

TELECOMMUNICATIONS SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHTS

TELECOM BACKBOARD (BOTTOM OF BACKBOARD)	4"
LADDER RACK IN TELECOM ROOMS (BOTTOM OF DEVICE)	90"
CABLE TRAY / CONDUIT AFC (BOTTOM OF PATHWAY)	3"(MIN)
LIGHT FIXTURE IN TELECOM ROOMS (BOTTOM OF DEVICE)	108"(MIN)
TELEPHONE WALL OUTLET (CENTERLINE)	48"
DATA WALL OUTLET	SAME AS ADJACENT DEVICE, UNO
TELEVISION OUTLET	REFER TO ARCH DRAWINGS
TIMEBTSB (CENTERLINE)	84"
WALL CLOCK (CENTERLINE)	84"
INTERCOM (CENTERLINE)	48"

USE THE DEFAULT MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG) TO BOTTOM OF OUTLET BOX. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

A	AMPERES	LAN	LOCAL AREA NETWORK
ADA	AMERICANS WITH DISABILITIES ACT	LCC	LIMITED COMBUSTIBLE CABLE
AFC	ABOVE FINISHED CEILING	LEC	LOCAL EXCHANGE CARRIER
AFH	ABOVE FINISHED FLOOR	LED	LIGHT-EMITTING DIODE
AFS	ABOVE FINISHED GRADE	LF	LINEAR FEET
AHJ	AUTHORITY HAVING JURISDICTION	MAN	METROPOLITAN AREA NETWORK
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MATV	MASTER ANTENNA TELEVISION
AP	ACCESS POINT	MC	MAIN CROSS-CONNECT
AV	AUDIO-VIDEO	MDF	MAIN DISTRIBUTION FRAME
AWG	AMERICAN WIRE GAUGE	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MH	MAINTENANCE HOLE
BBC	BACKBONE BONDING CONDUCTOR	MM	MULTIMODE
BD	BUILDING DISTRIBUTOR	MPOE	MAIN POINT OF ENTRANCE
BDF	BUILDING DISTRIBUTION FRAME	MPOP	MAIN POINT OF PRESENCE
BFC	BELOW FINISHED CEILING	MTD	MOUNTED
C	CONDUIT	NIA	NOT APPLICABLE
CAT	CATEGORY	NEC	NATIONAL ELECTRICAL CODE
CATV	COMMUNITY ANTENNA TELEVISION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCTV	CLOSED CIRCUIT TELEVISION	NIC	NOT IN CONTRACT
CD	CAMPUS DISTRIBUTOR	nm	NANOMETER
CMP	COMMUNICATIONS PLENUM JACKET	NRTL	NATIONALLY RECOGNIZED TESTING LAB
CMR	COMMUNICATIONS RISER JACKET	OC	ON CENTER
DAS	DISTRIBUTED ANTENNA SYSTEM	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
dB	DECIBELS	OSP	OUTSIDE PLANT
DEMO	DEMOLITION	PBB	PRIMARY BONDING BUSBAR
(E)	EXISTING	PBX	PRIVATE BRANCH EXCHANGE
EC	ELECTRICAL CONTRACTOR	POE	POWER OVER ETHERNET
EGIA	ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION	PTA	PLAIN OLD TELEPHONE SERVICE
EMI	ELECTROMAGNETIC INTERFERENCE	PSST	PUBLIC SWITCHED TELEPHONE NETWORK
EMS	ENERGY MANAGEMENT SYSTEM	QTY	QUANTITY
EMT	ELECTRICAL METALLIC TUBING	RCD	REORDERED COMMUNICATIONS DISTRIBUTION DESIGNER
ER	EQUIPMENT ROOM	RMC	RIGID METAL CONDUIT
ETR	EXISTING TO REMAIN	RU	RACK UNIT
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SBB	SECONDARY BONDING BUSBAR
FACP	FIRE ALARM CONTROL PANEL	SCS	STRUCTURED CABLE SYSTEM
FD	FLOOR DISTRIBUTOR	SF	SQUARE FEET
FMC	FLEXIBLE METAL CONDUIT	SM	SINGLEMODE
FS	FIRE STOP SYSTEM	SPECS	SPECIFICATIONS
FLR	FLOOR	TBB	TELECOMMUNICATIONS BONDING BACKBONE
FIUTP	SCREEN TWISTED PAIR (SHIELDED)	TBD	TO BE DETERMINED
GC	GENERAL CONTRACTOR	TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
GYP	GYPSONUM BOARD	TR	TELECOMMUNICATIONS ROOM
HC	HORIZONTAL CROSS-CONNECT	TYP	TYPICAL
HCM	HORIZONTAL CABLE MANAGER	UNO	UNLESS NOTED OTHERWISE
HH	HAND HOLE	UL	UNDERWRITER LABORATORIES, INC.
HZ	HERTZ	UPS	UNINTERRUPTIBLE POWER SUPPLY
IMC	INTERMEDIATE METAL CONDUIT	UIUTP	UNSHIELDED TWISTED PAIR
IP	INTERNET PROTOCOL	V	VOLT(S)
ISP	INTERNET SERVICE PROVIDER	VCM	VERTICAL CABLE MANAGER
ISP	INSIDE PLANT CABLE	W	WIRE
J	JUNCTION BOX	WAN	WIDE AREA NETWORK
J-BOX	JUNCTION BOX	WAO	WORK AREA OUTLET
		WAP	WIRELESS ACCESS POINT
		WP	WEATHER PROOF
		WR	WEATHER RESISTANT
		WT	WATER TIGHT
		XP	EXPLOSION-PROOF

ANNOTATION

	TECHNOLOGY PLAN CALLOUT
	EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER. LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION
	DEDICATED EQUIPMENT ACCESS TILE
	ACCESS PANEL

LINETYPE LEGEND

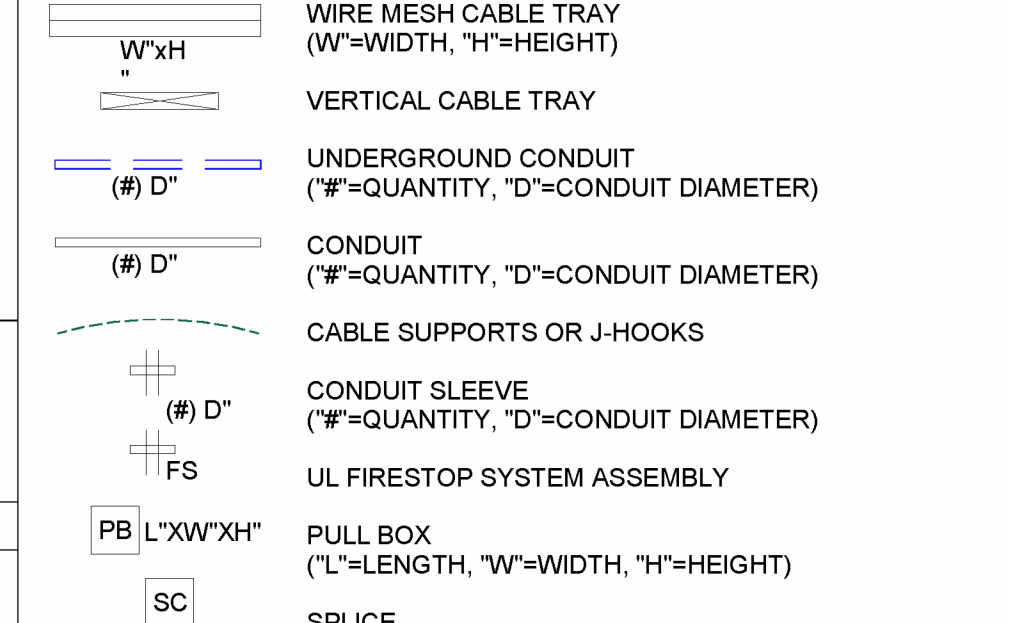
THROUGHOUT THE DRAWINGS DIFFERENT LINE-TYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF THE NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASING DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

