ADDITIONAL COMMUNICATIONS SCOPE REQUIREMENTS

BASKET TRAY INSTALLATION NOTES
1. BASKET TRAY LAYOUT IS SHOWN FOR APPROXIMATE LOCATION ONLY. IT IS THE CC'S RESPONSIBILITY TO DETERMINE THE FINAL LOCATION BASED ON FIELD CONDITIONS. CD-BASE INCLUDE AN ON-SITE VISIT TO COORDINATE THE BASKET TRAY LOCATION WITH THE GC AND OTHER APPROPRIATE TRADES (IE: ELECTRICAL, MECHANICAL, ETC.). CC IS RESPONSIBLE FOR ANY BASKET TRAY ELEVATION CHANGES AS REQUIRED.
2. THE BASKET TRAY SHALL NOT BE INSTALLED BELOW 10'-0" AFF. IF THIS REQUIREMENT CANNOT BE MET DUE TO FIELD CONDITIONS, THE CC IS REQUIRED TO NOTIFY ENGINEERING PLUS AND OWNER OF THIS CONCERN PRIOR TO INSTALLATION.
3. THE BASKET TRAY MUST MAINTAIN ACCESSIBILITY FOR FUTURE CABLE RUNS. THERE MUST BE 12" OF CLEARANCE ABOVE THE TRAY. IF STACKED BASKET TRAYS ARE REQUIRED, ALLOW 12" VERTICAL SPACE BETWEEN TRAYS. A MINIMUM OF 6" CLEARANCE FROM ALL LIGHTING REGARDLESS. ANY SIGNIFICANT CEILING DEVICES BELOW THE BASKET TRAY OR JUST ABOVE THE BASKET TRAY THAT WOULD PREVENT ACCESSIBILITY IS UNACCEPTABLE AND AN ALTERNATE PATHWAY WILL NEED TO BE DETERMINED.
4. BASKET TRAY LOCATED WITHIN AN IDF/ MDF/ MMR SHALL NOT BE POSITIONED FEWER THAN 12" FROM A WALL TO THE SIDE OF THE BASKET TRAY. IF THIS REQUIREMENT CANNOT BE MET DUE TO FIELD CONDITIONS, THE CC IS REQUIRED TO NOTIFY ENGINEER AND OWNER OF THIS CONCERN PRIOR TO INSTALLATION.
5. ALL CABLE BASKETS MUST BE SUPPORTED AT A MAXIMUM SPACING OF 8 FT.
6. ALL TRAY SECTIONS MUST BE BONDED AND GROUNDED (EARTHED) IN ACCORDANCE WITH DRAWINGS, SPECIFICATIONS, MANUFACTURER INSTALLATION GUIDELINES AND LOCAL CODES.
7. ALL CUT ENDS ON BASKET AND HANGERS SHALL BE CAPPED.
8. ALL BASKET TRAY SECTIONS SHALL BE INSTALLED WITH GROUNDING STRAPS.
9. CABLE DROPOUT PLACEMENT SHALL BE CONSIDERED WHEN INSTALLING SUPPORTS FOR BASKET AS TO NOT IMPEDE THEIR INSTALLATION. PROPOSED WATERFALL LOCATIONS CAN BE FOUND ON THE CABLE TRAY DRAWING. ANY INSTANCE WHERE SUPPORT INSTALLATION WILL CONFLICT WITH THE LOCATION OF THE WATERFALL MUST BE SUBMITTED TO THE OWNER AND ENGINEER FOR REVIEW.

