMETER OF THE CONDUIT ARE ACCEPTABLE AT LOCATIONS WHERE DUCT/DUCTBANK IS STUBBING VERTICALLY UP INTO THE FLOOR OF THE BUILDING. THE USE OF 90 DEGREE ELBOWS, LB AND CONDULET FITTINGS IS NOT ACCEPTABLE. AN INDIVIDUAL BEND SHALL NOT EXCEED 90 DEGREES. NO DUCT RUN SHALL EXCEED 180 DEGREES TOTAL OF BENDS BETWEEN VAULTS/PULL POINTS. REFER TO SPECIFICATIONS AND DETAILS.
G	PROVIDE PRE-MANUFACTURED WATER-TIGHT END CAPS FOR ALL DUCTS DURING CONSTRUCTION. TAPE IS NOT AN ACCEPTABLE END CAP OR COVER.
H	ALL UNDERGROUND CONDUIT AND PATHWAY SHALL RECEIVE AN ELECTRONIC LOCATING METHOD IN THE FORM OF EITHER A TRACER WIRE OR DETECTABLE WARNING TAPE.

WORK NOTES	
T02	APPROXIMATE LOCATION OF UTILITY SERVICE PROVIDER HANDHOLE FOR COMCAST CATV. COORDINATE LOCATION AND TIE IN WITH PROVIDER. PROVIDE THREE (3) 1" INNERDUCT THROUGH 4" CONDUIT ROUTE.
T03	APPROXIMATE LOCATION OF UTILITY SERVICE PROVIDER HANDHOLE FOR CENTURYLINK COPPER. COORDINATE LOCATION AND TIE IN WITH PROVIDER. PROVIDE THREE (3) 1" INNERDUCT THROUGH 4" CONDUIT ROUTE.
T04	APPROXIMATE LOCATION OF CITY OF GREELEY HANDHOLE FOR FIBER. COORDINATE LOCATION AND TIE IN WITH EXISTING CITY FIBER. NEW HANDHOLE AND CONDUIT SHALL INTERCEPT EXISTING FIBER PATHWAY. PROVIDE THREE (3) 1" INNERDUCT THROUGH 4" CONDUIT ROUTE.

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GREELEY FIRE STATION #2
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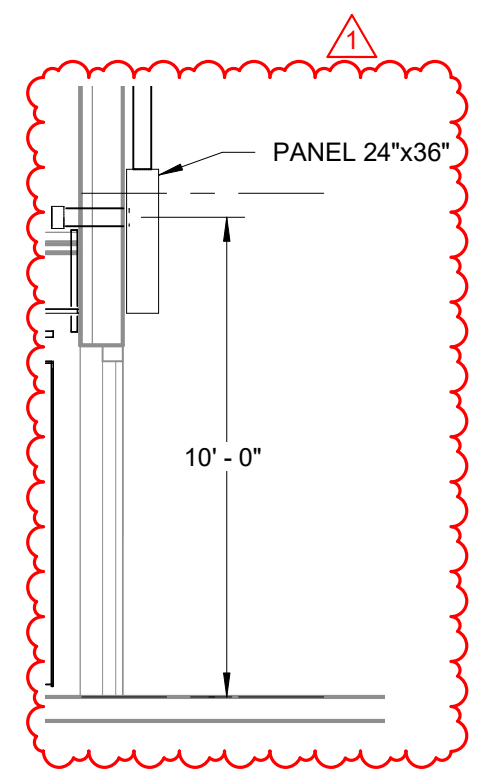
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1	ADDENDUM 02	10/18/2019

COMMUNICATIONS SITE PLAN

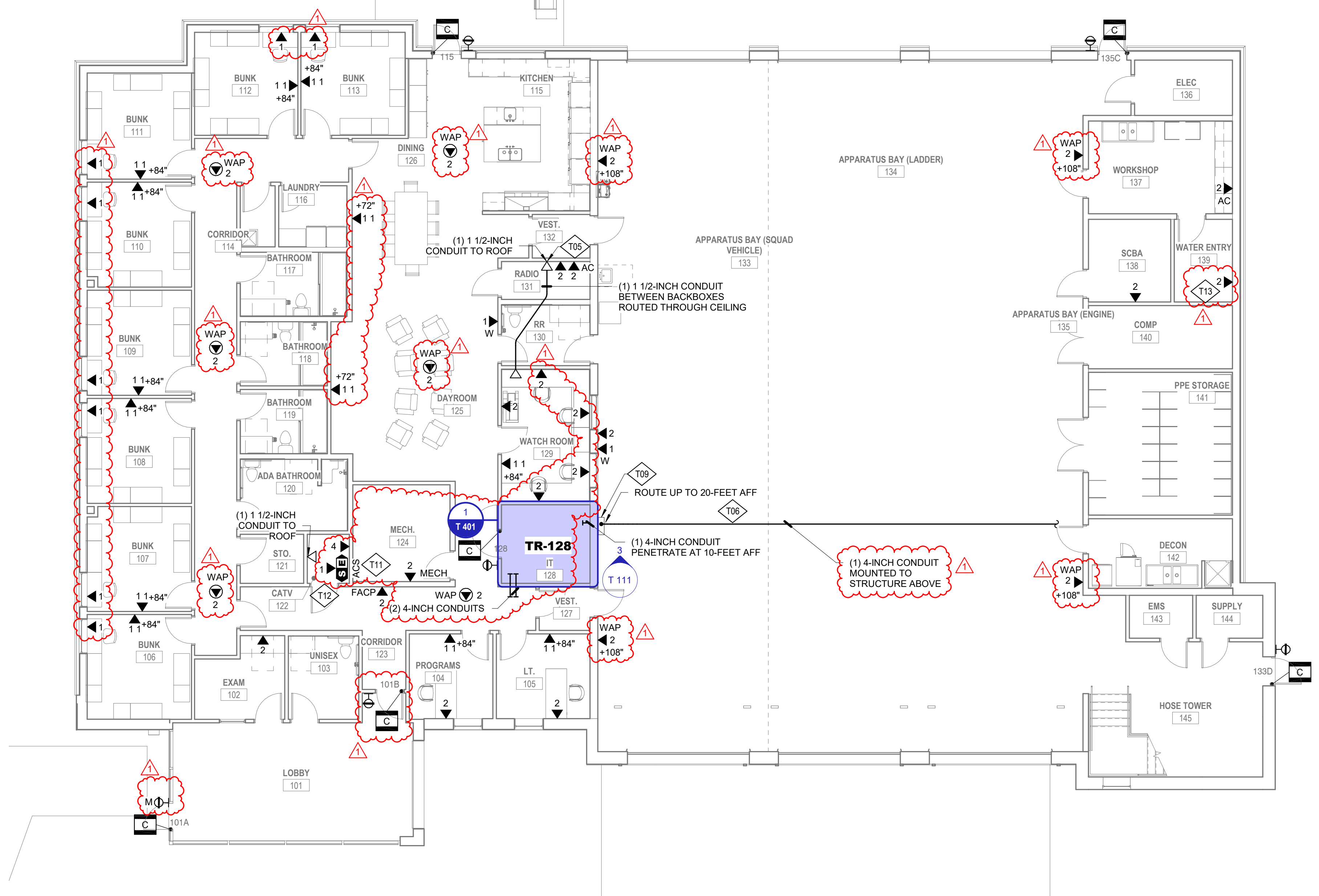


1 COMMUNICATIONS SITE PLAN
 1" = 20'-0"
 20' 10' 0 20'

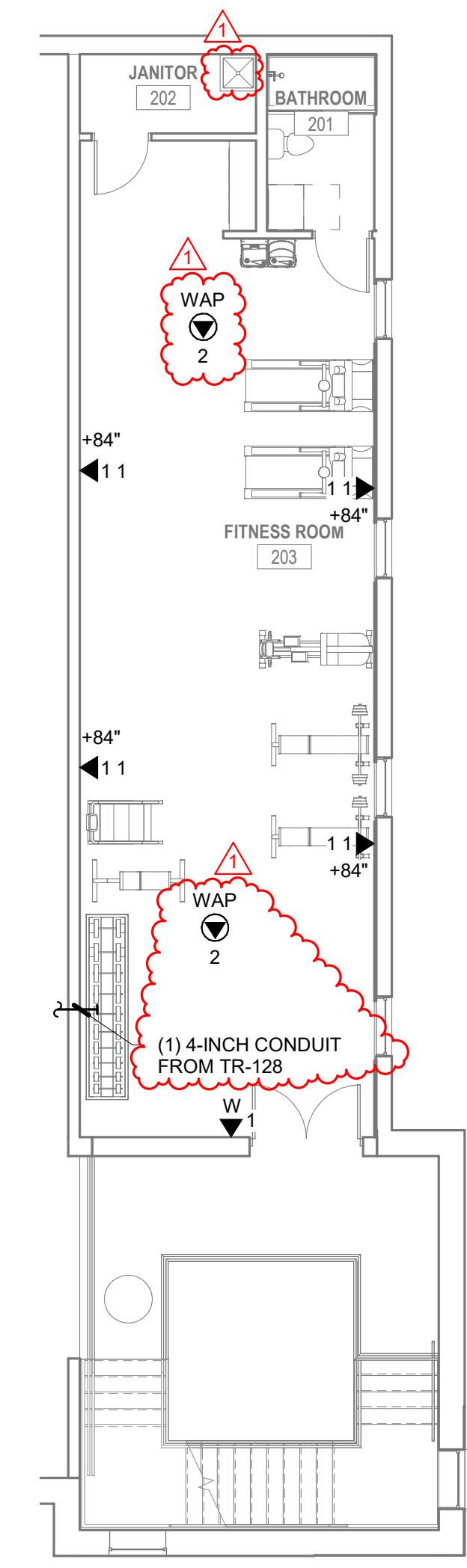
WORK NOTES	
T05	CONTRACTOR SHALL PROVIDE AND INSTALL A BACKBOX WITH GROMMET FACEPLATE CONNECTED TO CONDUIT ROUTING FROM CEILING TO GIVE ACCESS TO RADIO COMMUNICATION CABLING.
T06	CONDUIT SHALL BE ROUTED THROUGH CEILING SPACE OF APPARATUS BAY TO ALLOW FOR NETWORK CABLING TO ROUTE FROM PLAN WEST BUILDING TO PLAN EAST BUILDING. COORDINATE WITH ARCHITECTURAL, STRUCTURAL AND ALL SPECIAL EQUIPMENT (LIFT, BAY DOOR, ETC.) FOR EXACT ROUTING.
T09	CONTRACTOR SHALL PROVIDE AND INSTALL A WALL MOUNTED PANEL FOR ROUTING OF CABLE. REFER TO ELEVATION VIEW 3 ON SHEET T111.
T11	REFER TO DETAIL TS-ACSP FOR ACS PANEL MOUNTING DETAILS.
T12	INCOMING CATV SERVICE SHALL DEMARC INTO CATV ROOM 122. ROUTE CONDUIT PATHWAY FROM EXTERIOR OF BUILDING INTO CATV ROOM 122.
T13	COORDINATE LOCATION AND PRECISE HEIGHT WITH SPRINKLER CONTROLLER AND LANDSCAPE CONTRACTOR.