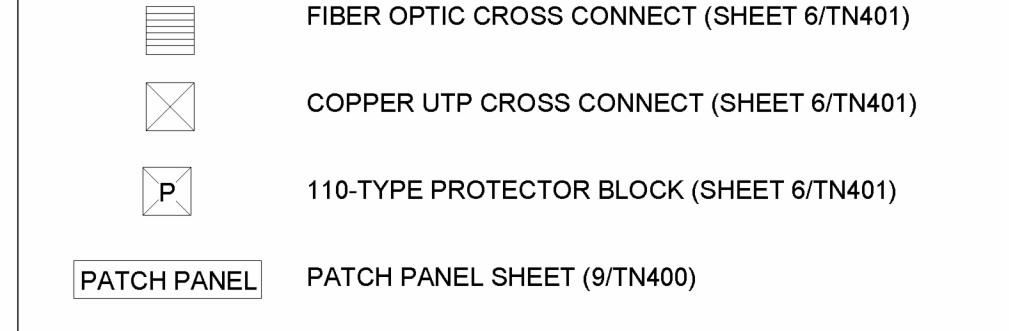
CABLE TYPES

A	CATEGORY 6 CABLE
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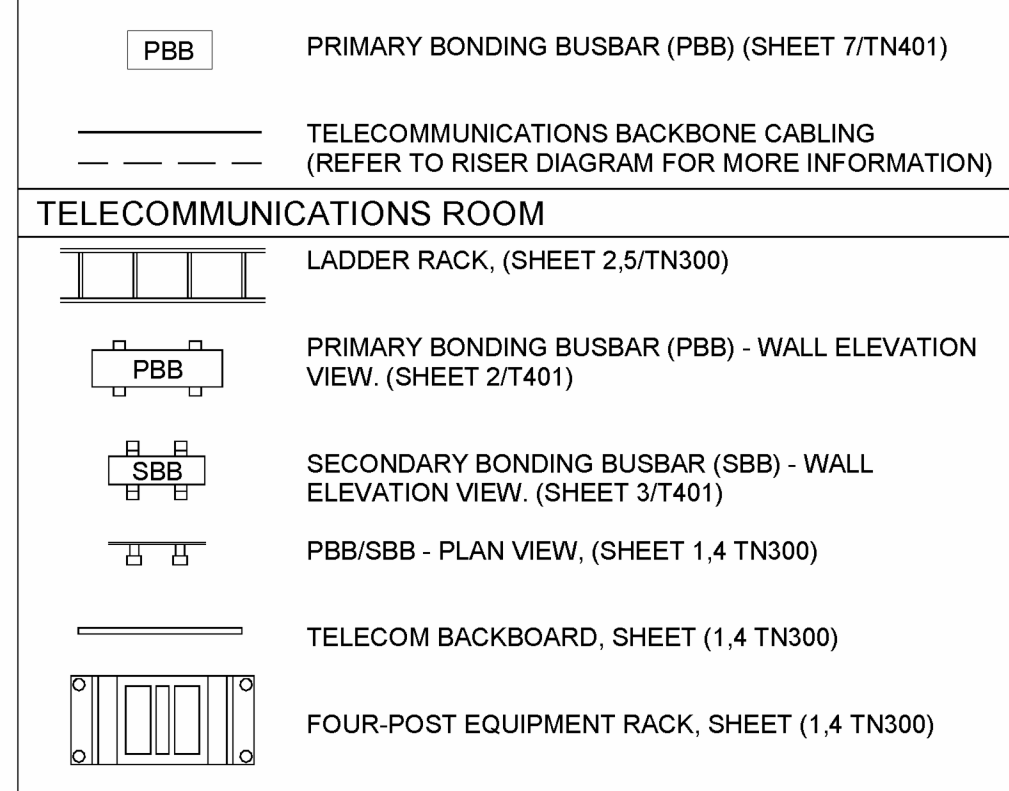
PATHWAYS



RISER DIAGRAMS



TELECOMMUNICATIONS ROOM



TELECOMMUNICATIONS OUTLETS

SYMBOL	DESCRIPTION	CABLE(S)	DETAIL
▽ 1D	DATA WALL OUTLET	1	1.6/TN400
▽ E.2D	EMERGENCY 911, WALL OUTLET	2	6/TN400
▽ R.2D	RADIO, WALL OUTLET	2	6/TN400
▽ 2D	DATA WALL OUTLET	2	1.6/TN400
▽ 2D	DATA WALL OUTLET, ABOVE COUNTER MOUNT AT 3'-6" AFF U.N.O.	2	2.6/TN400
▽ 2D	DATA WALL OUTLET FOR DISPLAY, MOUNT AT 13'-6" AFF U.N.O.	2	2.6/TN400
▽ 2D.TV	DATA WALL OUTLET FOR DISPLAY, MOUNT AT 60" AFF U.N.O.	2	2.6/TN400
▽ 2D.TV-H	DATA WALL OUTLET FOR DISPLAY, MOUNT AT 13'-6" AFF U.N.O.	2	2.6/TN400
▽ 2D.VV-L	DATA WALL OUTLET FOR VIDEO VISITATION, MOUNT AT 42" AFF U.N.O.	2	1.6/TN400
▽ 2D.VV-H	DATA WALL OUTLET FOR VIDEO VISITATION, MOUNT AT 58" AFF U.N.O.	2	1.6/TN400
▽ 2D.JP	DATA WALL OUTLET FOR IMMATE PHONE, MOUNT AT 38" AFF U.N.O.	2	1.6/TN400
▽ 2D.WAP	DATA WALL OUTLET FOR WIRELESS ACCESS, MOUNT AT 13'-6" AFF U.N.O.	2	4.6/TN400
▲ 2D	MULTI-SERVICE FLOOR BOX WITH DATA AND POWER OUTLETS, REFER TO SPECS FOR FLOOR BOX TYPE	2	10.1/TN400
▲ 3D	MULTI-SERVICE FLOOR BOX WITH DATA AND POWER OUTLETS, REFER TO SPECS FOR FLOOR BOX TYPE	3	10.1/TN400
◆ 2D	DATA CEILING OUTLET	2	4.7/TN400

TELECOMMUNICATIONS RESPONSIBILITY MATRIX

Description	Furnish		Install		Comments
	Construction Team	Owner	Construction Team	Owner	
General Communications					
Grounding and Bonding	X		X		
Hangers and Supports	X		X		
Conduits and Backboxes	X		X		
Cable Trays	X		X		
Underground pathways for utility entrance and floor boxes	X		X		
Firestops, Conduit Sleeves, and Sleeve Seals	X		X		
Structured Cabling					
Telecom Room Cabinets, Racks, Frames, and Enclosures	X		X		
Telecom Room Buildout (ex. backboard and ladder rack)	X		X		
Telecom Room Uninterruptible Power Supply (UPS)		X		X	
Telecom Room Power Strips	X		X		
Optical Fiber Patch Cables	X		X		
Copper Patch Cables		X		X	
Optical Fiber Backbone Cable and Connectivity	X		X		
Copper Backbone Cable and Connectivity	X		X		
Copper Horizontal Cable and Connectivity	X		X		
Data Communications					
Router / Firewall		X		X	
Core Switch / Edge Switch		X		X	
Wireless Access Points		X		X	
Servers / Storage and Backup		X		X	
Laptops / Desktops / Copiers / Printers / Scanners		X		X	
Software		X		X	
Voice Communications					
VoIP Gateway / Analog handsets		X		X	
VoIP handset wall mount kit		X		X	
VoIP handsets		X		X	
VoIP Network Licensing		X		X	
Electronic Safety and Security					
Conduits and Backboxes for Security systems	X		X		
Refer to Security drawings for Security Scope					