CONDUIT PATHWAY REQUIREMENTS
1. ALL CONDUITS MUST BE GROUNDED TO TELECOMMUNICATIONS GROUNDING SYSTEM PER TIA-607B ON BOTH ENDS.
2. EXTERNAL BONDING JUMPERS ARE REQUIRED ON ALL CONDUIT EXPANSION JOINTS COMPLYING WITH NEC ARTICLE 250.
3. EC TO PROVIDE 1BASE-T PULL STRING IN ALL EMPTY PATHWAYS. A PULL STRING SHALL WITH AT LEAST 250-LB TENSILE STRENGTH SHALL BE USED. 24" OF SLACK SHALL BE PROVIDED AT EACH END OF THE CONDUIT. PULL WIRES SHALL BE SECURED SO IT CANNOT FALL INTO THE CONDUIT AND BECOME UNREACHABLE. PULL WIRES SHALL HAVE EASILY IDENTIFIABLE DISTANCE MARKERS.
4. ALL VERTICAL AND HORIZONTAL POINT-TO-POINT OSP AND ISP CONDUITS SHALL BE LABELED WHERE CONDUIT DESTINATION IS OUT OF VIEW OF CONDUIT ORIGIN. LABEL MUST BE MADE OF BRASS AND MUST BE ATTACHED WITHIN 6" OF CONDUIT CAP. LABEL TEXT MUST BE 5/16" TALL, IN ALL CAPS, BOLD ARIAL FONT AND MUST BE (2) LINES. SEE TECHNOLOGY DETAILS FOR AND SPECS FOR FURTHER CONDUIT LABELING REQUIREMENTS.
5. FOR CONDUITS TERMINATING HORIZONTALLY ABOVE TRAY, CONDUITS MUST TERMINATE AT LEAST 6" BUT NO FARTHER THAN 8" FROM TOP OF TRAY.
6. FOR CONDUITS TERMINATING VERTICALLY ABOVE TRAY, CONDUITS MUST TERMINATE A MINIMUM OF 16" BUT NO HIGHER THAN 18" FROM TOP OF TRAY.
7. CONDUITS SHALL NOT EXCEED 100FT OR 180-DEGREES OF BEND BETWEEN APPROPRIATELY SIZED PULL BOXES.
8. CABLING SHALL NOT CHANGE DIRECTION WITHIN A PULL BOX.
9. ALL CONDUIT PULL BOXES REQUIRE COVERS WITH TAMPER PROOF HARDWARE. PULL BOX COVERS ARE REQUIRED TO BE DOWNWARD FACING AND ACCESSIBLE FROM THE BOTTOM OF THE PULL BOX.
10. CONTRACTOR SHALL PROVIDE AND INSTALL LONG SWEEPING BEND RADIUS FITTINGS FOR ALL TELECOM BACKBONE CONDUIT SYSTEMS. CONTRACTOR SHALL PROVIDE A FULL TELECOM CONDUIT PATHWAY SHOP DRAWING PACKAGE FOR OWNER AND ENGINEER REVIEW PRIOR TO PROCUREMENT AND INSTALL.
10A. CONDUITS WITH AN INTERNAL DIAMETER OF 2" OR LESS: THE INSIDE RADIUS OF A BEND IN CONDUIT SHALL BE AT LEAST (6) TIMES THE INTERNAL DIAMETER OF THE CONDUIT.
10B. CONDUITS WITH AN INTERNAL DIAMETER MORE THAN 2": THE INSIDE RADIUS OF A BEND IN CONDUIT SHALL BE AT LEAST (10) TIMES THE INTERNAL DIAMETER FOR 4". THE CONDUIT BEND RADIUS SHALL BE A MINIMUM OF 36".
11. WHERE BASKET TRAY PENETRATES THE WALL, EC IS REQUIRED TO PROVIDE CONDUIT PATHWAY SYSTEM FOR CABLE PASS-THROUGH. PATHWAY SYSTEM SHALL BE SIZED TO MEET CABLE TRAY CAPACITY.
12. ALL CABLING NOT INSTALLED IN A BASKET TRAY SHALL BE INSTALLED IN A CONDUIT PATHWAY SYSTEM. IT IS ACCEPTABLE TO ROUTE NETWORK CABLING IN J-HOOKS WITHIN ACCESSIBLE CEILINGS. AT NO TIME SHALL CABLE BE VISIBLE OUTSIDE OF TRAY OR IN A OPEN CEILING AREA.