3 PANEL ENTRANCE WALL ELEVATION
1/4" = 1'-0"



1 LEVEL 1 COMMUNICATIONS FLOOR PLAN
1/8" = 1'-0"



2 LEVEL 2 COMMUNICATIONS FLOOR PLAN
1/8" = 1'-0"

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1	ADDENDUM 02	10/18/2019

COMMUNICATIONS FLOOR PLANS

WORK NOTES	
TC42	3/4" AC-GRADE, FIRE-RESISTIVE-TREATED PLYWOOD BACKBOARD. PAINT PLYWOOD WITH TWO COATS OF FIRE-RETARDANT WHITE PAINT. FIRE STAMP TO REMAIN VISIBLE.
TC50	WALL SPACE OBSTRUCTED BY EQUIPMENT AND/OR ARCHITECTURAL OR STRUCTURAL ELEMENTS.
TC53	CABLE RUNWAY MOUNTED VERTICALLY ON WALL BETWEEN PATHWAY THROUGH STRUCTURAL CEILING/FLOOR OR WALL AND HORIZONTAL CABLE RUNWAY TO SUPPORT CABLES. MOUNT WITH CROSS-MEMBERS OUT FROM WALL.
TE40	ELECTRICAL RECEPTACLES MOUNTED ON UNISTRUT LOCATED TOWARDS THE REAR OF THE RACKS (TYPICAL). UNISTRUT SUPPORTS POWER RECEPTACLES AND ASSOCIATED CIRCUITRY. SUPPORT UNISTRUT AT EACH END TO WALL AND EVERY 4 TO 5 FEET FROM CEILING WITH ALL-THREAD RODS. REFER TO THE ELECTRICAL CONSTRUCTION DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
TE61	CONDUIT SLEEVES FOR CABLE DISTRIBUTION TO/FROM FLOOR(S) ABOVE AND/OR BELOW. FILL ONE SLEEVE PRIOR TO FILLING NEXT SLEEVE. DO NOT MIX BACKBONE AND HORIZONTAL CABLES WITHIN THE SAME SLEEVE. REFER TO COMMUNICATIONS RISER DIAGRAM FOR SIZES AND QUANTITIES.
TE62	4-INCH CONDUIT SLEEVES THROUGH WALL. FILL ONE SLEEVE PRIOR TO FILLING NEXT SLEEVE. DO NOT MIX BACKBONE AND HORIZONTAL CABLES WITHIN THE SAME SLEEVE.

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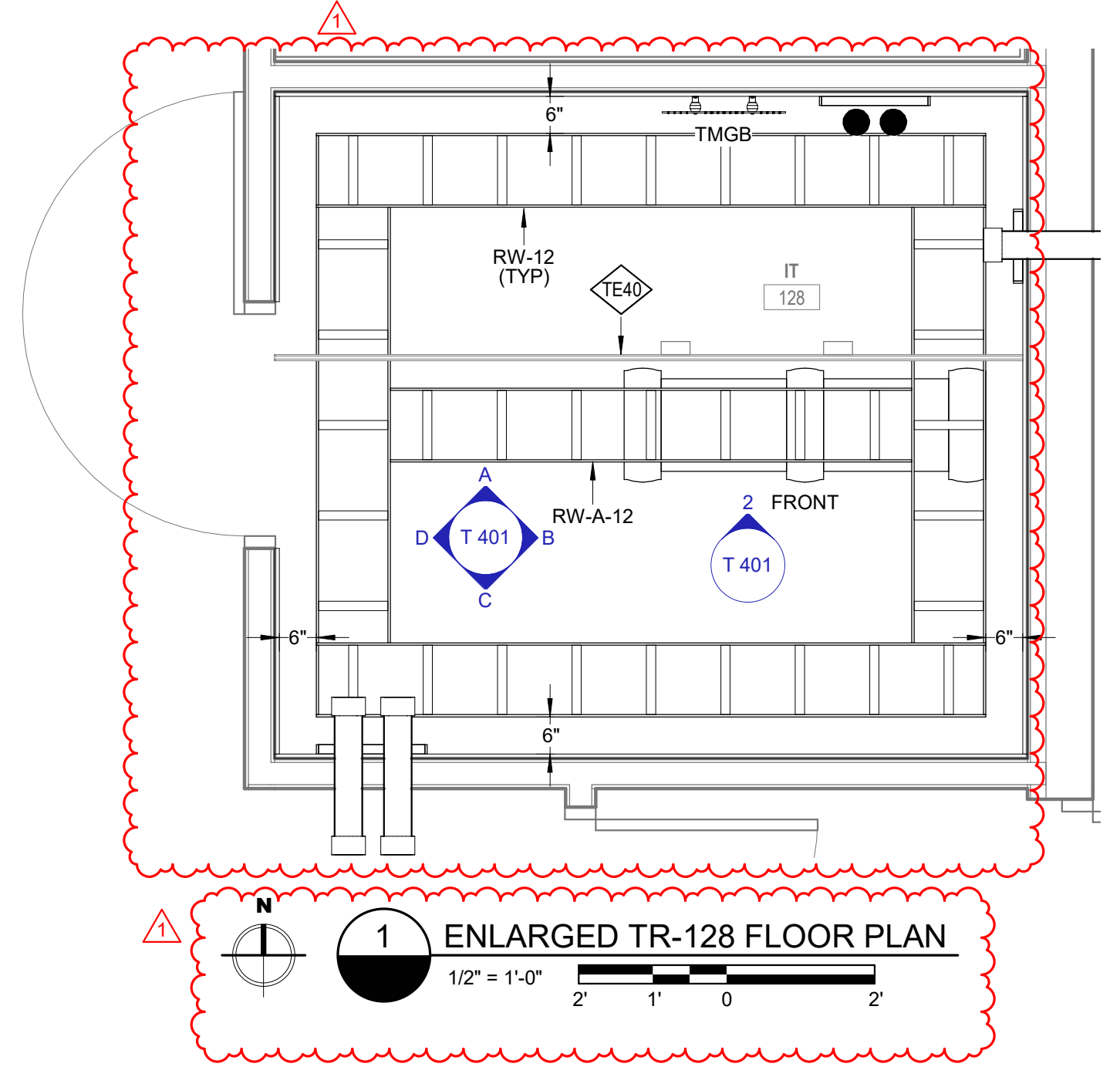
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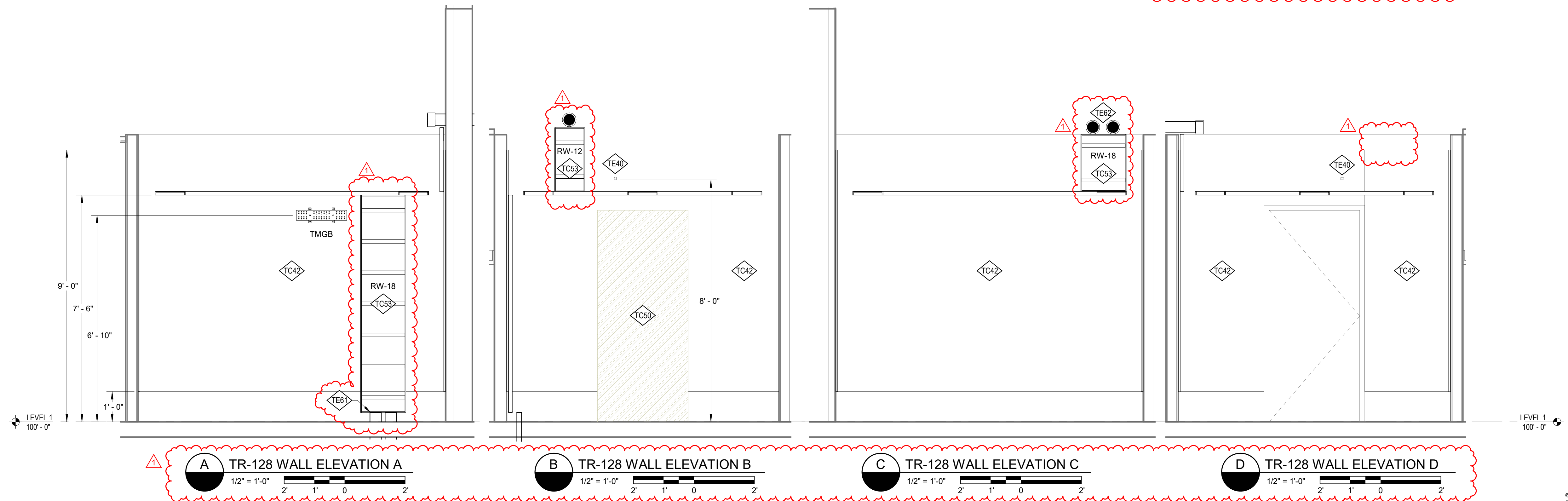
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1	ADDENDUM 02	10/18/2019

ENLARGED TELECOM ROOM

RACK ELEVATION SCHEDULE - TR-128			
	R1		R2
45	UPPER TRANSITION TRAY		45
44			44
43	HORIZONTAL COPPER PANEL - CAT6A 48-PORT		43
42			42
41	CABLE MGMT PANEL - 2U		41
40			40
39	HORIZONTAL COPPER PANEL - CAT6A 48-PORT		39
38			38
37	CABLE MGMT PANEL - 2U		37
36			36
35	HORIZONTAL COPPER PANEL - CAT6A 48-PORT		35
34			34
33	CABLE MGMT PANEL - 2U		33
32			32
31			31
30			30
29			29
28			28
27			27
26			26
25			25
24			24
23			23
22			22
21			21
20			20
19			19
18			18
17			17
16			16
15			15
14			14
13			13
12			12
11			11
10			10
9			9
8			8
7			7
6			6
5			5
4			4
3			3
2			2
1			1
EQUIPMENT RACK (7' 2-POST) BACKBONE / OWNER EQUIPMENT		EQUIPMENT RACK (7' 2-POST) HORIZONTAL / OWNER EQUIPMENT	