GENERAL NEW WORK NOTES

- READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS.
- ALL WORK SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS (DIVISION 26, DIVISION 27, DIVISION 28, ETC.) AND THE CUSTOMER PRE-ESTABLISHED STRUCTURED CABLING STANDARDS. SHOULD DIFFERENCES EXIST IN THE SPECIFICATIONS RELATING TO TECHNOLOGY AND THE CLIENT'S PRE-ESTABLISHED STANDARDS THE CONTRACTOR SHALL CONTACT THE LOW VOLTAGE ENGINEER FOR CLARIFICATION THROUGH THE RFI PROCESS.
- FULLY COORDINATE ALL CABLE TRAY, FIRE STOP CONDUITS / SLEEVES, AND CONDUIT ROUTING WITH STRUCTURAL ELEMENTS. COORDINATE CABLE TRAY AND CONDUIT INSTALLATIONS WITH ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. ROUTING IN CONCRETE SLAB OR UNDER SLAB (WHERE CONDUIT WOULD BE ON GRADE) REQUIRES THE USE OF WET LOCATION RATED CABLES.
- ALL TELECOMMUNICATIONS CONTINUOUS PATHWAYS SHALL BE BONDED TO THE TELECOMMUNICATIONS BONDING BACKBONE. FOR CONDUITS, INSULATION BUSINGS SHALL BE USED AT THE END OF THE CONDUIT THE FARTHEST AWAY FROM THE SERVING TR. A BONDING BUSHING SHALL BE USED AT THE END CLOSEST TO THE SERVING TR. CONTRACTOR TO REFER TO THE ANSI-STD J-607 STANDARD FOR ADDITIONAL INFORMATION AS TO THE INSTALLATION OF THE TELECOMMUNICATIONS BONDING BACKBONE.
- ALL FIRE RATED WALL / FLOOR ASSEMBLIES PENETRATED FOR TELECOMMUNICATIONS CABLING PATHWAYS SHALL BE FIRE STOPPED WITH THE APPROVED FIRE STOP SYSTEMS (FSS). ALL FIRESTOP SYSTEMS SHALL BE INSTALLED AS DIRECTED BY THE MANUFACTURER AND AS SPECIFIED IN DIVISION 07 84 00. "FIRESTOPPING", FIRE STOP ASSEMBLY LOCATIONS ARE TO BE COORDINATED WITH CABLE TRAY PATHWAY TO TELECOMMUNICATIONS ROOM.
- BACK BOXES AND CONDUIT LOCATIONS IN PRECAST CONCRETE WALLS SHALL BE COORDINATED WITH ARCHITECT, STRUCTURAL ENGINEER, AND GC PRIOR TO ORDERING THE PRECAST WALLS.
- ROUTING OF CABLES SHALL BE CONCEALED. CABLES SHALL BE ROUTED IN CONDUIT IN EXPOSED AREAS. MINIMIZE AMOUNT OF EXPOSED CONDUIT BY EMBEDDING CONDUIT IN SLAB WHEN POSSIBLE. EMBEDDED CONDUITS AND PENETRATIONS OF STRUCTURE SHALL FOLLOW DETAILS IN STRUCTURAL DRAWINGS. WHEN CONDUITS CAN ONLY BE INSTALLED EXPOSED, NOTIFY ARCHITECT PRIOR TO START OF INSTALLATION OF CONDUITS. CABLES SHALL BE ROUTED IN CONDUIT WHEN ABOVE HARD CEILING. CONDUITS FOR ELEVATOR PHONES AND FIRE ALARM CONTROL PANEL SHALL BE CONTINUOUS (HOMERUN) FROM THE TELECOMMUNICATIONS ROOM TO THE APPLICABLE BOX / CABINET. CONTRACTOR SHALL SIZE AND PROVIDE CONDUITS TO MEET TIA-568.
- TELECOMMUNICATIONS ROOMS SHALL BE DEDICATED FOR INFORMATION TECHNOLOGY USE (I.E. NO SHARED SPACE WITH A JANITOR, FIRE ALARM SYSTEM, ETC.). NO SERVICES SHALL PASS THROUGH THE SPACE UNLESS DEDICATED TO THE SPACE (NO PLUMBING, MECHANICAL, ELECTRICAL, FIRE, ETC.)
- LOCATIONS AND QUANTITIES SHOWN ON THE DRAWINGS FOR WIRELESS ACCESS POINTS ARE DIAGRAMMATIC IN NATURE AND INTENDED TO BE USED TO ESTIMATE COST OF INSTALLATION OF SYSTEM.

HATCHING LEGEND

ENLARGED PLAN	
NOT IN SCOPE (NIS)	

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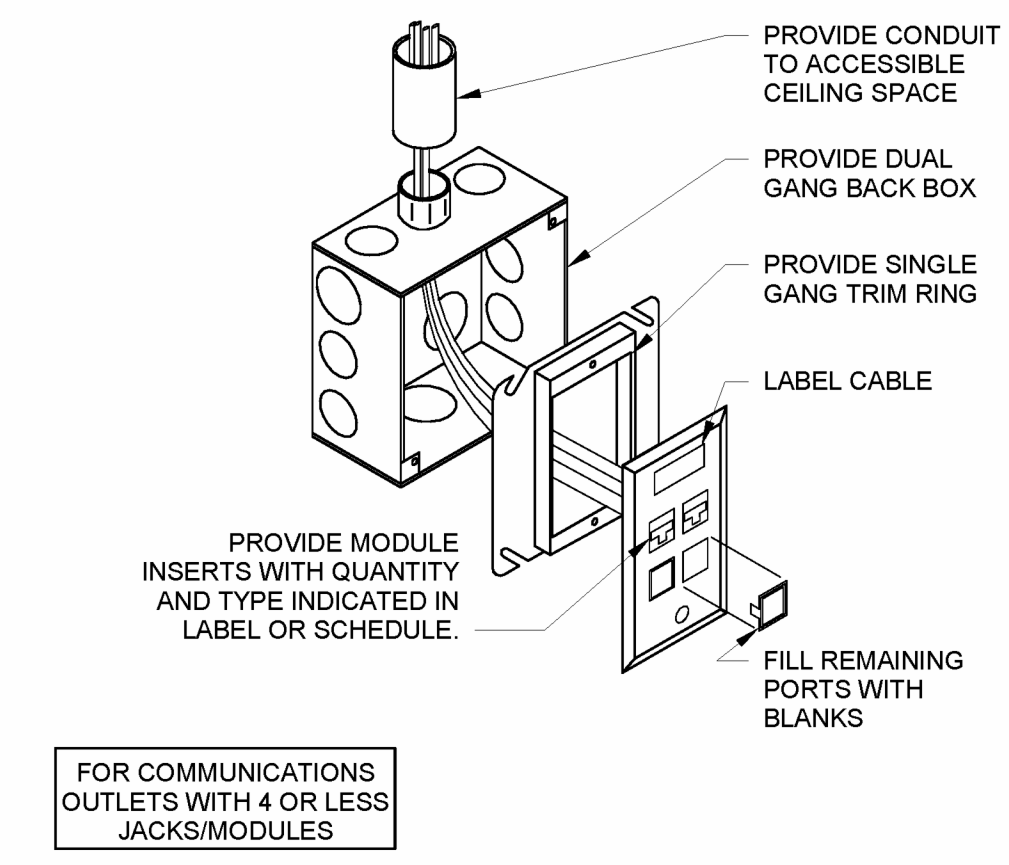
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Issue Date

