

***Request for Proposals
for
County of San Mateo
Region Operations Center (ROC)
Data Center Infrastructure Buildout***



***County of San Mateo
Project Development Unit***

Issued: August 24, 2018

Responses due: September 10th, 2018 by 2:30PM

Proposals can be mailed or hand delivered to:

County of San Mateo

Project Development Unit

1402 Maple Street

Redwood City, CA 94063

DISCLAIMER

This Request for Proposals (RFP) is not a commitment or contract of any kind. The County of San Mateo reserves the right to pursue any, or none of the ideas generated by this request. Costs for developing the proposals are entirely the responsibility of the applicants and shall not be reimbursed. The County reserves the right to select the proposal that is in the County's best interest, to reject any and all proposals, to terminate the RFP process, and/or to waive any requirements of this RFP when it determines that doing so is in the best interest of the County. Further, while every effort has been made to ensure the information presented in this RFP is accurate and thorough, the County assumes no liability for any unintentional errors or omissions in this document.

NOTE REGARDING THE PUBLIC RECORDS ACT:

(a) **General Provisions Regarding Public Nature of Proposals.**

Government Code Section 6250 *et. seq.*, the Public Records Act, defines a public record as any writing containing information relating to the conduct of the public's business that is prepared, owned, used, or retained by any state or local agency regardless of physical form or characteristics. The Public Records Act provides that public records shall be disclosed upon written request, and that any citizen has a right to inspect any public record, unless the document is exempted from the disclosure requirements.

(b) **Respondent's Rights Regarding Confidentiality of Proposals.**

The County of San Mateo does not represent or guarantee that any information submitted in response to the RFP will be kept confidential. If the County of San Mateo receives a request under the Public Records Act for any document submitted in response to this RFP, it will not assert any privileges that may exist on behalf of the person or business submitting the proposal. In the event that a party who has submitted a proposal wishes to prevent disclosure, it is the sole responsibility of that party to assert any applicable privileges or reasons why the document should not be produced and to obtain a court order prohibiting disclosure. If material is designated as confidential, the County will attempt in a timely manner to inform the person or entity that submitted such material of the public records request in order to permit the person or entity to assert any applicable privileges.

Section 10 of this document sets forth the procedures for designating a document as confidential. Failure to comply with the procedures in Section 10 constitutes a waiver by the submitting party of any claim that the information is protected from disclosure. If you submit information you claim is protected as a trade secret or on any other basis, you **must** follow all procedures in Section 10.

TABLE OF CONTENTS

<u>1.0</u>	<u>Introduction</u>	4
<u>2.0</u>	<u>Regional Operations Center (ROC)</u>	5
<u>3.0</u>	<u>Owners Project Requirements</u>	5
<u>4.0</u>	<u>Data Center Overview</u>	5
<u>5.0</u>	<u>Key Owner’s Technical Requirements</u>	7
<u>6.0</u>	<u>Tentative Outline of Project Time Frame</u>	7
<u>7.0</u>	<u>Architectural and Engineering Documentation</u>	8
<u>8.0</u>	<u>Specific Project Requirements</u>	10
<u>9.0</u>	<u>Scope of Work</u>	12
<u>APPENDICIES</u>		18
<u>Appendix A-</u>	<u>Concept Drawings Package</u>	19
<u>Appendix B -</u>	<u>Elevation Drawings</u>	26
<u>Appendix C -</u>	<u>Seismic Requirements</u>	27
	<u>Instruction for Proposals</u>	53
	<u>Schedule of Proposal Prices</u>	62
	<u>Bill of Materials</u>	63
<u>Appendix D -</u>	<u>PLA Agreement</u>	115

1.0 INTRODUCTION

HISTORY

San Mateo County was formed in 1856 is included in the San Francisco-Oakland-Hayward, Calif. Metropolitan Statistical Area, and is part of the San Francisco Bay Area, the nine counties bordering San Francisco Bay. It covers most of the San Francisco Peninsula. San Francisco International Airport is located at the northern end of the county, and Silicon Valley begins at the southern end. The county's built-up areas are mostly suburban with some areas being very urban and are home to several corporate campuses.