EPMS & BMS
1. EPMS AND BMS DATA LOCATIONS AND QUANTITIES ARE AN ESTIMATION FOR PRICING PURPOSES. CC SHALL VERIFY FINAL DEVICE LOCATIONS AND CABLE QUANTITIES WITH THE CONTROLS ENGINEER/CONTRACTOR .
2. CC SHALL VERIFY NETWORK TERMINATION LOCATION WITH MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR.

STARLINK SCOPE
1. STARLINK ANTENNA AND ASSOCIATED ELECTRONICS PROVIDED BY OTHERS. INSTALLED BY CC.
2. EC SHALL PROVIDE A 2" CONDUIT PATHWAY TO ROOF. CONDUIT PATHWAY FROM RACK TO TERMINAL LOCATION SHALL BE A MAXIMUM OF 150' IN LENGTH.
3. CONDUIT SHALL EXTEND 36" ABOVE PARAPET AND HAVE AN UNOBSTRUCTED VIEW OF THE SKY.
4. EC TO PROVIDE 1.5KTNWO RECEPTACLE AND SURGE PROTECTION EQUIPMENT FOR ANTENNA.
5. CC SHALL PROVIDE (1) 1U RACK MOUNT SHELF FOR STARLINK HEAD END EQUIPMENT TO BE MOUNTED IN THE PRIMARY MDF.
6. CC TO ROUTE STARLINK ANTENNA CABLING BACK TO HEAD-END EQUIPMENT.
7. CC SHALL UTILIZE INCLUDED / PROPRIETARY STARLINK NETWORK CABLE TO CONNECT POWER SUPPLY TO OWNER NETWORK.
8. REFER TO DETAILS FOR ADDITIONAL INFORMATION AND INSTRUCTIONS.

COMMUNICATIONS SHOP DRAWING REQUIREMENTS
1. COMMUNICATION DEVICES SHALL NOT BE INSTALLED UNTIL CONTRACTOR HAS SUBMITTED AND RECEIVED APPROVAL ON SHOP DRAWINGS BY OWNER AND ENGINEER. CONTRACTOR TO REVIEW ALL DRAWING AND BOOK SPECIFICATIONS FOR SHOP DRAWING REQUIREMENTS. SHOP DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO:
   A. COORDINATED COMMUNICATIONS CONVEYANCE AND PATHWAYS
   B. COORDINATED DEVICE LOCATIONS AND LABELING
   C. COORDINATED DEVICE MOUNTING ELEVATIONS
   D. DEVICE LABEL MOCK-UPS
   E. COORDINATED BUILDING FACADE ELEVATIONS INCLUDING ALL MEP AND ARCHITECTURAL ELEMENTS
   F. FENCE AND GATE MOUNTING DETAILS
2. DEVICE COLORS SHALL BE COORDINATED WITH ARCHITECT PRIOR TO SHOP DRAWING SUBMISSION.
3. THE COMMUNICATIONS CONTRACTOR IS RESPONSIBLE FOR PROVIDING "DIMENSIONED" SHOP DRAWING PLAN SUBMITTALS. INCLUDING, BUT NOT LIMITED TO: FLOOR SLAB PENETRATION LOCATIONS AND UNDERGROUND CONDUIT PATHWAY PLANS WITH STUB-UP DIMENSIONING, FULLY COORDINATED WITH OTHER TRADES (ELECHAN/PLUMBING/GAS, ETC.)