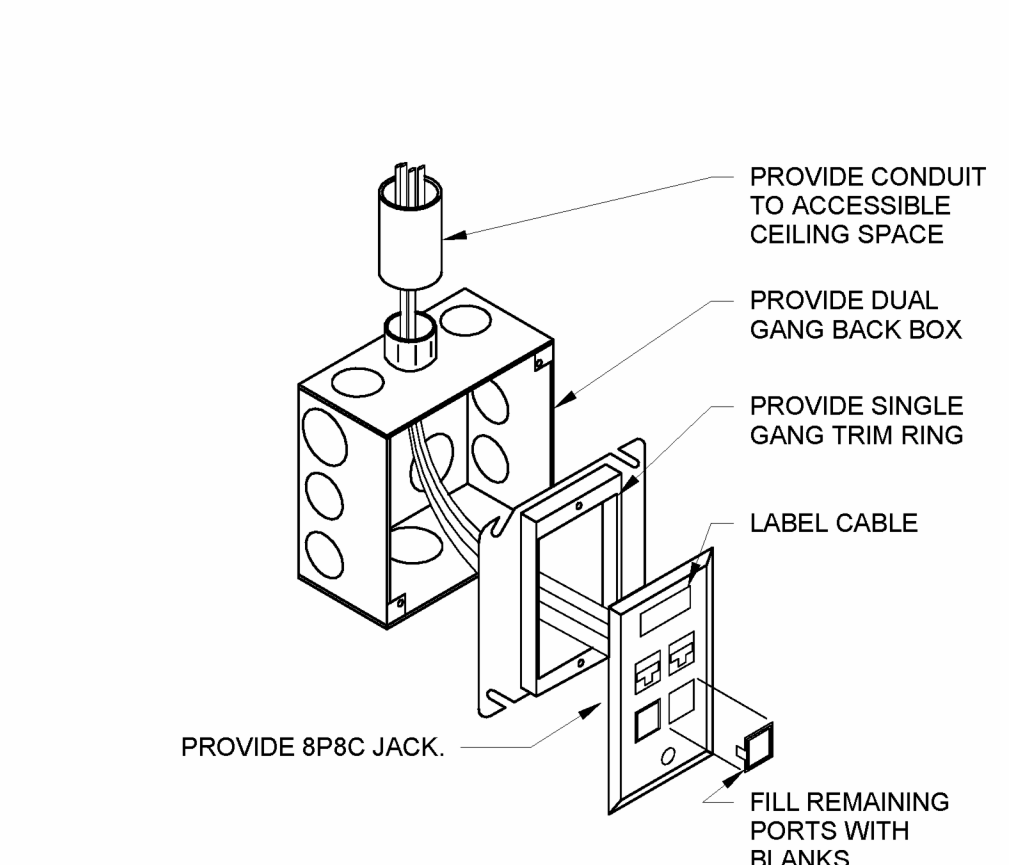
Drawn by: JC
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TELECOM GENERAL NOTES AND LEGEND

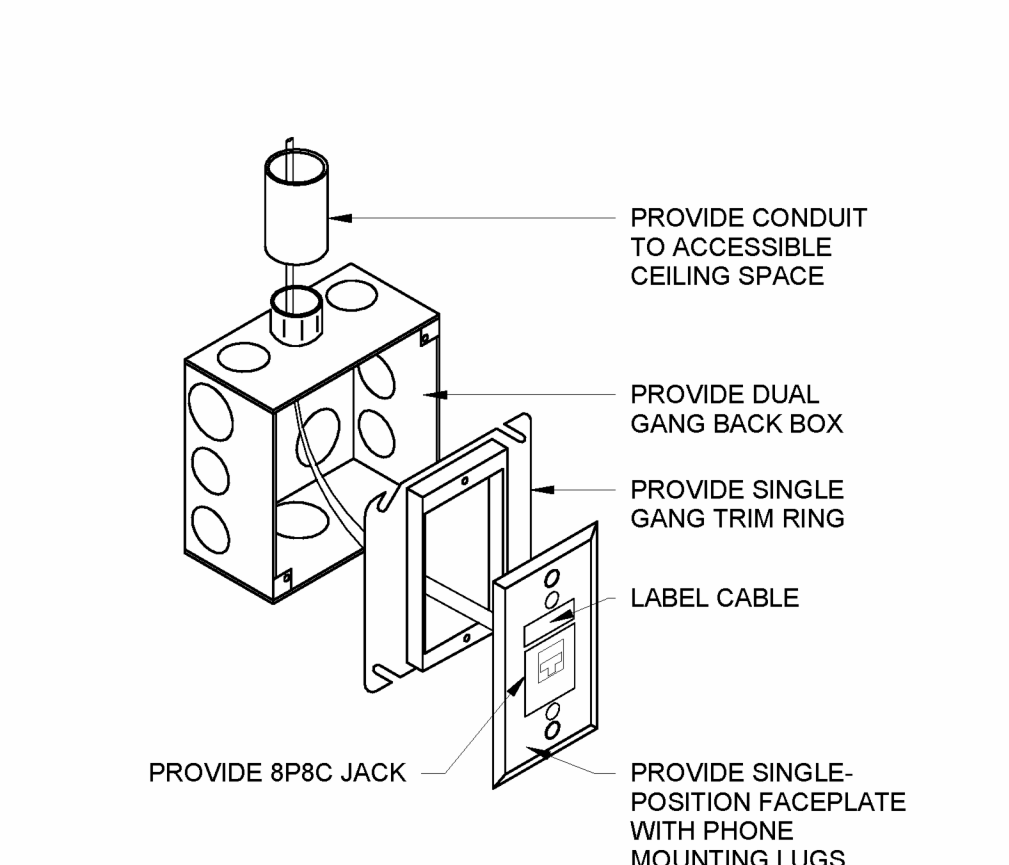
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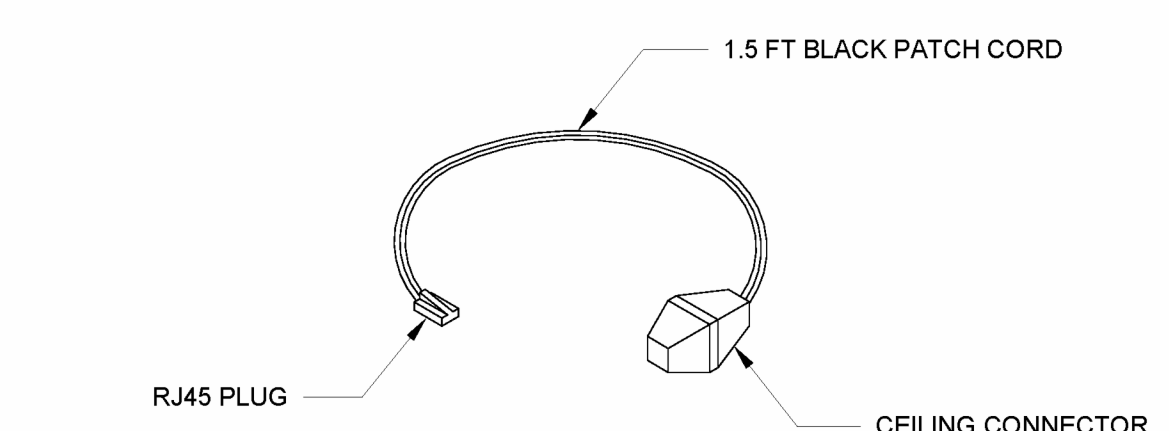
1 SINGLE GANG COMM OUTLET NTS



