

1. GENERAL NOTES

- A. CONTRACTORS SHALL REVIEW AND BECOME FAMILIAR WITH ALL OF THE PROJECT CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND DRAWINGS.
- B. THE CONTRACTOR IS EXPECTED TO BE FAMILIAR WITH ALL APPLICABLE CODES, INDUSTRY STANDARDS AND TELECOMMUNICATIONS BEST PRACTICES.
- C. THE LEGEND IS A COMPREHENSIVE LIST OF SYMBOLS THAT MAY BE USED ON THE PROJECT. ALL SYMBOLS SHOWN IN THE LEGEND ARE NOT NECESSARILY USED IN THE DESIGN AND MAY NOT BE SHOWN IN THE PLANS.
- D. THE DRAWINGS ARE DIAGRAMMATIC AND REPRESENT GENERAL INFORMATION ABOUT THE LOCATION OF INFRASTRUCTURE, PATHWAYS, OUTLETS, DEVICES, AND EQUIPMENT. THE DRAWINGS DO NOT PROVIDE ALL DIMENSIONING, OFFSETS, JUNCTION BOXES, PATHWAY DETAILS, DETAILED ASSEMBLY INFORMATION, NOR COORDINATION REQUIRED WITH OTHER TRADES. PROVIDE ALL OFFSETS, RACEWAY COMPONENTS, ACCESSORIES, AND ADJUSTMENTS NECESSITATED BY COORDINATION WITH OTHER TRADES.
- E. COORDINATE COMMUNICATIONS INSTALLATION WITH ALL OTHER TRADES AS NECESSARY. REFER TO ARCHITECTURAL, MEP, AUDIOVISUAL, AND SECURITY SHEETS TO COORDINATE COMMUNICATIONS REQUIREMENTS.
- F. COORDINATE WORK PROVIDED BY OTHER TRADES TO SUPPORT THE COMMUNICATIONS SYSTEMS INSTALLATION.
- G. PATHWAYS FOR COMMUNICATIONS SYSTEMS ARE SHOWN ON THE COMMUNICATIONS PLANS FOR COORDINATION ONLY. REFER TO ELECTRICAL CONTRACT DOCUMENTS FOR DETAILS ABOUT COMMUNICATIONS SUPPORT INFRASTRUCTURE, CABLE TRAY, CONDUIT, SLEEVES, BACKBOXES, ELECTRICAL CIRCUITS, AND ELECTRICAL OUTLETS.
- H. COORDINATE SPACE ALLOCATION FOR INFRASTRUCTURE INSTALLATION IN CHASES, SHAFTS, CEILING INTERSTITIAL SPACES, AND EQUIPMENT SPACES.
- I. COORDINATE PHASING OF THE WORK WITH OTHER TRADES TO ENSURE PROPER SEQUENCING AND AVOID CONFLICTS.
- J. NOTIFY ARCHITECT OF ANY CONFLICTS AND DISCREPANCIES BETWEEN CONTRACT DOCUMENTS, DRAWINGS, SPECIFICATIONS, PLANS, AND/OR ACCEPTED INDUSTRY STANDARDS.
- K. CONTRACTOR SHALL PROVIDE ALL MATERIALS, COMPONENTS, EQUIPMENT, COORDINATION WITH OTHER TRADES, AND LABOR NECESSARY TO FURNISH A COMPLETE, TESTED, AND FUNCTIONAL COMMUNICATIONS INFRASTRUCTURE INSTALLATION.