NEED

We are living in an exciting time for information technology – it is an ever-changing landscape to which we need to continually adapt. Many of these trends include migration to cloud-based technologies, the growing “Internet of Things” as more and more devices can be connected, the primacy of mobile access, new social applications and media, the growing need to be able to analyze “big data,” and of course the growing security challenges – particularly for a public-sector entity – from all of these accelerating connections, data, and applications. With an ever-growing need for technology to support the ongoing County initiatives, The County of San Mateo has embarked on the design and implementation of a new Data Center within the new Regional Operations Center Building.

PURPOSE

This Project is being implemented to align the current and future IT needs of The County of San Mateo with a facility that is capable of supporting the anticipated growth for 20+ years while maintaining the integrity of the current network framework. Through a series of meetings with COSM and California Data Center Design Group (CDCDG) this “Owners Project Requirements “ (OPR) document will shape the design intent, capabilities, levels of redundancy and capacity of the new data center white space infrastructure.

COSM currently utilizes multiple Data Center spaces including city owned facilities and a facility that is leased space in a Colocation environment. While the IT Dept. has been able to manage the needs of COSM to date, they are now faced with the high cost of Colocation, a shortage of power, space, and other ageing IT facilities that not worth renovating.

The new Data Center Site will be located within the newly constructed Regional Operations Center located at 501 Winslow, Redwood City, CA 94063. This site will house the County’s new “Next Generation” 911 Computer Aided Dispatch Facility, Emergency Operations “Flex” Space for Operational Efficiency during emergencies, and the Counties new TIER II Designed Data Center.

This Data Center will support all Core IT functions supporting the entire County of San Mateo. The facility will house the core network-switching platform, SAN infrastructure,

Server Farm (both virtual and legacy) and will house critical staff. As both a Data Center and the primary Technology Support Center for Countywide 911 Operations this facility will be a critical component in maintaining County and area wide technology platforms. Core systems including Radio, telecommunications, Network Core, and Departmental Data will be housed within the facility.

2.0 REGIONAL OPERATIONS CENTER (ROC)

The new 38,000 Square Foot, Two Story Regional Operations Center (ROC) will be located on the County Center Campus. On a daily basis it will house 9-1-1 Public Safety Dispatchers, and Emergency Operations Center, the Office of Emergency Services, and a State of the Art Tier II Data Center. Most importantly, the ROC will serve as a hub for public safety responders during major catastrophic events. It will be able to withstand violent shaking from an earthquake and includes redundant electrical, mechanical, water, and telecommunications systems. The building will also achieve a LEED Silver certification from the US Green Building Council and is the largest project funded to date by Measure K.

3.0 OWNER'S PROJECT REQUIREMENTS (OPR)

The OPR sets out to establish the key programming requirements for the project, for this project, Continuation of Electrical Distribution to Data Center Cabinet Level, Cabinet and Air Removal Door Installation, Fiber and Copper Installation and Distribution Pathways are included. The content of the OPR is a compilation of information gathered in various meetings and design charrettes with COSM data center stakeholders. The information herein is based on COSM existing IT arrangement and an estimate of their IT needs looking ahead for the next twenty years.

The OPR lays out the goals for the data center within the overall framework of the building infrastructure provided and details schematic level design for the buildout of the infrastructure within the white space. It is possible that some of the design goals may be impeded by physical constraints offered by the existing site, outside contractor value engineering, and code requirements related to jurisdictional authority.

The OPR outlines engineering concepts that satisfy the design goals of the COSM based on design meeting with COUNTY and PSC. The OPR also includes a detailed Bill of Materials for budgeting purposes and contractor procurement. It is intended to provide direction while maintaining contractor liability for the overall solution architecture and validation.

4.0 DATA CENTER

OVERVIEW

The design and construction of the new data center will be regulated under the COSM Planning and Building Dept. In addition, this facility must adhere to Seismic Zone 4 (or Seismic Level HIGH) requirements (See specification section 014600). All necessary plan review, construction observation, and permitting procedures will apply to this project.