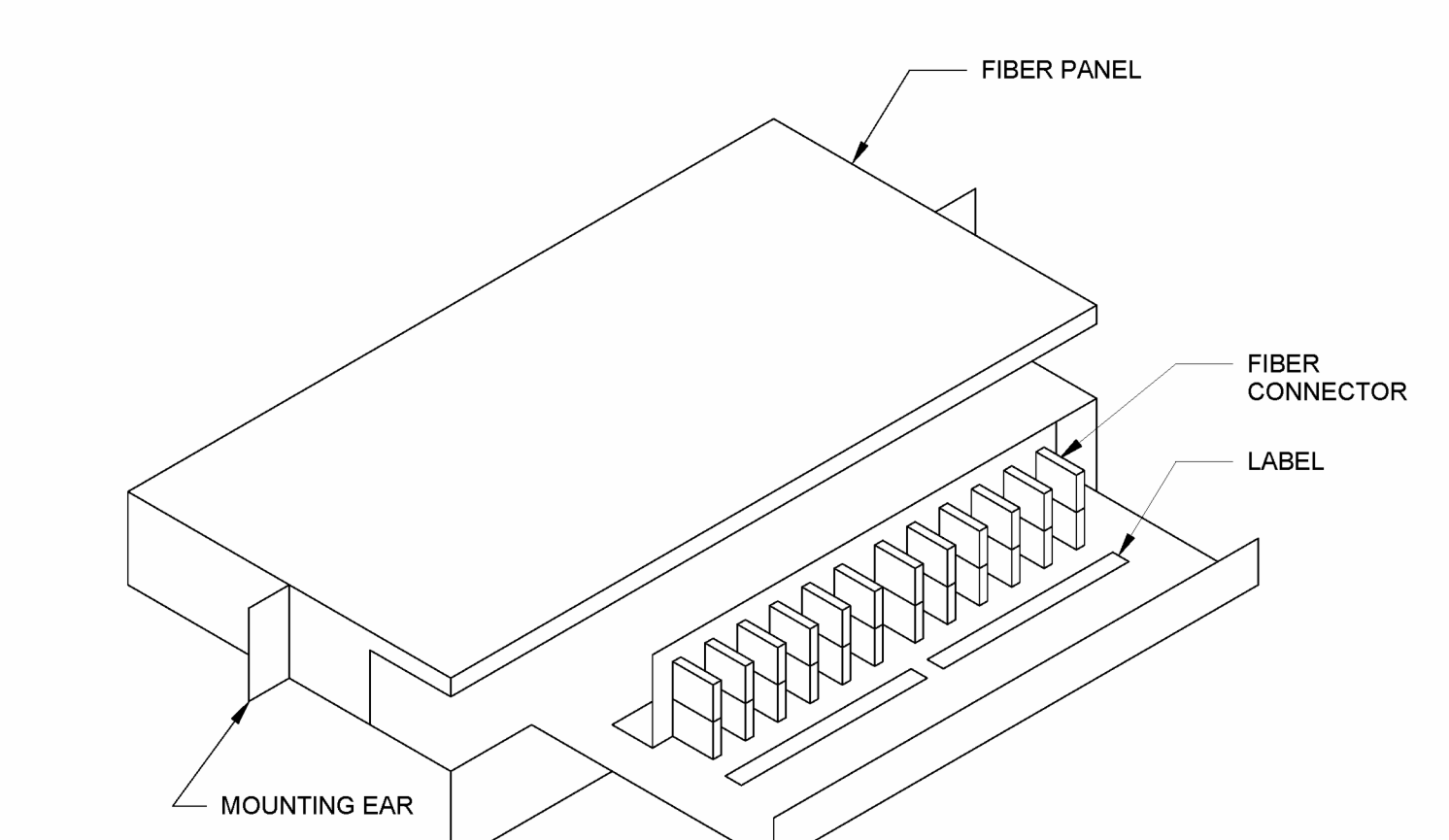
2 SINGLE GANG COMM OUTLET FOR DISPLAY NTS