GROUNDING NOTES:
1. ALL GROUNDING AND BONDING SHALL COMPLY WITH TIA-607, NEC REQUIREMENTS, LOCAL AHJ REQUIREMENTS, SPECIFICATIONS LOCATED IN THIS DRAWING SET, AND BOOK SPECIFICATIONS INCLUDED WITH THIS DRAWING PACKAGE. ADDITIONAL GROUNDING REQUIREMENTS BELOW.
2. EQUIPMENT GROUNDING METALLIC STRUCTURES INCLUDING BUILDING STEEL ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, RACKS, AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS SHALL BE BONDED AND GROUNDED.
3. PROVIDE GROUND PATHS THAT ARE PERMANENT AND CONTINUOUS WITH A RESISTANCE OF 3 OHM OR LESS FROM RACEWAY, CABLE TRAY, AND EQUIPMENT CONNECTIONS TO THE BUILDING GROUNDING ELECTRODE OR MAIN ELECTRICAL SERVICE ENTRANCE GROUND. THE RESISTANCE ACROSS INDIVIDUAL BONDING CONNECTIONS SHALL BE 10 MILLIOHMS OR LESS.
4. INSTALL ALL CONDUCTORS AS STRAIGHT AS POSSIBLE USING ONLY LONG SWEEP BENDS WHEN A CHANGE OF DIRECTION IS REQUIRED. SHARP 90S IN CONDUCTORS LARGER THAN #4 WILL BE REJECTED. DO NOT INSTALL CONDUCTORS WITH SHARP CHANGES IN DIRECTION, KINKS, BENDS, OR LOOPS. MINIMIZE LENGTH OF CABLE WHENEVER POSSIBLE BY TAKING THE SHORTEST ROUTE AVAILABLE.
5. FURNISH AND INSTALL ALL WIRE AND HARDWARE REQUIRED TO PROPERLY GROUND, BOND AND CONNECT COMMUNICATIONS RACEWAY, CABLE TRAY, METALLIC CABLE SHIELDS, AND EQUIPMENT TO A GROUND SOURCE.
6. GROUNDING CONDUCTORS NOT INSTALLED IN A TRAY SHALL BE ROUTED IN CONDUITS. OPEN GROUND CONDUCTORS OUTSIDE OF TRAY ARE NOT ALLOWED.
7. GROUND BONDING JUMPERS SHALL BE CONTINUOUS WITH NO SPLICES. USE THE SHORTEST LENGTH OF BONDING JUMPER POSSIBLE.
8. FURNISH AND INSTALL 1/4" THICK BY 4" HIGH BY 48" WIDE SOLID COPPER MAIN GROUND BAR (TBG) AS SPECIFIED WITH DUAL HOLE 3/8" X 1" LUGS SPACING. GROUND BAR SHALL BE SUFFICIENT LENGTH TO RESERVE SPACE FOR FUTURE EQUIPMENT GROWTH.
9. EACH OF THE CABLE TRAY SECTIONS SHALL BE CONNECTED TO THE GROUND GRID THAT RUNS WITHIN OR PARALLEL TO CABLE TRAY. A #6 GROUND WIRE SHALL BE USED TO TRAY TO GROUND GRID.
10. ALL GROUNDING LUGS SHALL HAVE CLEAR HEAT SHRINK COVER TO PROTECT AGAINST INCIDENTAL CONTACT WITH ANY ENERGIZED EQUIPMENT/TERMINAL.
11. FURNISH AND INSTALL #6 AWG GROUNDING WHIP AND LUG AT EACH RACK POSITION. IN LOCATIONS WHERE RACKS ARE NOT INSTALLED DAY 1, PROVIDE 4'-0" GROUNDING CONDUCTOR AND LUGS NEATLY COILED OVERHEAD FOR FUTURE INSTALLATION.
12. CORROSION INHIBITORS: WHEN MAKING GROUND AND GROUND BONDING CONNECTIONS, APPLY A CORROSION INHIBITOR TO ALL CONTACT SURFACES. USE CORROSION INHIBITOR APPROPRIATE FOR PROTECTING A CONNECTION BETWEEN THE METALS USED AT ALL CONNECTIONS.
13. ALL OPEN ENDS OF AISLE GROUND CONDUCTOR SHALL BE CLOSED WITH HEAT SHRINK END CAPS.
14. FURNISH AND INSTALL GROUNDING CABLE RACK HANGERS UNDERNEATH CABLE BASKET E.G. L-BRACKETS EVERY 18" FOR SUPPORTING AISLE GROUND CABLES WITHIN TECHNOLOGY EQUIPMENT ROOM
15. EACH CONDUCTOR TO BE LABELED AT THE EGB OR TMGB INDICATING DATE OF INSTALLATION AND DESTINATION OR SYSTEM TO WHICH THE CONDUCTOR IS ATTACHED.
16. LABELS SHALL BE SIMILAR TO PANDUIT PRODUCT LTYK BONDING CONDUCTOR LABEL KIT.
17. LABELS SHALL BE MACHINE PRODUCED BLACK LETTERING ON WHITE OR YELLOW BACKGROUND.
18. LABELS SHALL BE TIE-WRAPPED OR STRICTLY ADHERED TO CONDUCTOR IN A SECURE MANNER.