2 TR-128 RACK ELEVATION / SCHEDULE
NOT TO SCALE



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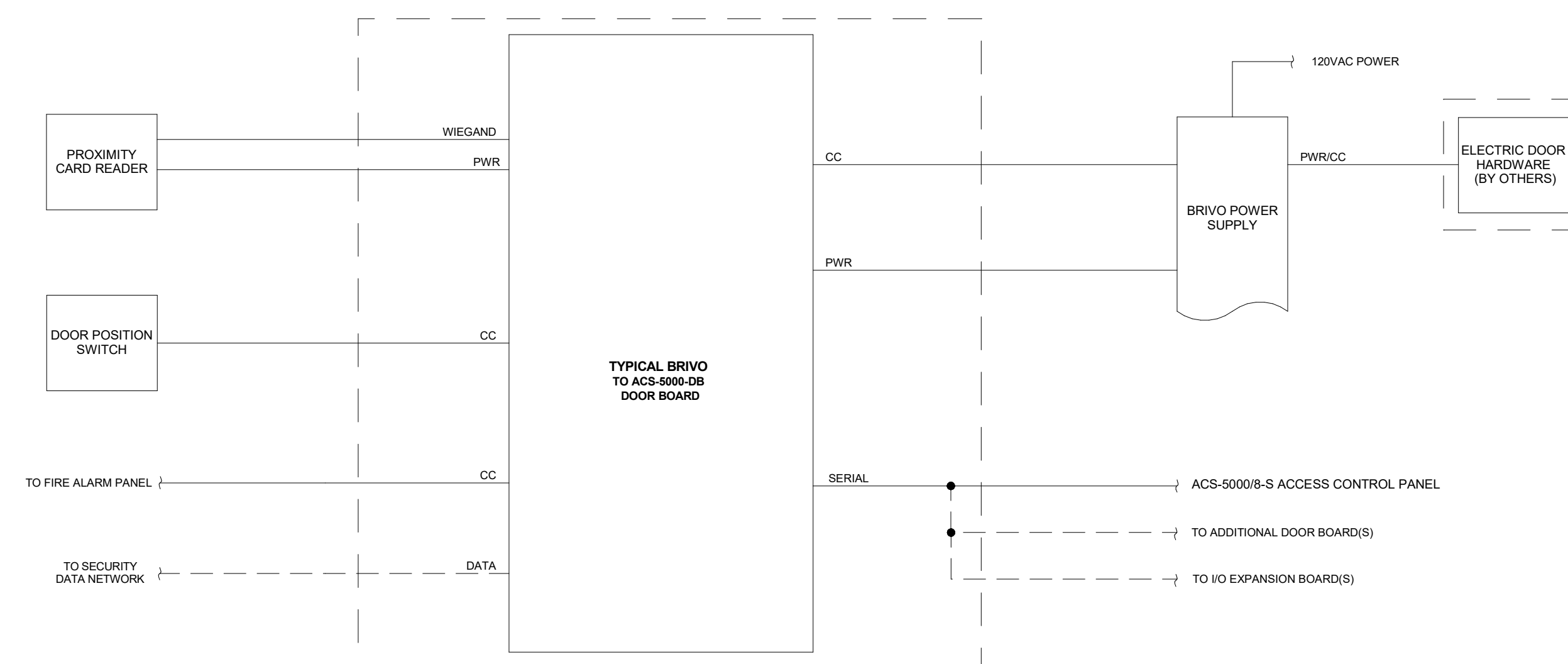
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1 ACS ONE-LINE DIAGRAM
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GREELEY FIRE STATION #2

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COMMUNICATIONS ONE-LINE DIAGRAMS

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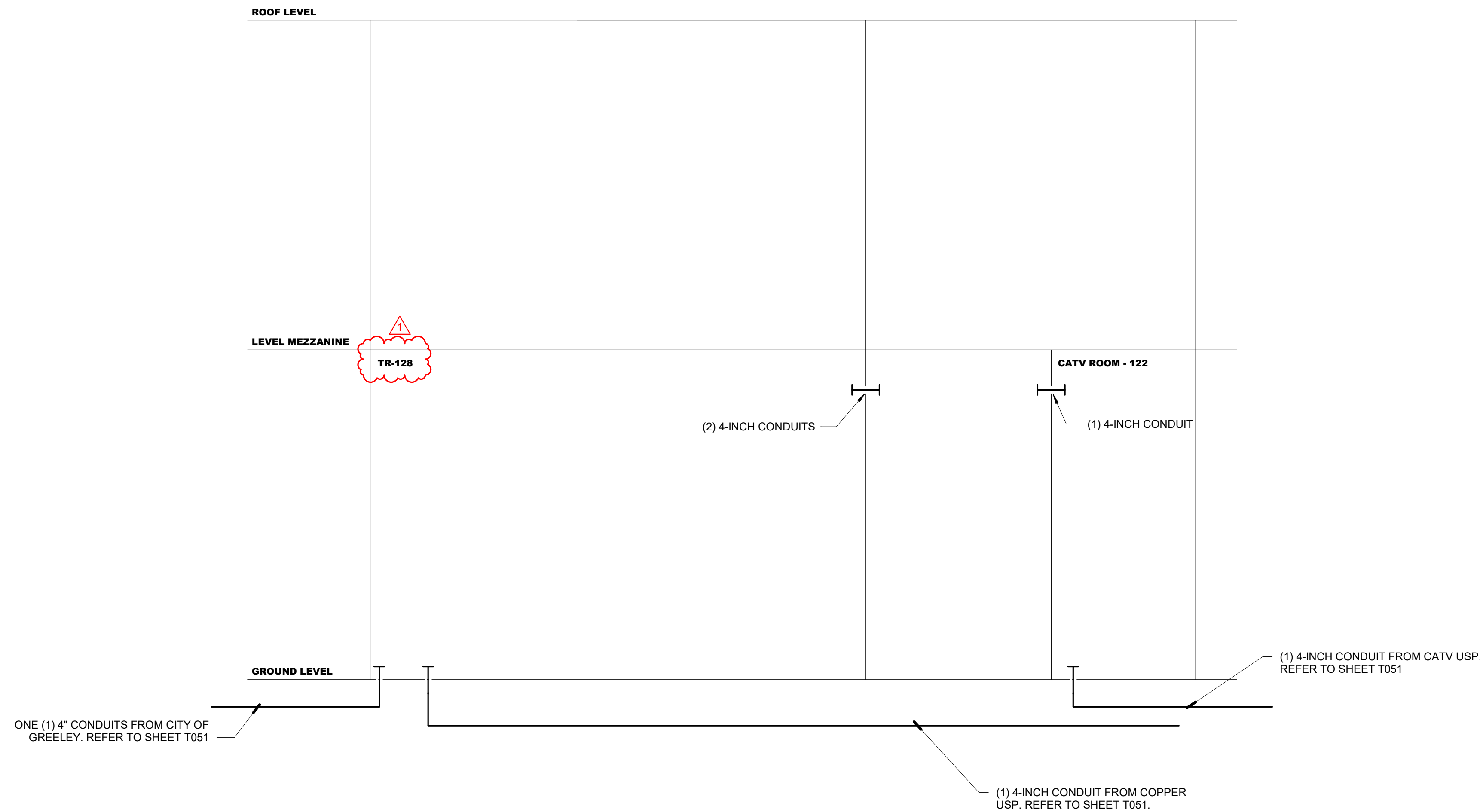
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1 COMMUNICATIONS BACKBONE PATHWAY DIAGRAM
 NOT TO SCALE

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GREELEY FIRE STATION #2

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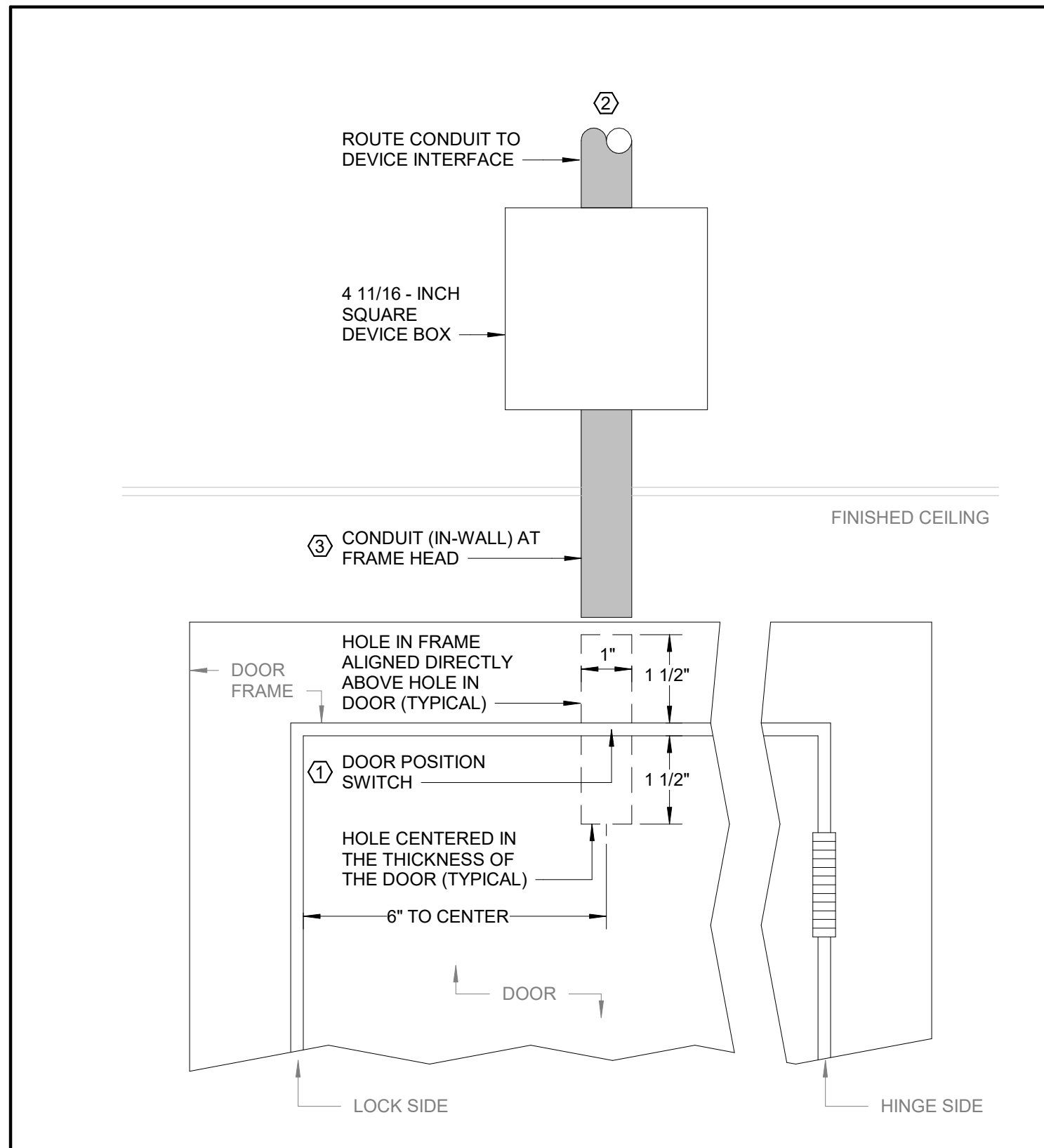
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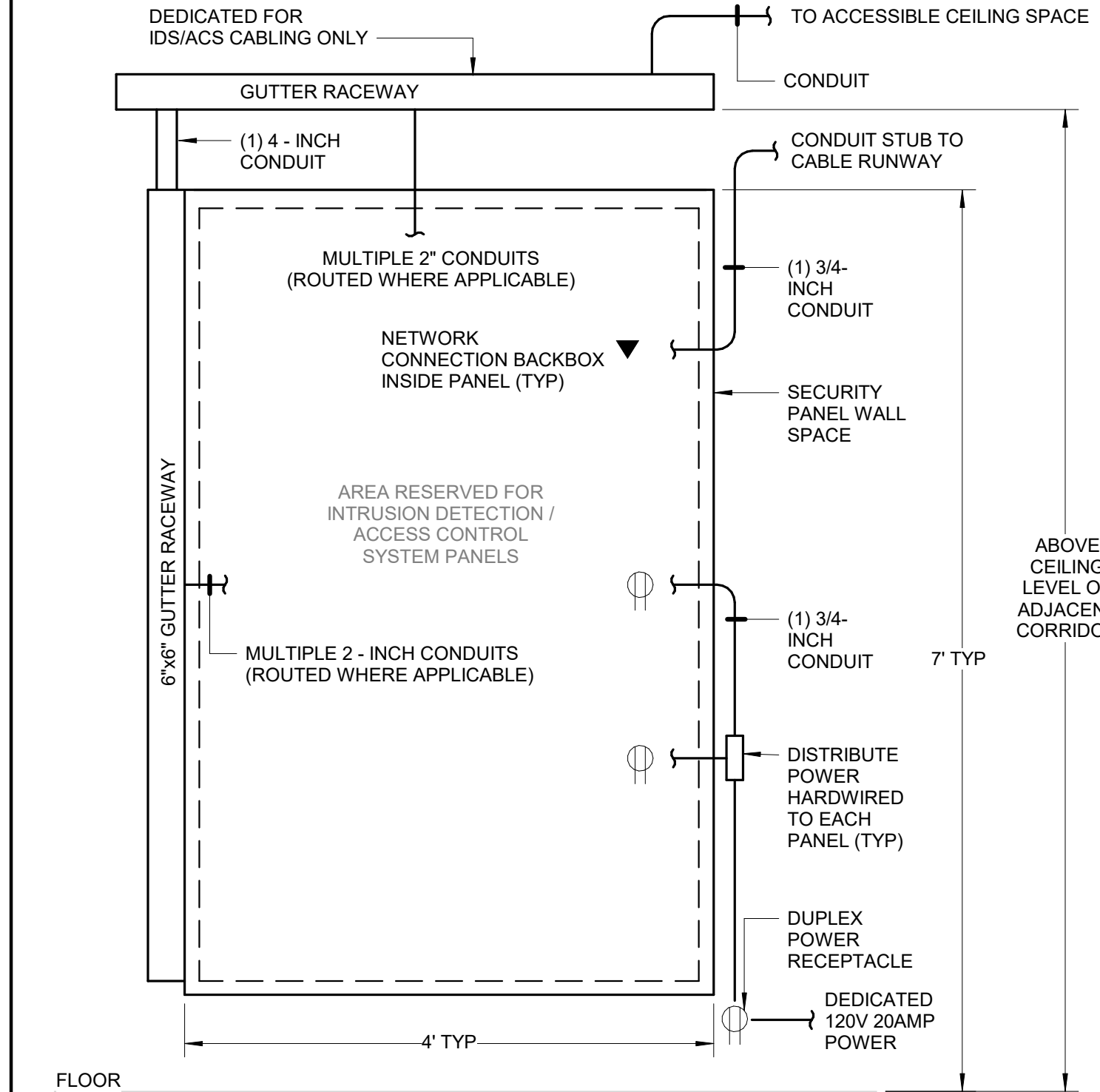
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COMMUNICATIONS BACKBONE PATHWAY DIAGRAM