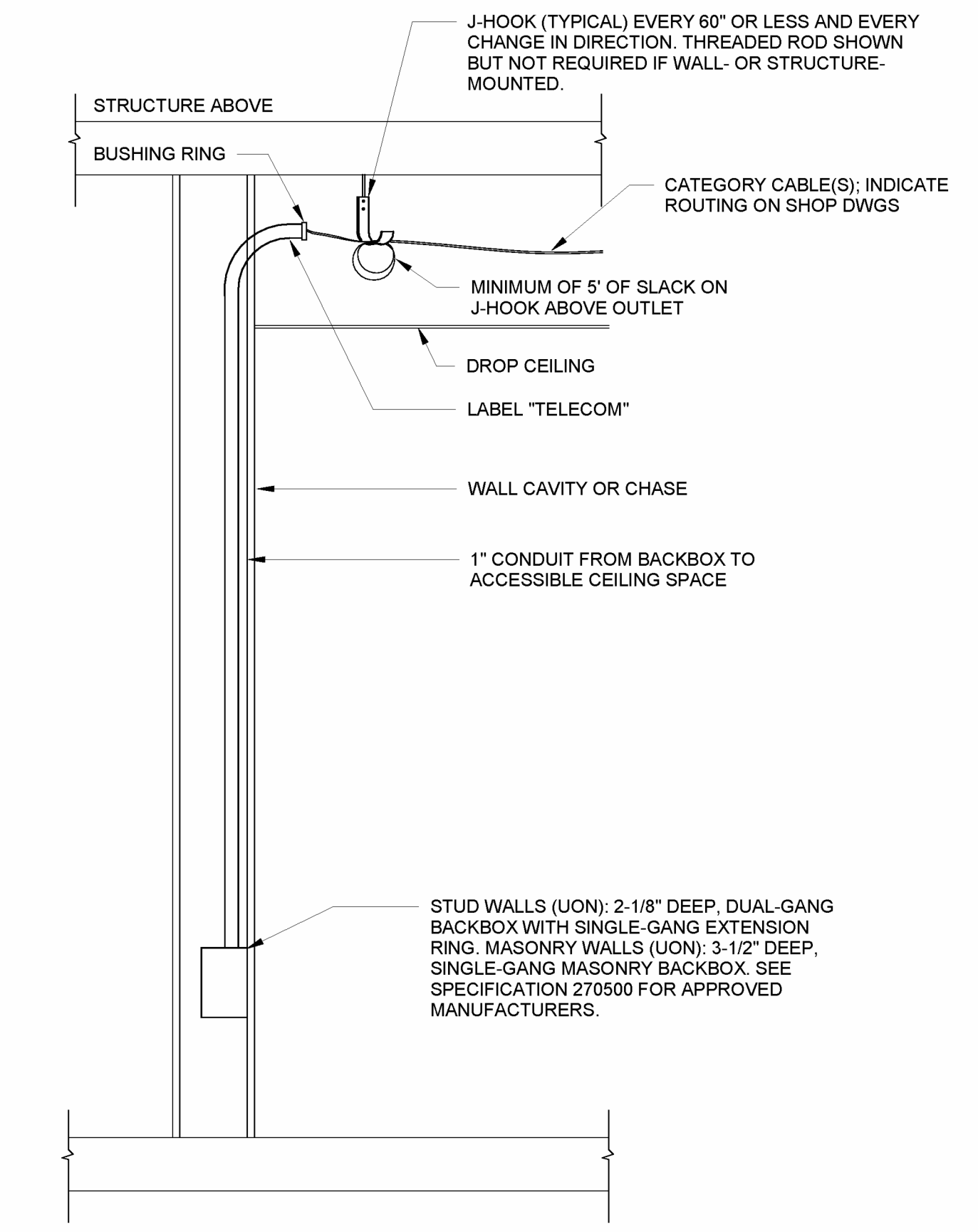
3 WALL PHONE OUTLET NTS



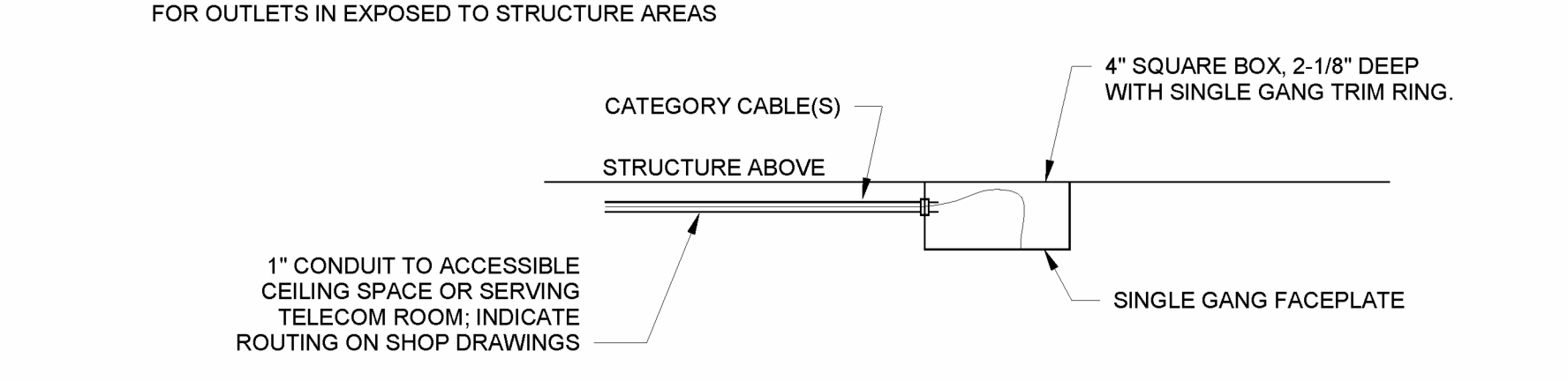
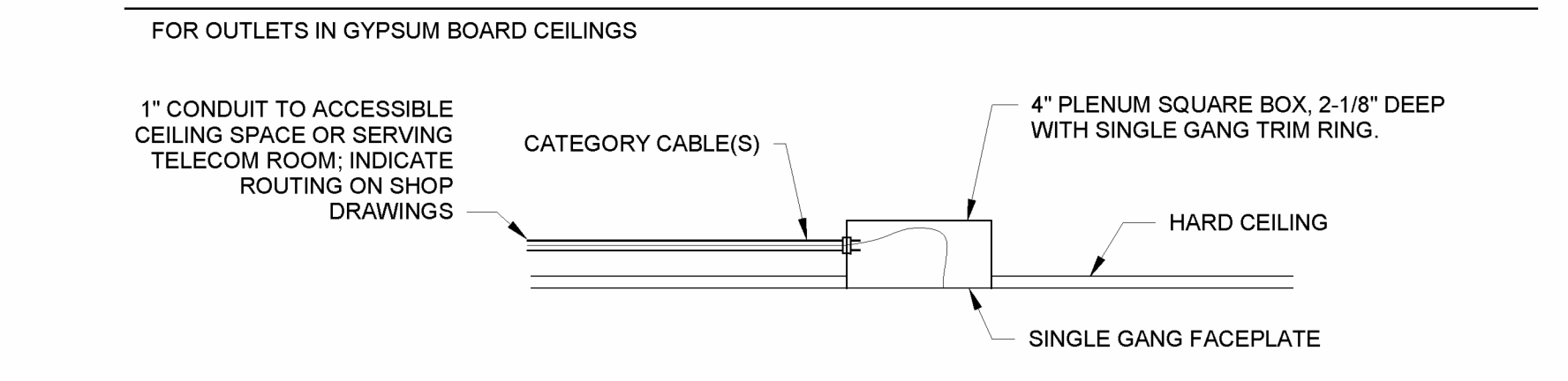
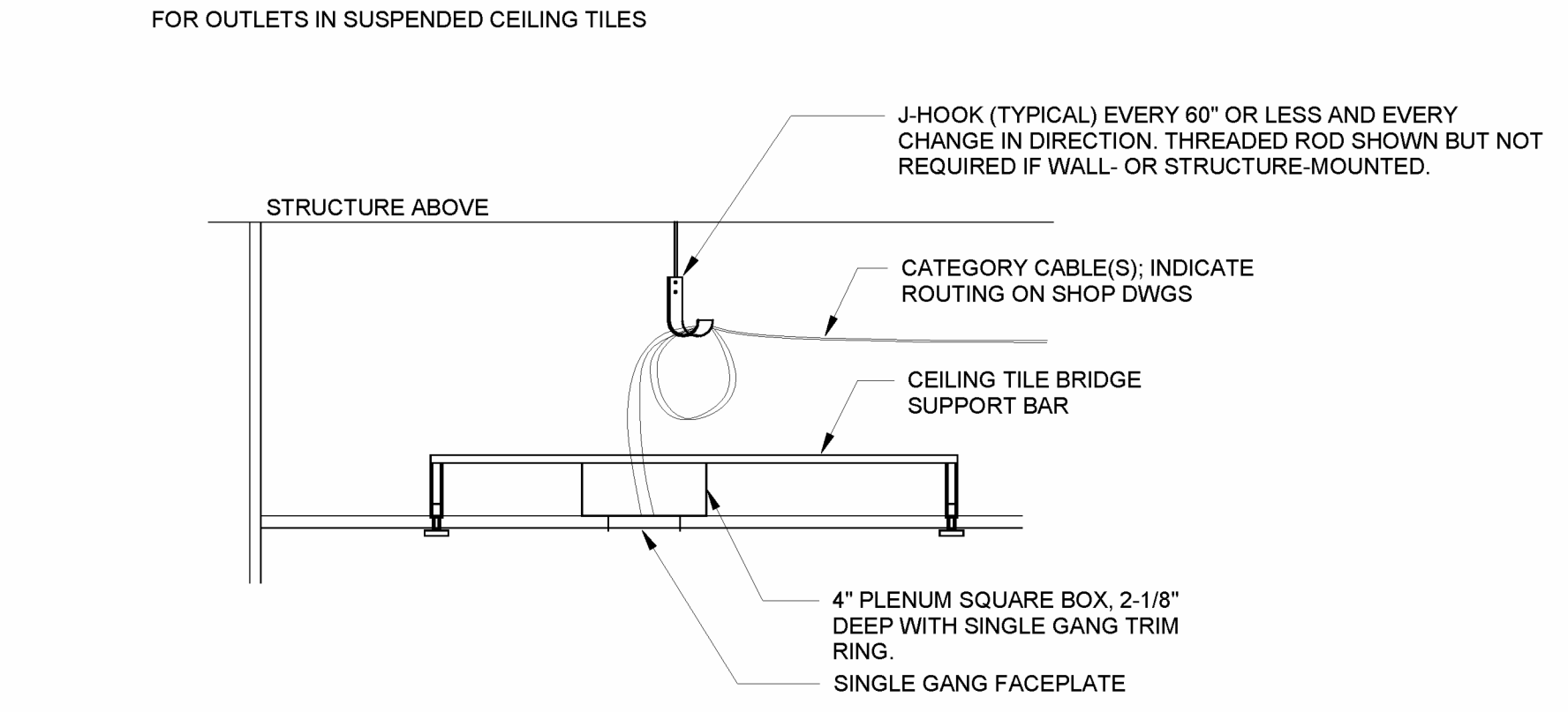
4 ACCESS POINT CONNECTOR ASSEMBLY NTS