2. TELECOMMUNICATIONS SPACES

- A. PROVIDE 3/4" AC GRADE FIRE RETARDANT PLYWOOD ALONG THE WALLS OF THE TELECOMMUNICATION ROOM, AS SHOWN ON THE DRAWINGS. APPLY FIRE RETARDANT FLAT WHITE PAINT TO BOTH SIDES OF THE PLYWOOD, EXCEPT FOR THE AREA OF THE FIRE-TREATMENT MANUFACTURER STAMP, WHICH SHALL REMAIN UNPAINTED.
- B. CONTRACTOR TO PROVIDE EQUIPMENT RACKS, CABLE MANAGERS, TERMINATION HARDWARE, POWER STRIPS, LABELING, INCIDENTAL PASSIVE INFRASTRUCTURE, AND TESTING AS REQUIRED.
- C. MOUNT D-RINGS AT 304MM (12") ON CENTER TO SUPPORT CABLE ROUTING ALONG WALL FIELDS.
- D. UTILIZE HOOK & LOOP TYPE CABLE STRAPS TO AFFIX CABLE WIRE MANAGEMENT, D-RINGS AND OTHER CABLE SUPPORTS.
- E. COORDINATE WITH ELECTRICAL TO PROVIDE DEDICATED CIRCUITS LOCATED FOR EQUIPMENT RACKS. REFER TO ELECTRICAL CONTRACT DOCUMENTS.
- F. COORDINATE WITH ELECTRICAL TO PROVIDE A CIRCUIT FOR CONVENIENCE DUPLEX OUTLETS ALONG THE PERIMETER OF EACH COMMUNICATIONS ROOM. LOCATE OUTLETS AT 1.83 M (6') INTERVALS WITH AT LEAST ONE DUPLEX OUTLET ON EACH WALL.

3. GROUNDING & BONDING

- A. CONTRACTOR SHALL BOND ALL METALLIC COMPONENTS OF THE COMMUNICATIONS SYSTEMS INFRASTRUCTURE TO THE TELECOMMUNICATIONS GROUNDING SYSTEM.
- B. ALL PATHWAYS INSTALLED FOR USE BY COMMUNICATIONS SYSTEMS SHALL BE BONDED TO COMMUNICATION GROUND BUSBARS.
- C. CONTRACTOR SHALL INSTALL A CONTINUOUS TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR FROM THE BUSBAR TO EACH ROW OF EQUIPMENT RACKS AND CONTINUE THE CONDUCTOR TO BOND EACH RACK TO THE CONDUCTOR.
- D. REFER TO ELECTRICAL CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION ON COMMUNICATIONS SYSTEM GROUNDING REQUIREMENTS, MATERIALS, AND HARDWARE.

4. CABLE TRAYS

- A. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO ENSURE THAT CABLE TRAY ROUTES AND LAYOUTS DO NOT CONFLICT WITH THE BUILDING STRUCTURE, ARCHITECTURAL ELEMENTS, ELECTRICAL/MECHANICAL INFRASTRUCTURE, AND DO NOT CAUSE CABLE LENGTHS TO EXCEED THE MAXIMUM ALLOWABLE DISTANCES.

- A. INSTALL CABLE TRAY WITH 75MM (3") OF CLEAR VERTICAL SPACE ABOVE CONDUITS AND CABLES AND 300 MM (12 IN) OF CLEAR VERTICAL SPACE ABOVE THE TRAY OR RACEWAY FOR OVERHEAD CEILING CABLE TRAY SYSTEMS.

5. CONDUIT

- A. INSTALL CONDUITS FOR COMMUNICATIONS SYSTEMS WITH SWEEPING RADIUS BENDS, PROTECTIVE NYLON END TREATMENT BUSHINGS, AND GROUNDED & BONDED AS REQUIRED.
- B. CONDUIT RUNS MUST BE INSTALLED WITH NO SINGLE BEND GREATER THAN 90 DEGREES OR AN AGGREGATE OF BENDS IN EXCESS OF 180 DEGREES BETWEEN PULL POINTS OR PULL BOXES.
- C. CONDUIT RUNS IN EXCESS OF 100' ARE REQUIRED TO BE SEGMENTED TO RUNS THAT ARE LESS THAN 100' BY INSTALLATION OF PULL BOXES.
- D. PULL BOXES SHALL BE INSTALLED WITHIN STRAIGHT SECTIONS OF CONDUIT. DO NOT USE BOXES TO CHANGE THE DIRECTION OF THE CABLE PULL. USE FACTORY ELBOWS AND/OR BENDS TO CHANGE THE CABLING PULL DIRECTION.
- E. ALL BENDS MUST BE SWEEPING BENDS WITH A RADIUS NOT LESS THAN 10 TIMES THE INTERNAL DIAMETER OF CONDUITS.
- F. ALL CONDUITS SHALL BE EQUIPPED WITH A PULL CORD THAT HAS A MINIMUM TEST RATING OF 90 KG (200 LB).
- G. UNLESS NOTED OTHERWISE, ALL CONDUITS SHALL BE INSTALLED WITHIN FLOORS, ABOVE THE CEILING, OR WITHIN WALLS. COORDINATE WITH OTHER TRADES FOR SPACE ALLOCATION.
- H. IN CONDUIT THAT WILL BE OCCUPIED BY FIBER OPTIC CABLING PROVIDE INNERDUCT WITH PULL CORD. SEE DRAWING FOR ADDITIONAL INFORMATION.
- I. CONDUITS PROVIDED OR ASSIGNED TO AUDIOVISUAL SYSTEMS SHALL BE DEDICATED TO THAT PURPOSE AND SHALL NOT BE SHARED WITH NON-AUDIOVISUAL SYSTEMS OR CABLING. THESE CONDUITS SHALL BE A MINIMUM OF 1-1/4" DIAMETER, UNLESS OTHERWISE NOTED.