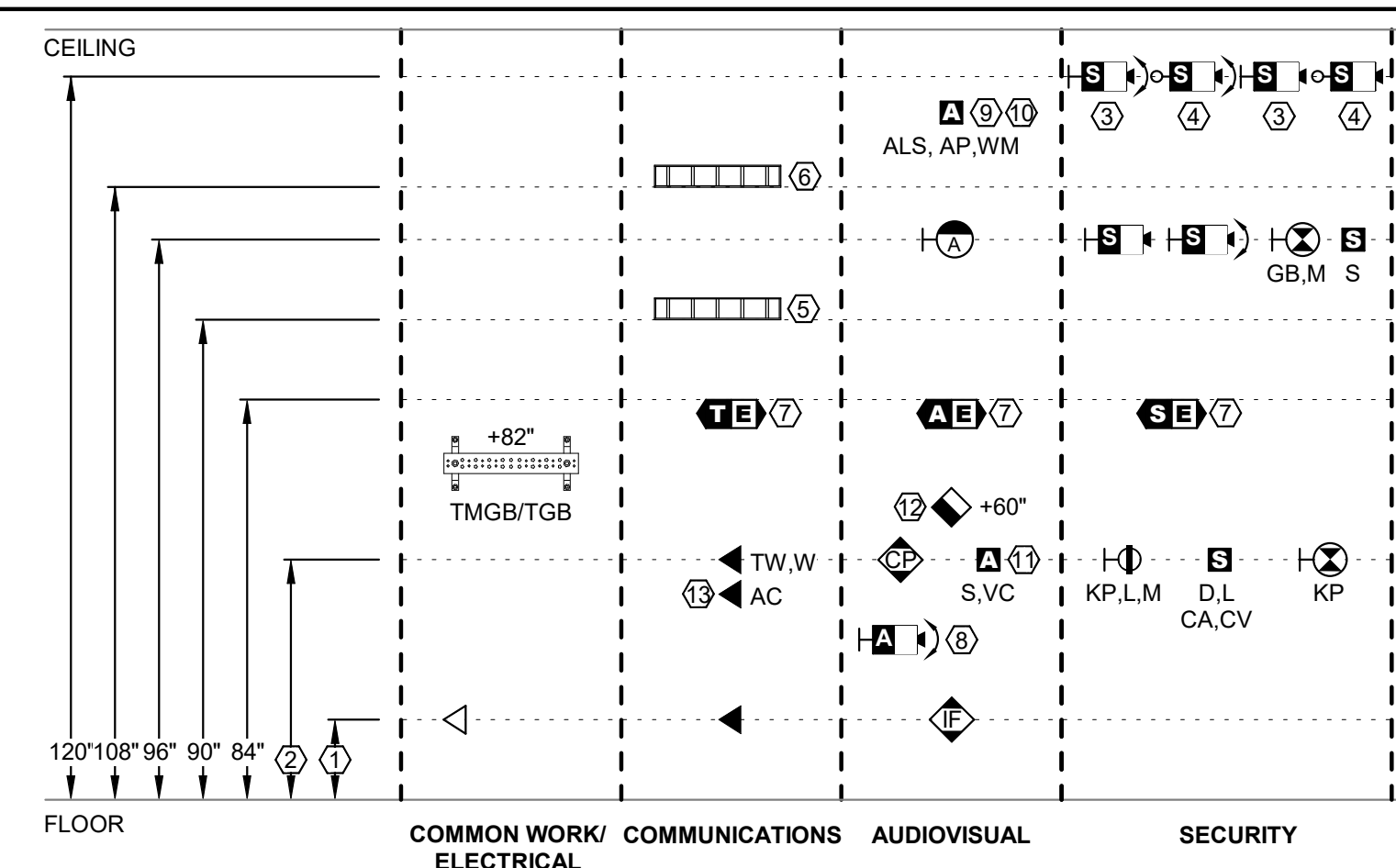
- DETAIL DRAWING NOTES**
- DOOR POSITION SWITCH MOUNTING: PROVIDE DEVICE MOUNTING REQUIREMENTS PER MANUFACTURER RECOMMENDATIONS.
 - DOOR POSITION SWITCH CONDUIT: REFER TO TELECOM / DATA AND ELECTRICAL REQUIREMENTS FOR CONTINUATION OF CONDUIT.
 - ALL CONDUITS CONCEALED WHEN BELOW CEILING.

TS-DPS DOOR POSITION SWITCH DETAIL (TYPICAL)
SCALE: NONE

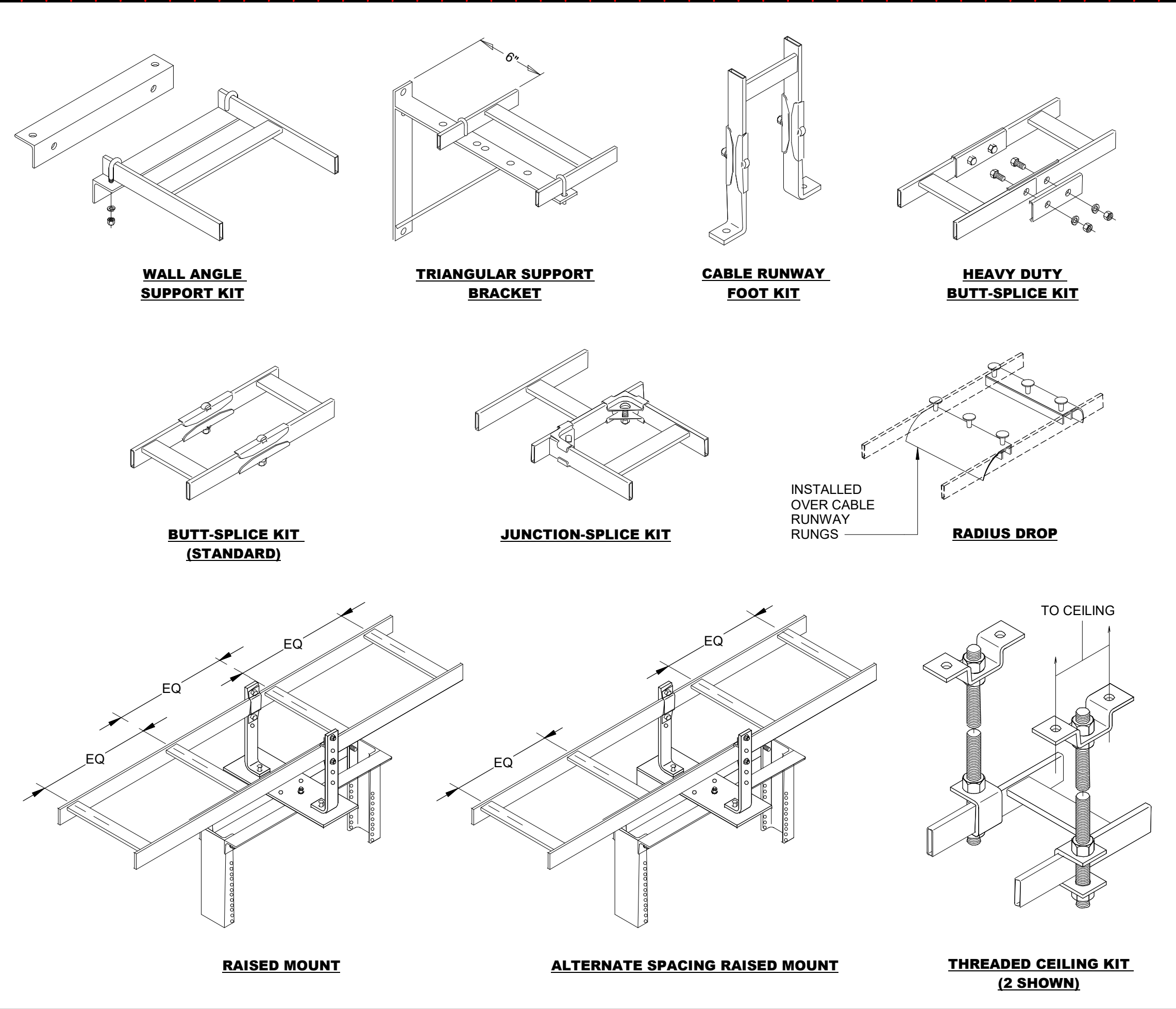


- DETAIL GENERAL NOTES**
- COORDINATE POWER REQUIREMENTS WITH OWNER AND ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
 - COORDINATE CONDUIT REQUIREMENTS WITH OWNER AND ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION. REFER TO RISER DIAGRAM FOR FURTHER INFORMATION.
 - ELECTRICAL CONTRACTOR SHALL SIZE GUTTER RACEWAY AS REQUIRED TO ACCOMMODATE CONDUIT REQUIREMENTS. GUTTER SHALL BE A MINIMUM OF 6-INCHES DEPTH.
 - CONDUIT SIZE AND QUANTITY VARY. REFER TO ELECTRICAL RISER DIAGRAM AND ENLARGED TELECOM ROOM PLANS FOR ADDITIONAL CONDUIT REQUIREMENTS.
 - COORDINATE SECURITY NETWORK CONNECTIONS TERMINATED INSIDE PANEL WITH TELECOM CONTRACTOR.