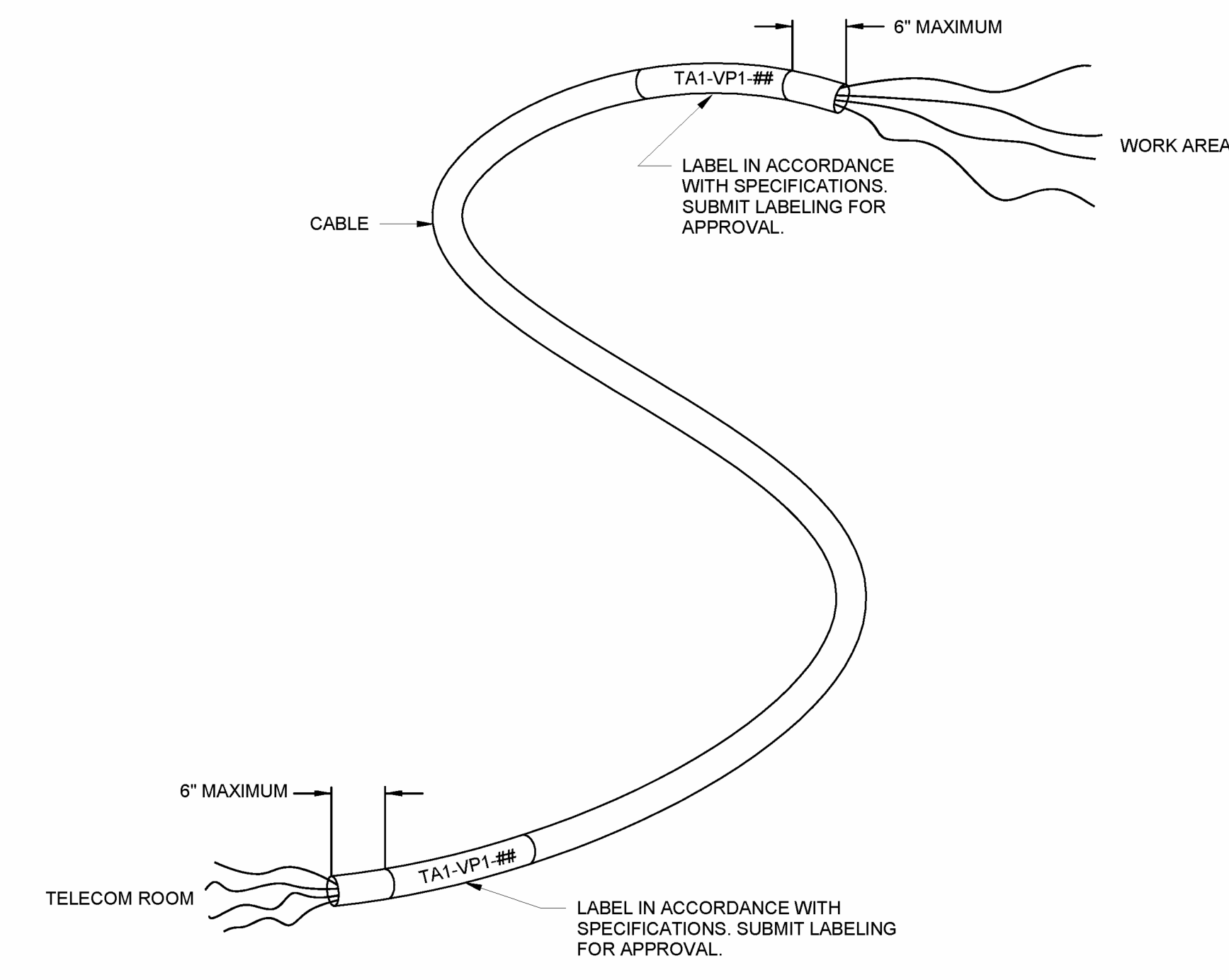
5 FIBER PANEL NTS



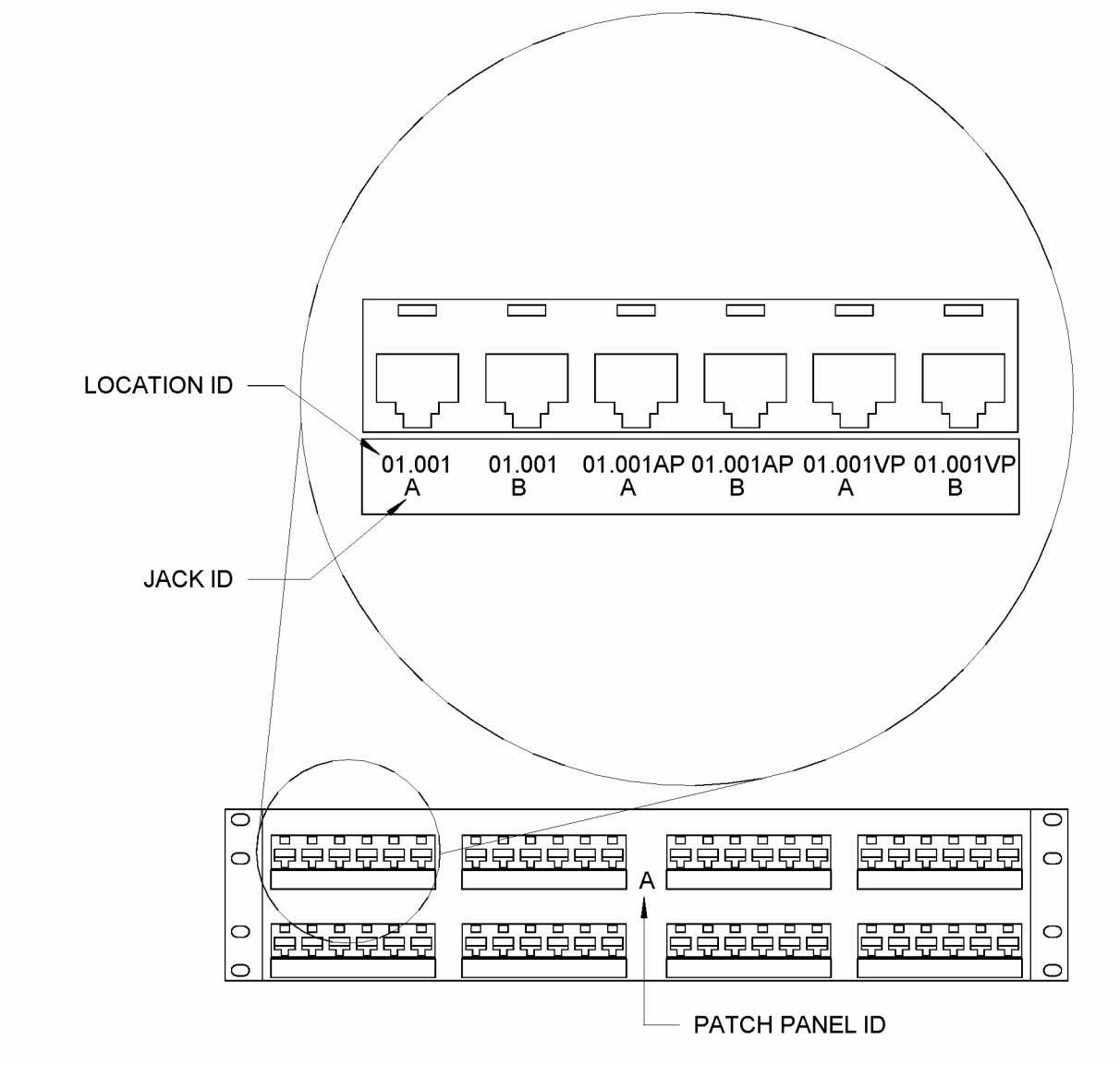
6 COMMUNICATIONS OUTLET MOUNTING NTS



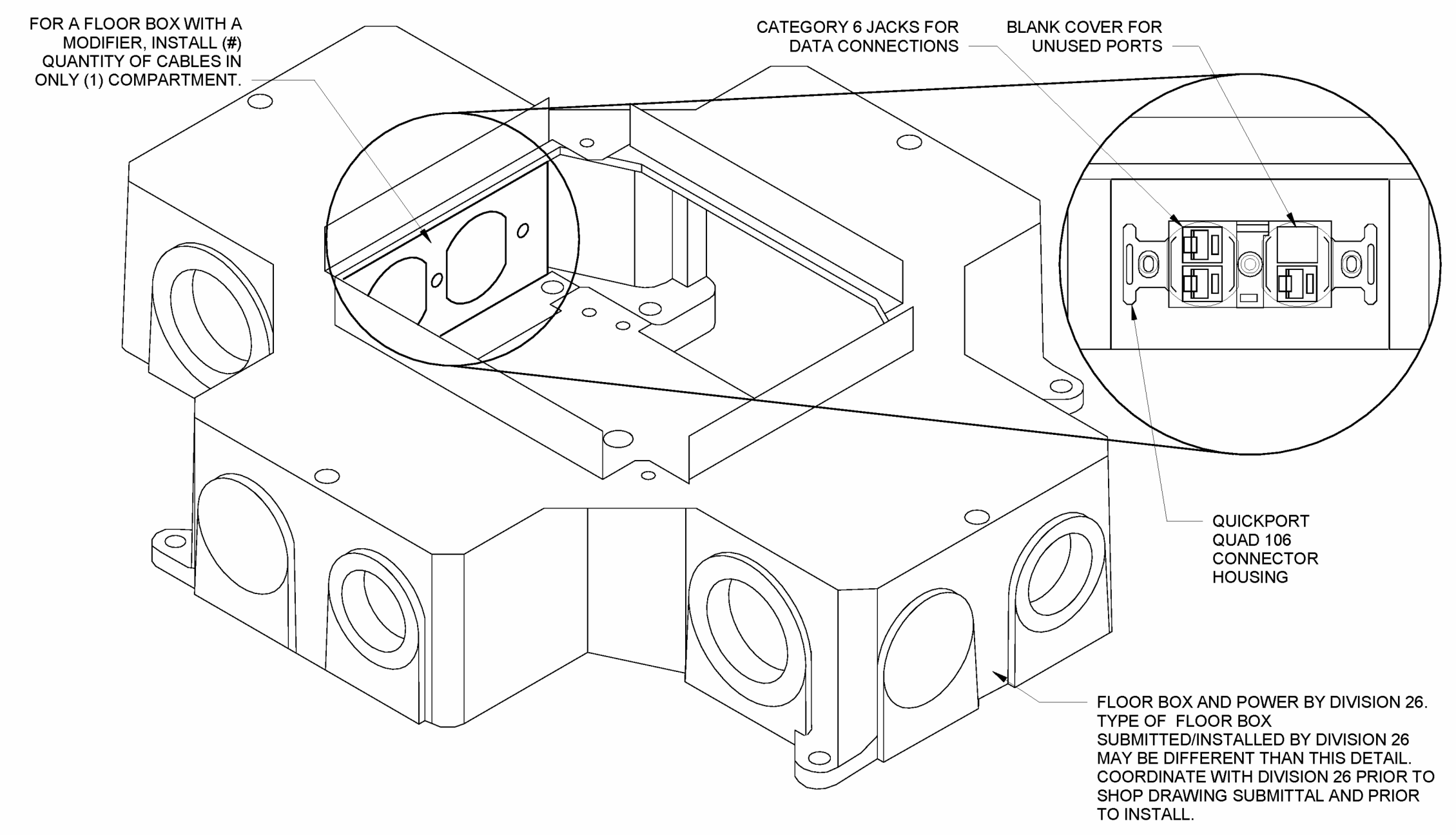
7 CEILING COMM OUTLET NTS