6. BACK BOXES

- A. STANDARD COMMUNICATIONS BACK BOXES SHALL BE A DOUBLE GANG 4-11/16" X 4-11/16" X 2-1/8" BOX WITH A SINGLE GANG REDUCTION PLATE. THESE BACK BOXES MAY BE INSTALLED WITHIN WALLS OR CEILINGS. PROVIDE A 1-1/4" CONDUIT FROM THE BACK BOX TO THE ACCESSIBLE CEILING SPACE.
- B. STANDARD AUDIOVISUAL BACK BOXES SHALL BE A DOUBLE GANG 4-11/16" X 4-11/16" X 3.5" BOX.
- C. COORDINATE WITH ARCHITECT FOR MOUNTING HEIGHTS FOR THE VARIOUS OUTLET SCENARIOS.
- D. COORDINATE WITH ELECTRICAL TO PROVIDE A DUPLEX POWER RECEPTACLE WITHIN 3' OF EACH COMMUNICATIONS OUTLET/JACK.

7. COMMUNICATIONS CABLING

- A. PROTECT THE INTEGRITY OF ALL COMMUNICATIONS CABLING AND JACK/PORTS FROM MECHANICAL DAMAGE, WATER, AND DUST DURING CONSTRUCTION.
- B. UTILIZE HOOK & LOOP TYPE CABLE STRAPS TO SECURE AND BUNDLE CABLING AS APPROPRIATE.
- C. INSTALL J-HOOKS ON THREADED ROD FOR SUPPORTING CABLING THAT IS NOT CONVEYED VIA CONDUIT OR CABLE TRAY. CONTRACTOR TO DETERMINE MOST EFFICIENT ROUTE FOR J-HOOK PATHWAY AND SHALL ENDEAVOR TO MINIMIZE CABLE LENGTHS. DISTANCE BETWEEN J-HOOKS SHALL NOT EXCEED 5' ON CENTER.
- D. ALL ETHERNET HORIZONTAL CABLING SHALL NOT EXCEED 90M (295') IN LENGTH.
- E. CABLE JACKET RATING SHALL BE APPROPRIATE FOR THE ENVIRONMENT IN WHICH IT WILL RESIDE.
- F. COORDINATE WITH MODULAR FURNITURE SYSTEMS CONTRACTOR TO PROPERLY INSTALL REQUIRED BRACKETS, TERMINATE CABLING, INSTALL JACKS, AND INSTALL FACE PLATES.
- G. COMMUNICATIONS FACEPLATES SHALL MATCH THE COLOR, MATERIAL, AND STYLE OF ELECTRICAL OUTLET FACEPLATES. INSTALL AT A HEIGHT CONSISTENT WITH ELECTRICAL OUTLET WHERE APPROPRIATE. REFER TO ARCHITECTURAL, ELECTRICAL, AND/OR INTERIOR DESIGN DOCUMENTS FOR MORE INFORMATION.
- H. CABLE TERMINATION HARDWARE AND SUPPORT HARDWARE SHALL BE PROVIDED, INSTALLED, AND TESTED AS REQUIRED. LABEL CABLES WITHIN 103MM (4") OF THE TERMINATION. PROVIDE 304MM (12") OF SERVICE LOOP AT THE WORK AREA END OF EACH CABLE. PROVIDE AND INSTALL DUST COVERS ON UNUSED PATCH PANEL JACKS.
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8. FIRESTOPPING