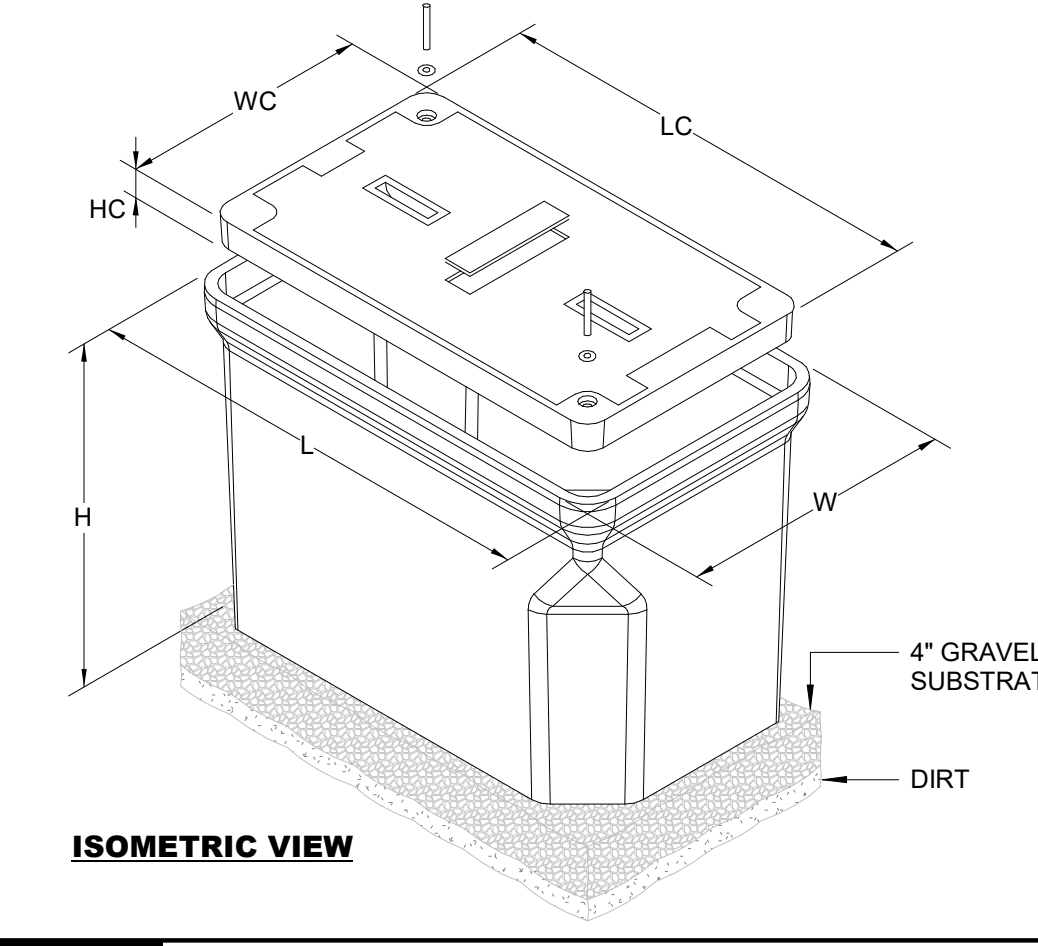
TS-ACSP INTRUSION DETECTION / ACCESS CONTROL SYSTEM PANEL DETAIL
SCALE: NONE



T-MH MOUNTING HEIGHT DETAIL
SCALE: NONE



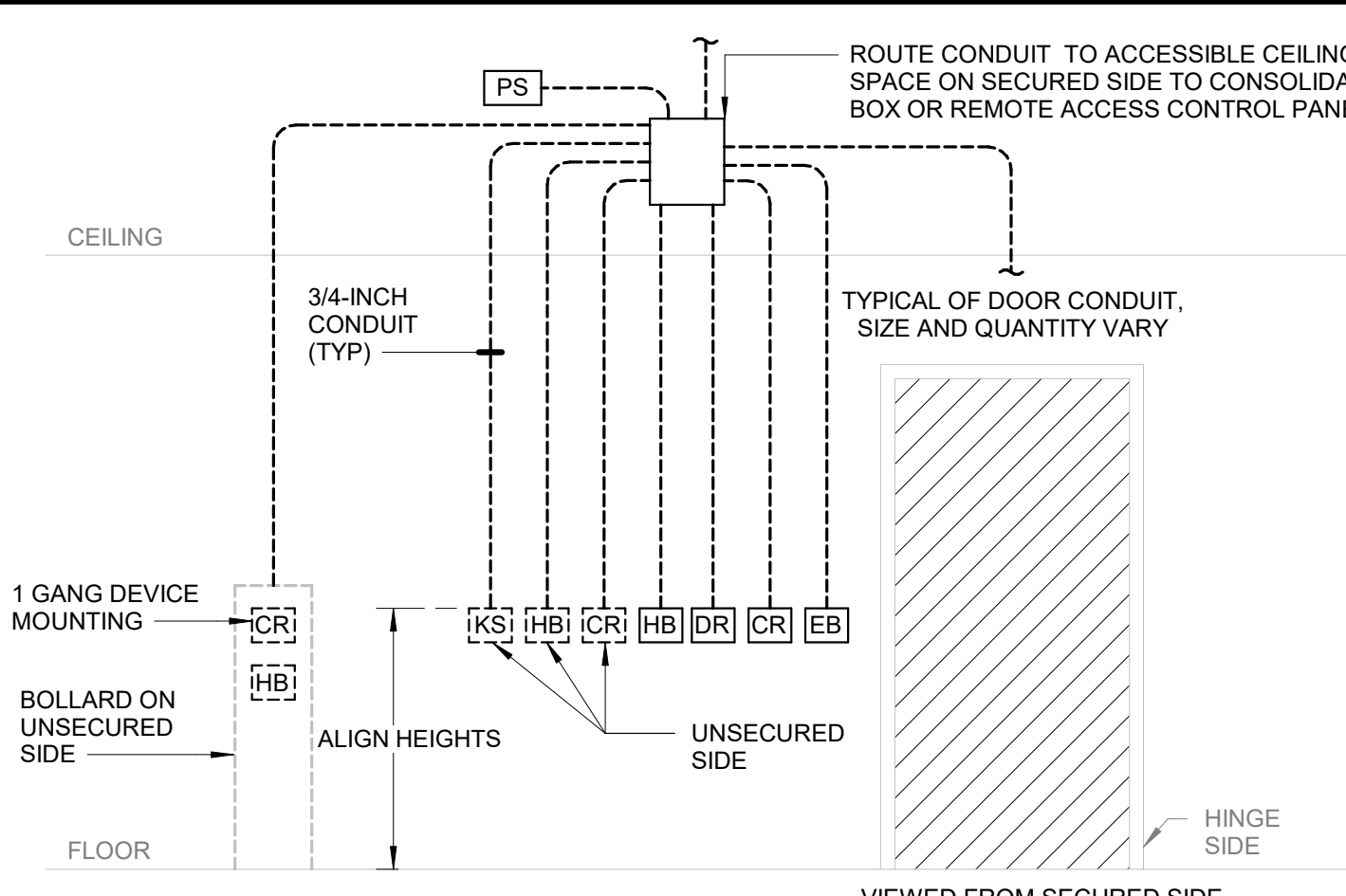
T-CRAD CABLE RUNWAY ACCESSORY DETAIL
SCALE: NONE



TE-SHH SMALL TELECOM HANDHOLE DETAIL
SCALE: NONE

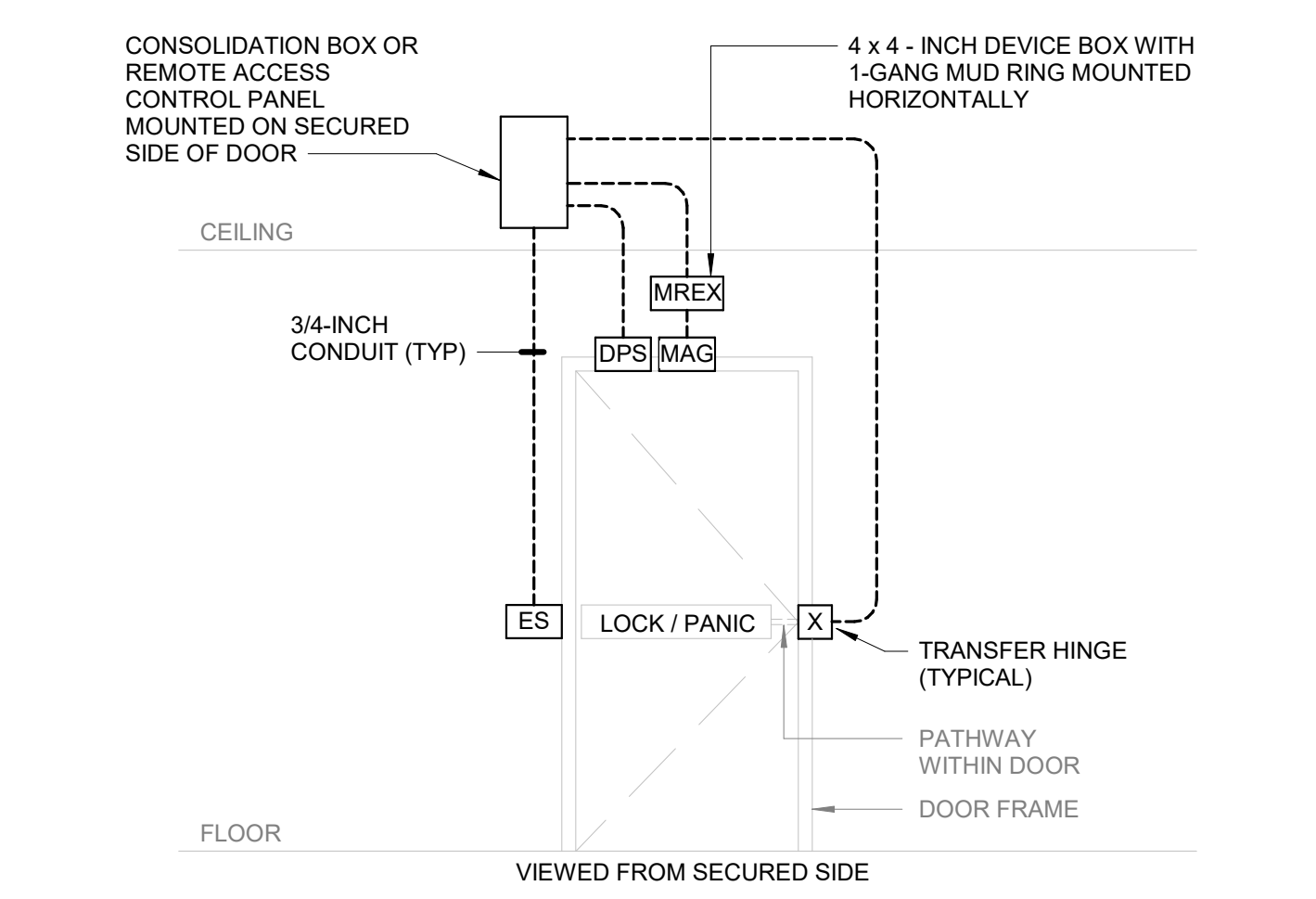
- DETAIL GENERAL NOTES**
- SOME ITEMS ON DIAGRAM MAY NOT BE DEFINED, OR MAY NOT BE USED IN THESE DOCUMENTS.
 - DIAGRAM INDICATES TYPICAL CENTERLINE MOUNTING HEIGHTS ABOVE FINISHED FLOOR, UON. ARCHITECTURAL DRAWINGS SHALL SUPERSEDE INFORMATION SHOWN HEREIN. COORDINATE FINAL MOUNTING HEIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN.
 - ITEMS INDICATED ON TECHNOLOGY AND OTHER DIVISIONS DOCUMENTS AT SAME VICINITY/LOCATION WITH DIFFERENT HEIGHTS SHALL BE ALIGNED VERTICALLY ALONG THE SAME SIDE OF STUD. ITEMS INDICATED ON TECHNOLOGY AND OTHER DIVISIONS DOCUMENTS AT SAME VICINITY/LOCATION WITH SAME HEIGHT SHALL BE ALIGNED HORIZONTALLY AND OFFSET BY ONE STUD SPACE.
 - ITEMS INDICATED ABOVE A DOOR, SHALL BE CENTERED ALONG WIDTH OF DOOR.
 - ITEMS INDICATED ABOVE COUNTER SHALL MATCH MOUNTING INFORMATION INDICATED WITHIN ELECTRICAL DOCUMENTS. IF ELECTRICAL DOCUMENTS DO NOT PROVIDE SUCH MOUNTING INFORMATION, ITEMS SHALL BE MOUNTED 8 INCHES ABOVE COUNTER OR 4 INCHES ABOVE BACKSPLASH.
 - MOUNTING HEIGHTS OF ITEMS, WHETHER INDICATED ON THIS DIAGRAM OR NOT, SHALL COMPLY WITH ADA.