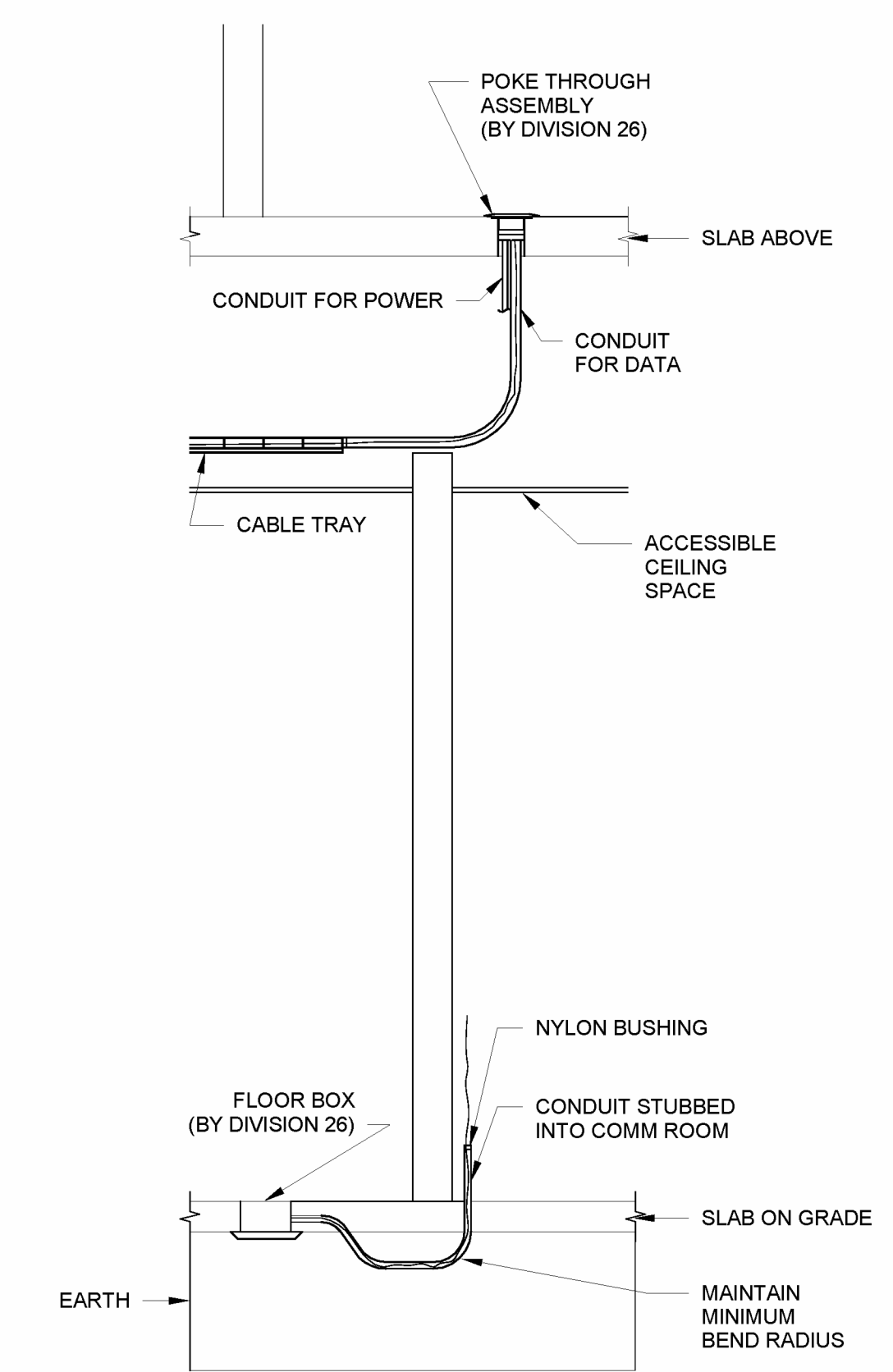
8 LABELING OF HORIZONTAL CABLE NTS



9 TYPICAL PATCH PANEL LABELING DETAIL NTS



10 FLOOR BOX NTS



11 CABLE ROUTING FOR POKE THROUGHS AND FLOOR BOXES NTS