- A. CONTRACTOR SHALL SEAL ALL FIRE-RATED BARRIERS THAT WERE PENETRATED FOR THE INSTALLATION OF COMMUNICATIONS INFRASTRUCTURE.
- B. THE PENETRATED BARRIER SHALL BE RESTORED TO ITS ORIGINAL FIRE-RATING BY PROPER INSTALLATION OF THE FIRESTOP SYSTEM.
- C. FIRESTOP SYSTEMS SHALL BE U.L. LISTED AND PROPERLY INSTALLED PER UL.

SYMBOLS LEGEND
TELECOM/SECURITY

NOTE: ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED IN THIS DRAWING PACKAGE.
NOTE: *# (OPTIONAL) INDICATES QTY OF DROPS WHEN > 1.

- # UNIVERSAL DATA OUTLET
- AV # AV EQUIPMENT RACK DATA OUTLET
- CP CONTROL PANEL DATA OUTLET
- DC DOCUMENT CAMERA DATA OUTLET
- FP # FLAT PANEL DATA OUTLET
- RS ROOM SCHEDULER DATA OUTLET
- VW # VIDEO WALL DATA OUTLET
- WAP WALL MOUNT WIRELESS ACCESS POINT DATA OUTLET
- # DATA OUTLET FOR BUILDING SYSTEMS AS INDICATED:
DDC = DISCRETE DIGITAL CONTROLS
LC = LIGHTING CONTROL
FMS = FACILITIES MONITORING
- # DATA / ANALOG VOICE OUTLET
- W ANALOG VOICE / WALL PHONE OUTLET
- POWER AND DATA COMBINATION FLOORBOX OUTLET
- POWER, DATA AND AV COMBINATION FLOORBOX OUTLET
- FF FURNITURE-FEED DEVICE (WALL OR COLUMN TYPE)
- DC ABOVE CEILING DOCUMENT CAMERA DATA OUTLET
- P # ABOVE CEILING PROJECTOR DATA OUTLET
- W # ABOVE CEILING WIRELESS ACCESS POINT DATA OUTLET
- POKE - THRU FLOOR FEED DEVICE
- POKE - THRU DATA OUTLET DEVICE
- DAS ANTENNA
- DAS SPLITTER
- CONDUIT GOING UP OR CONDUIT PASSING THROUGH ROOM
- CONDUIT GOING DOWN OR CONDUIT SLEEVE IN FLOOR
- CATV COAXIAL OUTLET
- DISPLAY OUTLET WITH COAX AND DATA
- ACCESS CONTROL CARD READER
- DOOR CONTACT
- INTERIOR IP SECURITY CAMERA.
- EXTERIOR IP SECURITY CAMERA.
- MOTION DETECTION SENSOR
- INTRUSION DETECTION
- MULTI-IMAGER DOME CAMERA

AUDIO/VISUAL

- WALL-MOUNTED ASSISTED LISTENING IR EMITTER
- WALL-MOUNTED AUDIO/VIDEO/USB INTERCONNECTION PACKAGE
- CONFERENCE TABLE CONNECTIVITY PANEL
- WALL-MOUNTED CONTROL PANEL
- AUDIO / VIDEO EQUIPMENT RACK
- WALL-MOUNTED FLAT PANEL DISPLAY
- CEILING ATTACHED AND POLE MOUNTED HANGING FLAT PANEL DISPLAY
- TABLE MICROPHONE
- CEILING MOUNTED VIDEO PROJECTOR
- WALL-MOUNTED FIXED / RIGID PROJECTION SCREEN
- CEILING MOUNTED MOTORIZED PROJECTION SCREEN
- IN-CEILING PROGRAM AUDIO SPEAKER
- WALL-MOUNTED PROGRAM AUDIO SPEAKER
- WALL SWITCH FOR PROJECTION SCREEN
- WALL-MOUNTED PTZ CAMERA
- MULTI-MONITOR VIDEO WALL ASSEMBLY
- ELECTRONIC INTERACTIVE WHITEBOARD



BID DOCUMENTS

Office of Construction and Facilities Management
U.S. Department of Veterans Affairs

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