- DETAIL DRAWING...**
- STANDARD RECEPTACLE HEIGHT: REFER TO ELECTRICAL DOCUMENTS. HEIGHT SHALL BE +18-INCHES IF NOT INDICATED ON ELECTRICAL DOCUMENTS.
 - STANDARD TOGGLE SWITCH HEIGHT: REFER TO ELECTRICAL DOCUMENTS. HEIGHT SHALL BE +48-INCHES IF NOT INDICATED ON ELECTRICAL DOCUMENTS.
 - EXTERIOR WALL CAMERA LOCATIONS. HEIGHTS MAY VARY DUE TO CONSTRUCTION CONDITIONS. FIELD COORDINATE HEIGHTS WITH STRUCTURAL ELEMENT SUCH AS EXTERIOR FINISHES, LEDGES, BRICK COURSES AND OVERHANGS. COORDINATE HEIGHTS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
 - EXTERIOR POLE CAMERA LOCATIONS. HEIGHTS MAY VARY DUE TO CONSTRUCTION CONDITIONS. FIELD COORDINATE HEIGHTS WITH POLE MANUFACTURER. COORDINATE HEIGHTS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
 - HEIGHT AFF TO BOTTOM OF SINGLE OR LOWER TIER CABLE RUNWAY, UON.
 - HEIGHT AFF TO BOTTOM OF UPPER TIER CABLE RUNWAY, UON.
 - HEIGHT AFF TO TOP OF WALL MOUNTED EQUIPMENT, UON.
 - FOR VIDEO CONFERENCING, WHEN CAMERA NOT SPECIFIED TO BE MOUNTED TO BOTTOM OF DISPLAY, MOUNTED BELOW DISPLAY BUT NO LOWER THAN 42-INCHES.
 - MOUNTED 1-FOOT BELOW CEILING BUT NO HIGHER THAN 12-FEET, UON.
 - TYPICAL OF OTHER AV ANTENNA AND MICROPHONE WALL SYSTEM DEVICES.
 - TYPICAL OF OTHER AV WALL SYSTEM USER/OCCUPANT MANUAL INTERFACE/CONTROL DEVICES.
 - TYPICAL OF OTHER AV DISPLAY BOX, UON.
 - REFER TO ARCHITECTURAL AND ELECTRICAL DOCUMENTS FOR ABOVE-COUNTER RECEPTACLE HEIGHT AND ORIENTATION (VERTICAL OR HORIZONTAL).



TYPICAL LAYOUT OF DEVICES ASSOCIATED TO ACCESS CONTROLLED DOORS

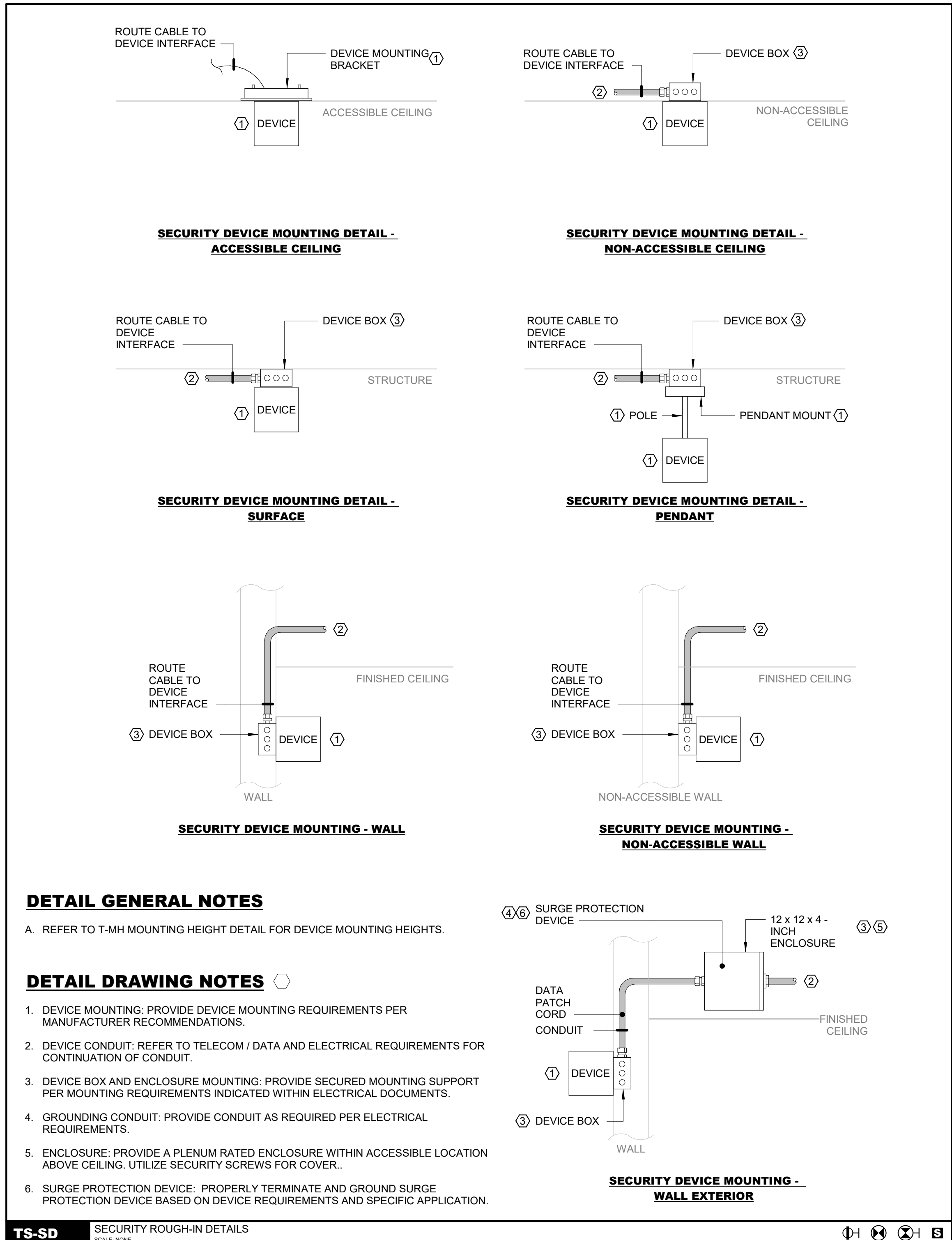
- NOTE:**
- THIS DETAIL DEPICTS COMMON DEVICES ASSOCIATED WITH ACCESS CONTROLLED DOORS. NOT ALL DEVICES SHOWN ARE NECESSARY FOR INSTALLATION.



TYPICAL ACCESS CONTROL SYSTEM SINGLE LEAF DOOR

- DETAIL GENERAL NOTES**
- REFER TO T-MH FOR DEVICE MOUNTING HEIGHT DETAILS.
 - REFER TO TS-DPS FOR DOOR POSITION SWITCH MOUNTING DETAILS.
 - REFER TO TS-SD FOR DEVICE MOUNTING DETAILS.
 - DATA CONDUIT: REFER TO TELECOM / DATA REQUIREMENTS FOR CONTINUATION OF CONDUIT.
 - DEVICE MOUNTING: PROVIDE DEVICE MOUNTING REQUIREMENTS PER MANUFACTURER RECOMMENDATIONS.
 - CABLE ROUTING: REFER TO ONE-LINE DIAGRAMS FOR CABLE ROUTING REQUIREMENTS.
 - DEVICE BOX AND ENCLOSURE MOUNTING: PROVIDE SECURED MOUNTING SUPPORT PER MOUNTING REQUIREMENTS INDICATED WITHIN ELECTRICAL DOCUMENTS.
 - ALL CONDUITS CONCEALED IN WALL WHEN BELOW CEILING.