POWERED FIBER NOTES:
GENERAL CONTRACTOR SHALL BUDGETING FOR THE FOLLOWING POWERED FIBER SCOPE:
1. PROVIDE (1) 2" CONDUIT TO EACH SITE SECURITY POLE FROM NEAREST MDF IN BUILDING 1.
2. PROVIDE (2) TWO-PORT REMOTES AT EACH SITE SECURITY POLE INCLUDING CABLING, HEADEND GEAR, TERMINATIONS, AND REMOTES. REFER TO POWERED FIBER EQUIPMENT LIST FOR ACCEPTABLE PARTS AND PIECES.

CONSTRUCTION IT TRAILER NOTE:
GENERAL CONTRACTOR SHALL PROVIDE COSTING FOR PROCUREMENT AND INSTALL OF AN IT CONSTRUCTION COMMISSIONING TRAILER WITH THE FOLLOWING REQUIREMENTS FOR THE DURATION OF THE PROJECT:
1. (1) OFFICE WITH FURNITURE
2. (2) WORKSTATIONS WITH FURNITURE
3. (1) 8'X10' STORAGE ROOM
4. (1) BATHROOM
5. (1) 42U 24"WX 48"D NETWORK CABINET
6. (2) DEDICATED 20A 5-20 QUADS ABOVE NETWORK CABINET FOR IT EQUIPMENT
7. (2) TOTAL L6-30 RECEPTACLES MOUNTED ABOVE EACH CABINET

POWERED FIBER EQUIPMENT

TAG	DESCRIPTION	COLOR/FINISH	MFG	MODEL #
PF01	2U CHASSIS, CONTAINING SIX SLOTS FOR MODULES, SUPPORTING TWO POWER SUPPLY MODULES	-	LEVITON/ BERK-TEK	81001531
PF02	250 W POWER SUPPLY MODULE: EACH MODULE SUPPORTS 12 POE, 8 POE+, 4 POE++ 60 W, OR 2.5 POE++ 100 W DEVICES	-	LEVITON/ BERK-TEK	81001536
PF03	OPTIONAL BLANKING PANEL	-	LEVITON/ BERK-TEK	81000190
PF04	MEDIA MODULE, WITH FOUR RJ45 PORTS ON THE FRONT AND FOUR CORRESPONDING LC 1000BASE-LX (SINGLE-MODE) DUPLEX PORTS ON THE BACK	-	LEVITON/ BERK-TEK	810021262
PF05	2-PORT CABLE ASSEMBLY COMPOSITE CABLE, LOOSE TUBE. (4) SM STRANDS, (2) 12 AWG SOLID CONDUCTORS, RISER INDOOR/OUTDOOR	-	LEVITON/ BERK-TEK	BACR04A2D44FFNNPxxxx#
PF06	4-PORT CABLE ASSEMBLY COMPOSITE CABLE, LOOSE TUBE. (4) SM STRANDS, (2) 12 AWG SOLID CONDUCTORS, RISER INDOOR/OUTDOOR	-	LEVITON/ BERK-TEK	BACR08A0D44FFNNPxxxx*
PF07	OPTIONAL SINGLE-MODE LC DUPLEX PIGTAIL FOR THE CLOSET END (TYPE A4)	-	LEVITON/ BERK-TEK	111012178
PF08	OPTIONAL SINGLE-MODE LC DUPLEX PIGTAIL FOR THE REMOTE END (TYPE A8)	-	LEVITON/ BERK-TEK	111012179
PF09	M8 PIGTAIL 2 X 18 AWG CONDUCTOR – 36 IN. ONE REQUIRED FOR EACH 1-PORT OR 2-PORT REMOTE	-	LEVITON/ BERK-TEK	11099456
PF10	2-PORT SINGLE-MODE GIGABIT REMOTE, SUPPORTS (2) POE/POE+, (1) POE++ (60 W) AND (1) POE+, OR (1) POE++ (100 W) AND (1) DATA-ONLY DEVICES	-	LEVITON/ BERK-TEK	81001535
PF11	4-PORT SINGLE-MODE GIGABIT REMOTE, SUPPORTS (4) POE/POE+, (2) POE++ (60 W) AND (2) POE+, OR (2) POE++ (100 W) AND (2) DATA-ONLY DEVICES	-	LEVITON/ BERK-TEK	BY CONTRACTOR
PF12	COMPOSITE CABLE SURGE PROTECTOR; IN THE CLOSET AND AT THE REMOTE ENDS. ANY COMPOSITE CABLE CONNECTS TO THE UNPROTECTED SIDE.	-	DITEK	DITEK DTK-2MHLP488MB
PF13	SURGE PROTECTOR FOR THE RJ45 PORT ON THE 2-PORT REMOTE(S). THE OUT PORT SHOULD BE CONNECTED TO THE REMOTE(S).	-	DITEK	DITEK DTK-MRJEXTS

NOTES: PRIOR TO PROCUREMENT, CONTRACTOR SHALL IDENTIFY THE FOLLOWING: NUMBER OF NETWORK DEVICES TO SUPPORT, POE WATTAGE REQUIRED PER DEVICE, HEAD END TO REMOTE DISTANCE. CONTRACTOR TO AQUIRE A FORMAL BOM FROM MANUFACTURER FOR OWNER AND ENGINEER APPROVAL PRIOR TO PROCUREMNT AND INSTALLATION. LEVITON/ BERK-TEK CONTACT: RON KOTWCA: RKOTWICA@LEVITON.COM

FIBER BACKBONE SLACK LOOP TABLE

IDF	CABLE TYPE	SLACK LOOP LENGTH IDF	SLACK LOOP LENGTH AT WAP	NOTES
IDF-1-159	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
IDF-1-165	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-1-175	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-1-176	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-1-185	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-1-191	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-106	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-112	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-118	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-128	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-129	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-138	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-144	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
IDF-2-151	24-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
MMR-A	48-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY
MMR-B	48-STRAND SINGLE MODE FIBER	3FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT EACH END FOR CABLEIN MOBILITY

DEVICE SLACK LOOP TABLE

DEVICE	CABLE TYPE	SLACK LOOP LENGTH AT DEVICE	SLACK LOOP LENGTH AT ORIGIN	NOTES
ACCESS POINTS	CAT6A	10FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
EPMS	CAT6A	0FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
BMS	CAT6A	0FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
ROOM SCHEDULER	CAT6A	0FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
CCTV CAMERA	CAT6A	10FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
BIOMETRIC READER	CAT6A	0FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
INTERCOM	CAT6A	0FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
DAS UAP/ PS	MULTIPLE	10FT	3FT	DAS CONTRACTOR SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES
FURNITURE PLATES/FACEPLATES	CAT6A	1FT	3FT	CC SHALL PROVIDE SLACK (SERVICE LOOPS) AT CABLE ENDS (DEVICE SIDE AND ORIGIN SIDE) TO ACCOMMODATE FUTURE CABLING SYSTEM CHANGES