TS-DD DOOR DETAILS
SCALE: NONE



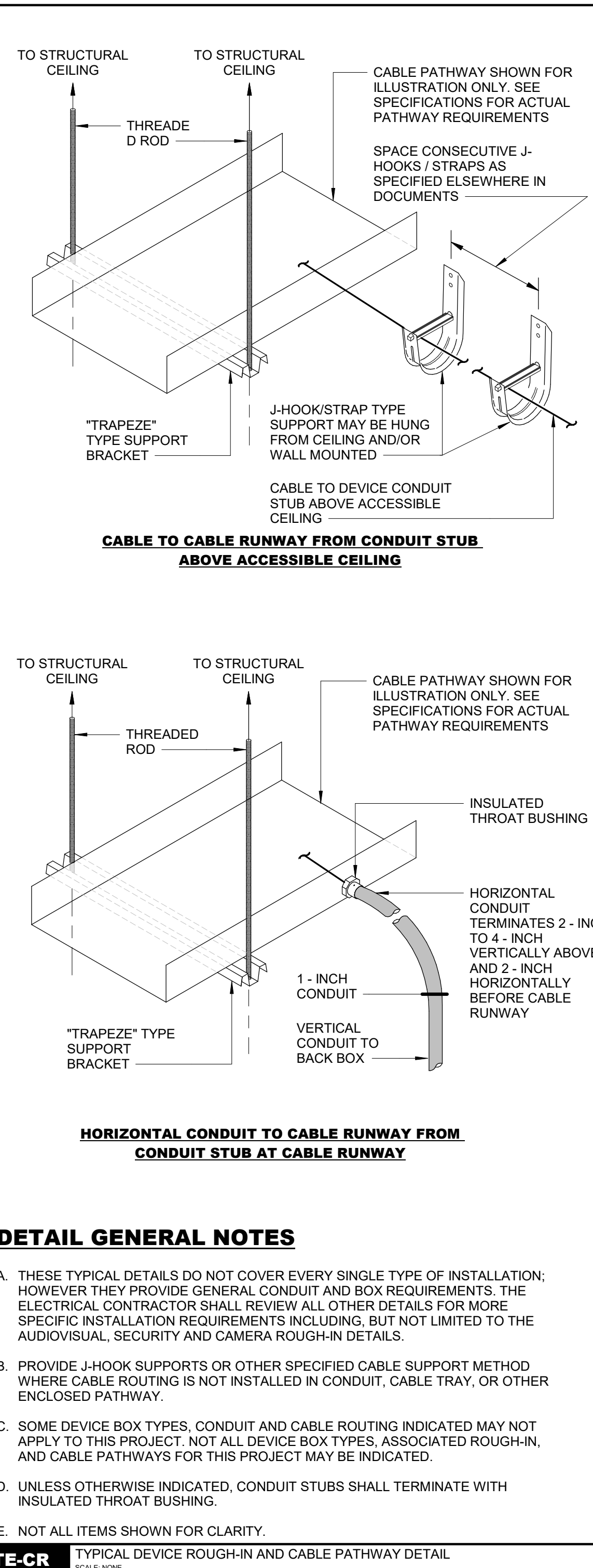
DETAIL GENERAL NOTES

A. REFER TO T-MH MOUNTING HEIGHT DETAIL FOR DEVICE MOUNTING HEIGHTS.

DETAIL DRAWING NOTES

1. DEVICE MOUNTING: PROVIDE DEVICE MOUNTING REQUIREMENTS PER MANUFACTURER RECOMMENDATIONS.
2. DEVICE CONDUIT: REFER TO TELECOM / DATA AND ELECTRICAL REQUIREMENTS FOR CONTINUATION OF CONDUIT.
3. DEVICE BOX AND ENCLOSURE MOUNTING: PROVIDE SECURED MOUNTING SUPPORT PER MOUNTING REQUIREMENTS INDICATED WITHIN ELECTRICAL DOCUMENTS.
4. GROUNDING CONDUIT: PROVIDE CONDUIT AS REQUIRED PER ELECTRICAL REQUIREMENTS.
5. ENCLOSURE: PROVIDE A PLENUM RATED ENCLOSURE WITHIN ACCESSIBLE LOCATION ABOVE CEILING. UTILIZE SECURITY SCREWS FOR COVER..
6. SURGE PROTECTION DEVICE: PROPERLY TERMINATE AND GROUND SURGE PROTECTION DEVICE BASED ON DEVICE REQUIREMENTS AND SPECIFIC APPLICATION.

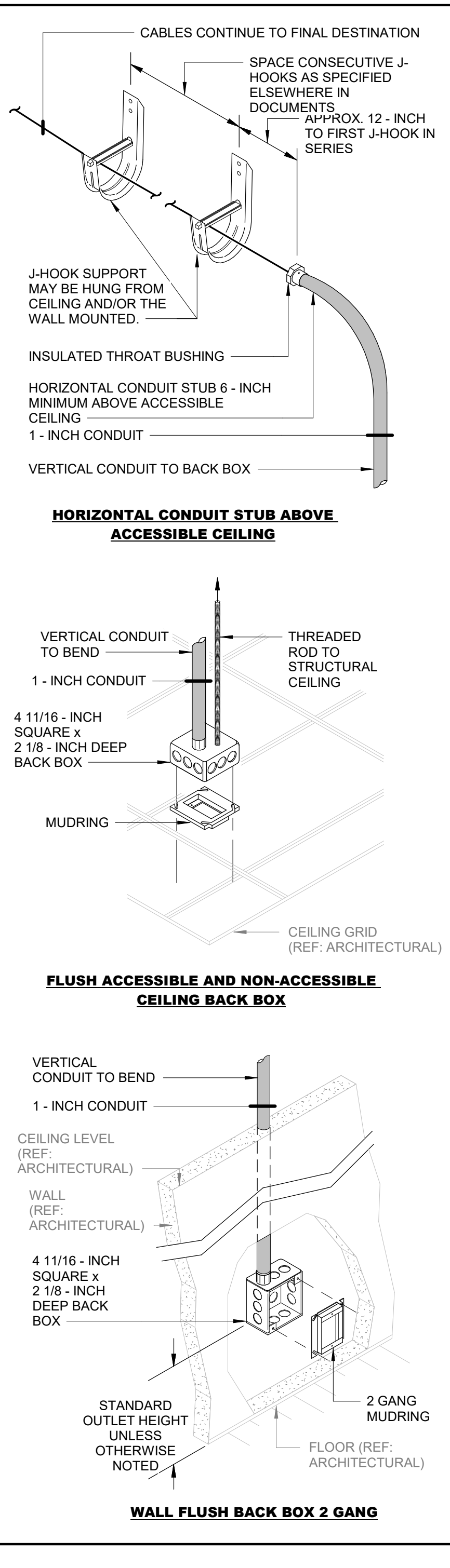
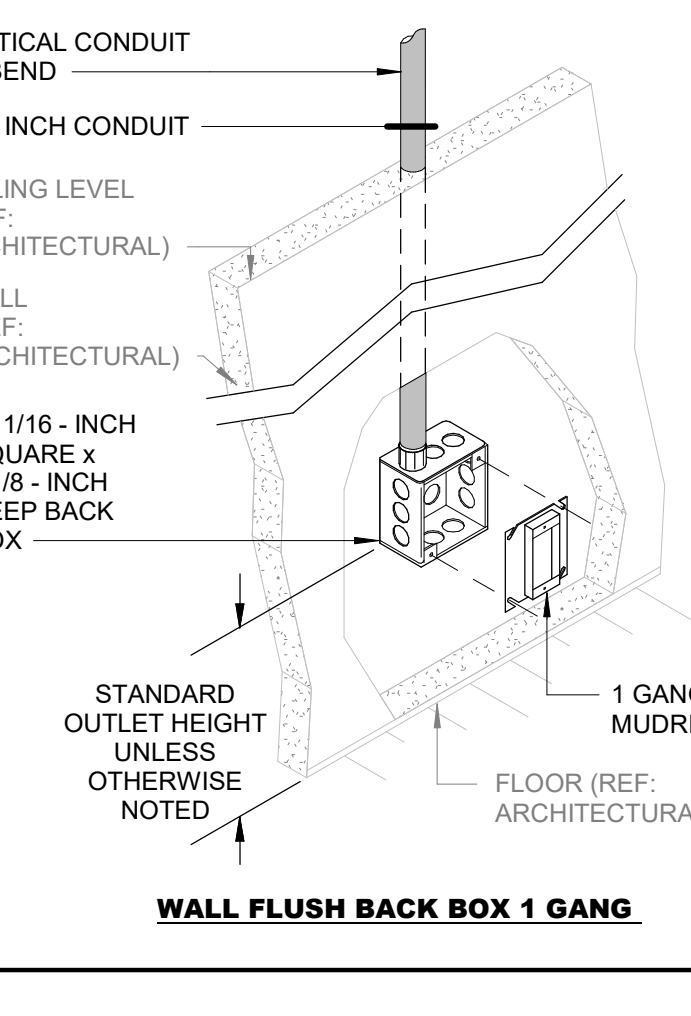
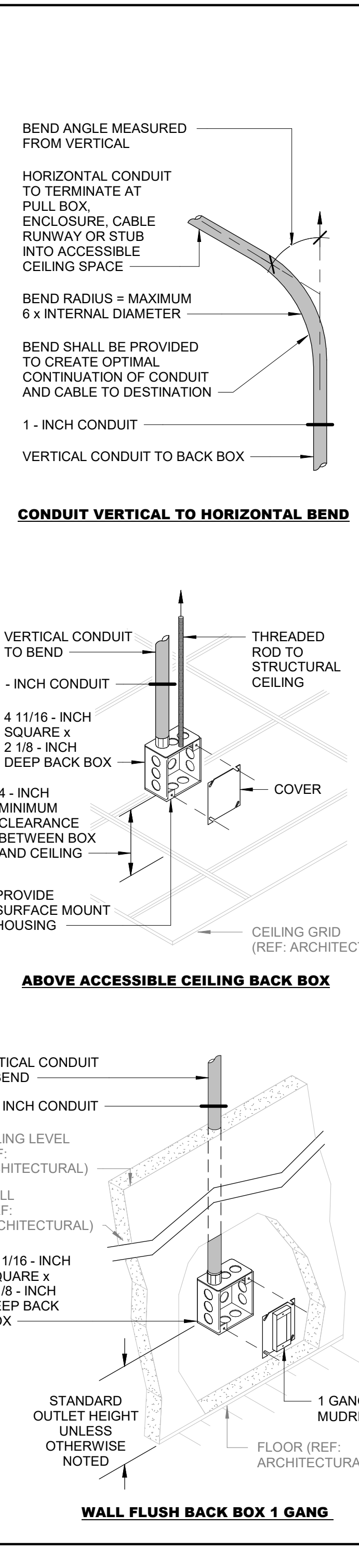
TS-SD SECURITY DEVICE ROUGH-IN DETAILS
SCALE: NONE