STRUCTURED CABLING PATCH PANEL SCHEDULE

MEDIA	ORIGIN ROOM	ORIGIN CABINET DESIGNATION	ORIGIN RU	DESTINATION ROOM	DESTINATION CABINET DESIGNATION	DESTINATION RU
(2) 48S OS2	MMR-A	101	39	MMR-B	101	39
24S OS1	MMR-A	101	39	MMR-A	102	39
24S OS2	MMR-A	101	39	MMR-B	102	39
24S OS2	MMR-A	101	40	IDF-1-159	-	24
24S OS2	MMR-A	101	40	IDF1-165	-	24
24S OS2	MMR-A	101	40	IDF1-175	-	24
24S OS2	MMR-A	101	40	IDF-1-176	-	24
24S OS2	MMR-A	101	40	IDF-1-185	-	24
24S OS2	MMR-A	101	40	IDF-1-191	-	24
24S OS2	MMR-A	101	40	IDF-2-106	-	24
24S OS2	MMR-A	101	40	IDF-2-112	-	24
24S OS2	MMR-A	101	40	IDF-2-118	-	24
24S OS2	MMR-A	101	40	IDF-2-128	-	24
24S OS2	MMR-A	101	40	IDF-2-138	-	24
24S OS2	MMR-A	101	40	IDF-2-129	-	24
24S OS2	MMR-A	101	40	IDF-2-144	-	24
24S OS2	MMR-A	101	40	IDF-2-151	-	24
24S OS2	MMR-B	101	40	IDF-1-159	-	24
24S OS2	MMR-B	101	40	IDF-1-165	-	24
24S OS2	MMR-B	101	40	IDF-1-175	-	24
24S OS2	MMR-B	101	40	IDF-1-176	-	24
24S OS2	MMR-B	101	40	IDF-1-185	-	24
24S OS2	MMR-B	101	40	IDF-1-191	-	24
24S OS2	MMR-B	101	40	IDF-2-106	-	24
24S OS2	MMR-B	101	40	IDF-2-112	-	24
24S OS2	MMR-B	101	40	IDF-2-118	-	24
24S OS2	MMR-B	101	40	IDF-2-128	-	24
24S OS2	MMR-B	101	40	IDF-2-129	-	24
24S OS2	MMR-B	101	40	IDF-2-138	-	24
24S OS2	MMR-B	101	40	IDF-2-144	-	24
24S OS2	MMR-B	101	40	IDF-2-151	-	24
24S OS2	MMR-B	101	41	MMR-A	102	41

TERMINATION NOTE: FIBER SHALL BE TERMINATED IN PIGTAIL CASETTES WITH LC PRESENTATION ON BOTH ENDS.

BMS & EPMS NETWORK CABLING REQUIREMENTS

BMS			EPMS		
EQUIPMENT	TYPICAL LOCATION	QTY OF CAT6 CABLES	EQUIPMENT	TYPICAL LOCATION	QTY OF CAT 6 CABLES
FCW	GALLERIES	1	UPS	UPS ROOMS, ELEC	1
CRAH	UPS ROOMS	1	BATTERY CABINET	UPS ROOMS, ELEC	1
IDU	ELEC, MMR, MECH	1	PDU	UPS ROOMS, GALLERIES	1
FPB	THROUGHOUT	1	PDP	ELEC	1
VAV	THROUGHOUT	1	STS / STSDP	UPS ROOMS	1
VRF MAIN CONTROLLER	ELEC, MECH	1	ATS	UPS ROOMS, ELEC	1
VRF CONTROL PANEL	MECH	2	UODP	UPS ROOMS, ELEC	1
AIR QUALITY METER	(2) PER DATA HALL	1	MSB	UPS ROOMS, ELEC	4
HUMIDIFIER	(1) PER GALLERY	1	LIGHTING INVERTER	UPS ROOMS, ELEC	1
BMS SERIAL CONTROL PANEL (SCP OR DDCP)	GALLERIES, ELEC, MECH, UPS ROOMS	2	INHIBIT STATION	UPS ROOMS	2
CHILLER MANAGER CONTROL PANEL	ROOF	1	HUPS	ELEC	1
CHILLER	EQUIPMENT YARD	3	TRANSFORMERS	GEN YARD, UPS ROOMS	1
RTU	ROOF	1	GENERATORS	GEN YARD, UPS ROOMS	1
DOAS	ROOF	1	CHP	ELEC	1
MAU	ROOF	1	CRP	ELEC	1
DRY COOLERS	EQUIPMENT YARD	3	CHDP	ELEC	1
IDF TEMP SENSOR	IDF CABINETS	1	HDP	ELEC	1
ERV T-STAT	VARIES	1	HP	ELEC	1
AIR COOLED CONDENSING UNIT	ROOF	1	RP	ELEC	1
MER	GEN YARD	TBD	HDMP	ELEC	1
INHIBIT PANEL	STS	1	CMDP	ELEC	1
			MMR & IDF PDU	MMR & IDF CABINETS	1
			ELEC VEHICLE CHARGER	PARKING LOT	1
			UMVS	CAMPUS	1
			MVS	CAMPUS	3
			RPP	(48) PER DATA HALL	4

CONDUIT COLOR MATRIX

DEVICE	CONDUIT COLOR
POWER	BARE
GROUND	GREEN
FIRE PROTECTION/ALARM	RED
CCTV CAMERAS	YELLOW
BMS	BLUE
EMPS	PURPLE
ACCESS CONTROL	YELLOW

NOTE: CONDUIT COLOR CODING SHOWN ON THIS SCHEDULE APPLIES ONLY TO ELECTRICAL ROOMS. ALL OTHER CONDUIT LABELING AND IDENTIFICATION REQUIREMENTS SHALL REMAIN PER TECHNOLOGY DOCUMENTS. FINAL REQUIREMENTS FOR ELECTRICAL SEPARATION AND COLOR CODING SHALL BE PER THE ELECTRICAL...

CONDUIT COLOR ALTERNATE NOTES

AS AN ALTERNATE, CONTRACTOR SHALL PROVIDE COLOR IDENTIFICATION BANDS ON ALL TELECOMMUNICATIONS, SECURITY, AUDIO-VISUAL, AND LOW-VOLTAGE CONDUITS THROUGHOUT THE BUILDING. COLOR BANDS SHALL BE APPLIED USING HEAT-, UV-, AND MOISTURE-RESISTANT VINYL TAPE OR EQUIVALENT WRAP. EACH BAND SHALL BE 2" MINIMUM WIDTH (OR FULL WRAP FOR CONDUITS 1-1/2" AND LARGER) AND INSTALLED AT INTERVALS NOT TO EXCEED 20 FEET, AT EVERY CHANGE IN DIRECTION, AND WITHIN 3 FEET OF EACH ROOM ENTRY OR TERMINATION. COLOR ASSIGNMENTS SHALL BE PER THE CONDUIT COLOR IDENTIFICATION SCHEDULE ON THIS SHEET.

STRUCTURED CABLING & JACK COLOR MATRIX

DEVICE	CABLE COLOR	JACK TYPE	JACK COLOR
VOICE/DATA	BLACK	CAT6A	BLACK
WAP	BLACK	CAT6A	BLACK
CCTV CAMERAS	YELLOW	CAT6A	YELLOW
BMS	BLUE	CAT6A	BLUE
EMPS	PURPLE	CAT6A	PURPLE
FLAT PANEL DISPLAY	BLACK	CAT6A	BLACK
ACCESS CONTROL	YELLOW	CAT6A	YELLOW
CONFERENCE ROOMS	BLACK	CAT6A	BLACK
BIOMETRIC READERS	YELLOW	CAT6A	YELLOW
INTERCOMS	YELLOW	CAT6A	YELLOW

POE INJECTOR ALTERNATE SCOPE NOTES

CONTRACTOR SHALL PROVIDE PRICING FOR PROCUREMENT AND INSTALLATION OF (1) 8-PORT RACK MOUNTABLE POE INJECTOR AND 1RU RACK MOUNTABLE ATS FOR EACH MMR AND IDF FOR CAMERAS REQUIRING HPOE.

COMMUNICATIONS EQUIPMENT LIST

TAG	DESCRIPTION	COLOR/FINISH	MFG	MODEL #
	RACK/CABINET EQUIPMENT			
RC01	1U 48-PORT CAT6A MODULAR PATCH PANEL	BLACK	FS	257247
RC02	1U 24-PORT CAT6A MODULAR PATCH PANEL	BLACK	FS	257245
RC03	1U HIGH DENSITY MODULAR FIBER ENCLOSURE	BLACK	SEE NOTE "CE-1"	BY CONTRACTOR
RC04	2U HIGH DENSITY MODULAR FIBER ENCLOSURE	BLACK	SEE NOTE "CE-1"	BY CONTRACTOR
RC05	4U