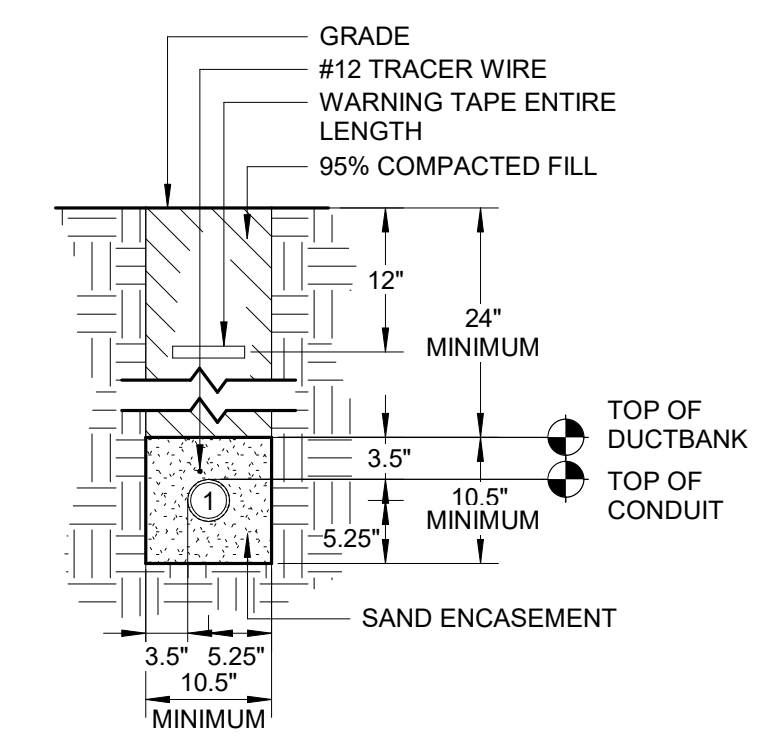
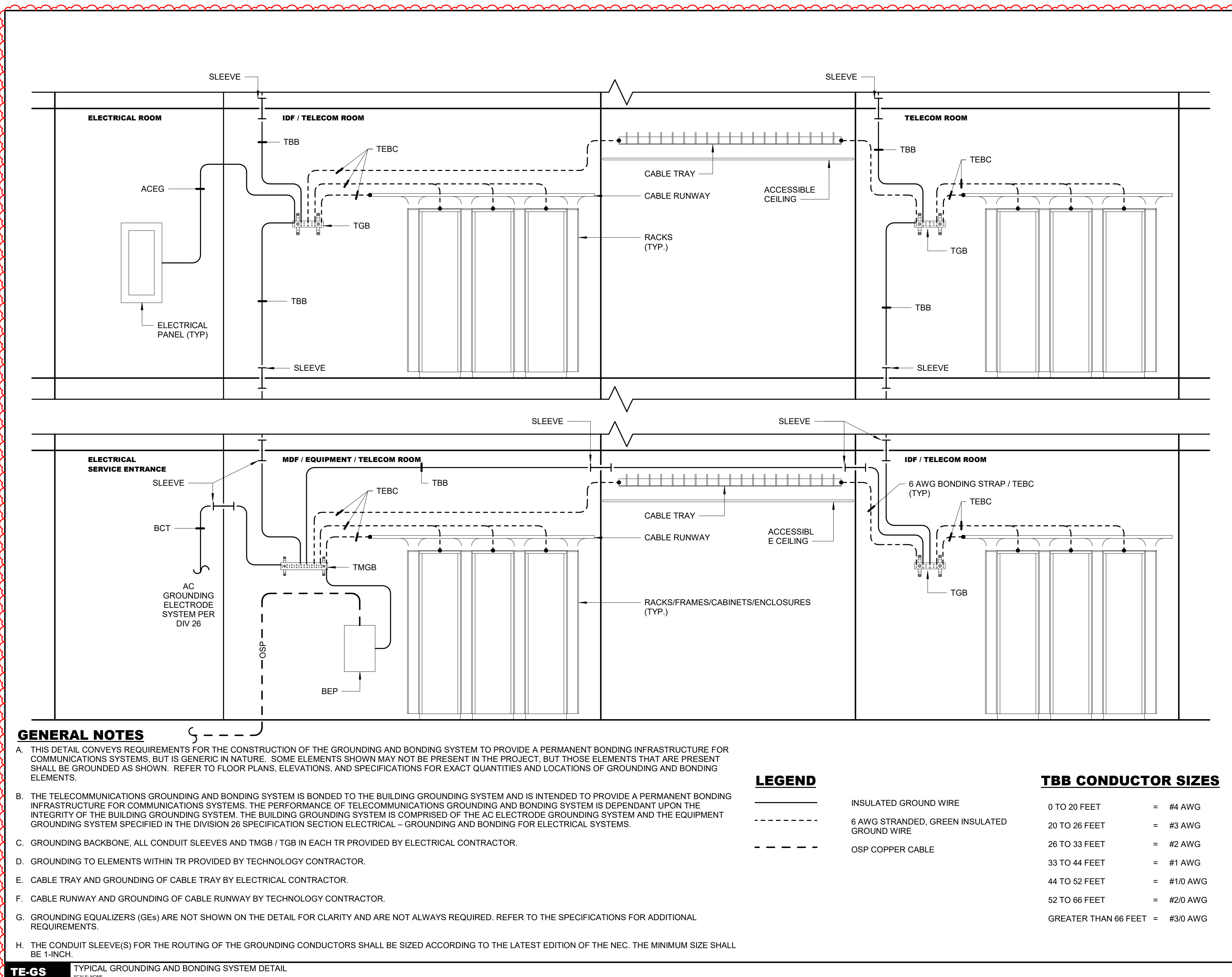


DETAIL GENERAL NOTES

- THESE TYPICAL DETAILS DO NOT COVER EVERY SINGLE TYPE OF INSTALLATION; HOWEVER THEY PROVIDE GENERAL CONDUIT AND BOX REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL OTHER DETAILS FOR MORE SPECIFIC INSTALLATION REQUIREMENTS INCLUDING, BUT NOT LIMITED TO THE AUDIOVISUAL, SECURITY AND CAMERA ROUGH-IN DETAILS.
- PROVIDE J-HOOK SUPPORTS OR OTHER SPECIFIED CABLE SUPPORT METHOD WHERE CABLE ROUTING IS NOT INSTALLED IN CONDUIT, CABLE TRAY, OR OTHER ENCLOSED PATHWAY.
- SOME DEVICE BOX TYPES, CONDUIT AND CABLE ROUTING INDICATED MAY NOT APPLY TO THIS PROJECT. NOT ALL DEVICE BOX TYPES, ASSOCIATED ROUGH-IN, AND CABLE PATHWAYS FOR THIS PROJECT MAY BE INDICATED.
- UNLESS OTHERWISE INDICATED, CONDUIT STUBS SHALL TERMINATE WITH INSULATED THROAT BUSHING.
- NOT ALL ITEMS SHOWN FOR CLARITY.

TE-CR TYPICAL DEVICE ROUGH-IN AND CABLE PATHWAY DETAIL
SCALE: NONE





1 CONDUIT (1 X 1)

CONDUIT SCHEDULE

NO.	SIZE	DESCRIPTION	ROUTING	
			FROM	TO
1	4-INCH	--	--	--

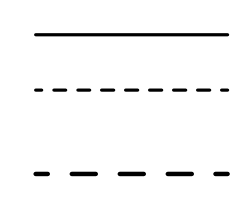
DETAIL GENERAL NOTES

- A. SUBMITTALS SHALL AS A MINIMUM, INCLUDE:
 - (a) SHOP DRAWING OF PROPOSED DUCT INTERFACE AT BUILDING AND VAULT.
 - (b) ORANGE METALLIC "COMMUNICATIONS" WARNING TAPE.
- B. PROVIDE NEAT TRENCH SUB-GRADE AND WALLS TO SERVE AS FORMS FOR ENCASEMENT.
- C. THE DUCT FORMATION SHALL BE BUILT UP LAYER BY LAYER. AFTER EACH LAYER IS PLACED, SAND SHALL BE SPREAD EVENLY AND COMPACTED TO THE DEPTH NEEDED TO PROVIDE CONTINUOUS SUPPORT FOR THE NEXT TIER OF DUCTS. SAND SHALL BE SPREAD EVENLY AND COMPACTED TO THE DEPTH INDICATED FOR THE FINAL TIER OF DUCTS. TO MAINTAIN UNIFORM CLEARANCE BETWEEN DUCTS, JOINTS SHALL BE OFFSET A MINIMUM OF 6 INCHES HORIZONTALLY.
- D. PLACE BACKFILL IN A MANNER TO AVOID DISLODGING SOIL FROM TRENCH WALLS. SAND ENCASE AND BACKFILL DUCTS IN ONLY ONE DIRECTION FROM ONE END TO THE OTHER TO PERMIT LONGITUDINAL MOVEMENT OF THE FREE END WITH EXPANSION.
- E. CONDUITS ARE TO BE PVC SCHEDULE 40. PROVIDE QUANTITY AND SIZE OF INNERDUCTS AS INDICATED ON <DUCTBANK CONDUIT SCHEDULE>-<VAULT PENETRATION SCHEDULE>.
- F. DO NOT INSTALL DUCT, PLACE ENCASEMENT MATERIAL, OR BACKFILL DURING INCLEMENT WEATHER CAUSING UNSUITABLE TRENCH CONDITIONS.
- G. PROVIDE PULL CORD (PULL TAPE, OR EQUAL) IN ALL CONDUITS, INCLUDING INNERDUCT.
- H. EACH DUCT SHALL BE CLEANED OF DEBRIS WITH A WIRE BRUSH OR SWAB AND SHALL BE PROVEN WITH A MINIMUM OF A 16 INCH LONG TEST MANDREL WHICH IS 1/4-INCH SMALLER THAN THE INSIDE DIAMETER OF THE DUCT. TEST MANDREL SHALL BE PULLED AFTER BACKFILLING BUT PRIOR TO REPLACEMENT OF LANDSCAPING. REPAIR ALL DUCTS THAT DO NOT PROVE TO BE CLEAN. DUCT SHALL BE CLEANED A MINIMUM OF TWO TIMES IN THE SAME DIRECTION AND SWABBED WITH CLEAN RAGS UNTIL RAG COMES OUT CLEAN AND DRY. SWAB AWAY FROM BUILDINGS FOR DUCTS CONNECTED TO BUILDINGS.
- I. AT VAULT INTERFACE DUCTBANKS SHALL TIE INTO LOWEST VAULT PENETRATIONS FIRST TO ALLOW FOR FUTURE ACCESS TO ANY REMAINING PENETRATIONS.

GENERAL NOTES

- A. THIS DETAIL CONVEYS REQUIREMENTS FOR THE CONSTRUCTION OF THE GROUNDING AND BONDING SYSTEM TO PROVIDE A PERMANENT BONDING INFRASTRUCTURE FOR COMMUNICATIONS SYSTEMS, BUT IS GENERIC IN NATURE. SOME ELEMENTS SHOWN MAY NOT BE PRESENT IN THE PROJECT, BUT THOSE ELEMENTS THAT ARE PRESENT SHALL BE GROUNDED AS SHOWN. REFER TO FLOOR PLANS, ELEVATIONS, AND SPECIFICATIONS FOR EXACT QUANTITIES AND LOCATIONS OF GROUNDING AND BONDING ELEMENTS.
- B. THE TELECOMMUNICATIONS GROUNDING AND BONDING SYSTEM IS BONDED TO THE BUILDING GROUNDING SYSTEM AND IS INTENDED TO PROVIDE A PERMANENT BONDING INFRASTRUCTURE FOR COMMUNICATIONS SYSTEMS. THE PERFORMANCE OF TELECOMMUNICATIONS GROUNDING AND BONDING SYSTEM IS DEPENDANT UPON THE INTEGRITY OF THE BUILDING GROUNDING SYSTEM. THE BUILDING GROUNDING SYSTEM IS COMPRISED OF THE AC ELECTRODE GROUNDING SYSTEM AND THE EQUIPMENT GROUNDING SYSTEM SPECIFIED IN THE DIVISION 26 SPECIFICATION SECTION ELECTRICAL - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.
- C. GROUNDING BACKBONE, ALL CONDUIT SLEEVES AND TMGB / TGB IN EACH TR PROVIDED BY ELECTRICAL CONTRACTOR.
- D. GROUNDING TO ELEMENTS WITHIN TR PROVIDED BY TECHNOLOGY CONTRACTOR.
- E. CABLE TRAY AND GROUNDING OF CABLE TRAY BY ELECTRICAL CONTRACTOR.
- F. CABLE RUNWAY AND GROUNDING OF CABLE RUNWAY BY TECHNOLOGY CONTRACTOR.
- G. GROUNDING EQUALIZERS (GE) ARE NOT SHOWN ON THE DETAIL FOR CLARITY AND ARE NOT ALWAYS REQUIRED. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- H. THE CONDUIT SLEEVE(S) FOR THE ROUTING OF THE GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO THE LATEST EDITION OF THE NEC. THE MINIMUM SIZE SHALL BE 1-INCH.

LEGEND



TBB CONDUCTOR SIZES

0 TO 20 FEET	= #4 AWG
20 TO 26 FEET	= #3 AWG
26 TO 33 FEET	= #2 AWG
33 TO 44 FEET	= #1 AWG
44 TO 52 FEET	= #1/0 AWG
52 TO 66 FEET	= #2/0 AWG
GREATER THAN 66 FEET	= #3/0 AWG

TE-GS TYPICAL GROUNDING AND BONDING SYSTEM DETAIL SCALE: NONE

TE-SED SAND ENCASED DUCTBANK DETAILS SCALE: NONE

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Drawn By BCER

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1	ADDENDUM 02	10/18/2019

COMMUNICATIONS DETAILS