Other Federal, State, and local authority jurisdiction compliance will also apply as well as adherence to the following specifications:

<ul style="list-style-type: none">• ANSI/TIA-942• ANSI/TIA-942 Addendum 2• ANSI/TIA-942-A• ANSI/TIA-942-B• ANSI/TIA-569-B• ANSI/TIA-607-B	<ul style="list-style-type: none">• BICSI-002-2015• ISO27000• ISO27001• ISO27002• ANSI/TIA-607-C• NFPA 70
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The data center and supporting areas will be approximately 2,000 square feet located on the Second floor in the middle of the newly constructed ROC Facility. The area will be provided in a ready state with services installed including:

- Electrical Systems fed via UPS to End of row PDU's.
- Cable tray & Ladder rack around the perimeter walls of the room, where applicable.
- Mechanical Support infrastructure fed from adjacent room.
- Fire Suppression System.
- Backboards for Telecom Presence, where applicable.
- Conduit Pathways for Cable routing/Access, where applicable.
- Fire alarm system
- Fire protection (sprinklers)
- Emergency lighting system
- Security system
- Building Management System

Each of the above will be installed by others and may be interfaced with the overall Building Management System.

5.0 KEY OWNER'S TECHNICAL REQUIREMENTS FOR THIS PROJECT

The selected contractor will provide the following services and goods including but not limited to:

- Mechanical and electrical infrastructure with concurrent maintainability
- 6.5kW/rack (average)
- Security fencing separating the PSC and ISD sides of the Data Center
- Fiber and Copper Distribution within the Data Center
- Copper Distribution between the Data Center and Incoming Copper Plant
- Fiber Distribution between the Data Center and incoming Fiber Plant
- Data Center Cabinets with Rear Door Hot Air Removal
- Star Line Bus Way Electrical Distribution
- Overhead Cable Tray within the Data Center

6.0 *TENTATIVE OUTLINE OF PROJECT TIME FRAME

RFP Date	8/24/2018
RFI Deadline	9/04/2018
RFI Responses	9/05/2018
Proposal / Budget Due Date	9/10/2018
Review of Proposal/Budget	9/14/2018
Interview Dates	9/17/2018
Preliminary Award	9/17/2018
Board Approval	9/25/2018
Contract Award	10/05/2018
Preliminary Permit Submittal	10/12/2018
Construction Start Date	11/12/2018
Construction Completion Date	4/30/2019

*These are estimated time frames; the county reserves the right to modify these dates

All Questions can be submitted via email to krodgers@smcgov.org no later than 9/4/18.

Budgetary Proposals need to be submitted via mail or in person to:

**The County of San Mateo
Project Development Unit
1402 Maple Street
Redwood City, CA 94063**

7.0 ARCHITECTURAL AND ENGINEERING DOCUMENTATION

PDU ROC BIM REQUIREMENTS

- A. This project will be utilizing Building Information Modeling (BIM). As part of this process the following trades shall utilize a Three Dimensional CAD format capable of creating intelligent objects as the design tool to create their shop drawings:
- Site Utilities
 - Structural Steel
 - Structural Concrete / Rebar
 - Structural Masonry
 - Metal Stud Framing
 - HVAC and Mechanical Piping and Equipment
 - Plumbing
 - Fire Protection
 - Electrical
 - Low Voltage Systems and Photometric Systems
 - Data Center
 - Ceiling Grid
 - Security Ceilings and Security walls (metal and masonry) and Security Screens
 - Food Service
 - Laundry Equipment
- B. The Contractor is required to have and use Navisworks Manage as the collaborative software to combine each disciplines model and use clash detection as a coordination tool. Each subcontractor must demonstrate the ability and willingness to use these tools and the tools interoperability with the Navisworks software. In addition to general contract requirements (2D shop drawings etc.) the subcontractors are required to provide 3D model(s) of their scope of work as outlined below in both native and Navisworks (.NWD or .NWC) format.
- C. The BIM Execution Plan (BEP) will be created after contractor selection. PDU will hold a BIM Kickoff Meeting after contractor selection with the selected contractor participating in the BIM process to review the BEP. Contractor's lead drafter, Project Manager and Field Foreman/Superintendent will be required to attend this meeting. The lead drafter and Foreman/Superintendent from each subcontractor will be required to attend all subsequent collaboration meetings as outlined in the BEP at the location and frequency as determined by PDU. The foreman/superintendent managing the work in the field is required to participate in the BIM coordination/clash detection meetings held until design and coordination is complete. The foreman/superintendent will be required to assist in discussions with subcontractor's lead drafter, project manager and other subcontractors in the coordination and sequence of work.

- D. Should unavoidable conflicts be encountered during the preparation or review of the coordination models and supplemental drawings or Shop Drawings, or during construction, they shall be promptly brought to PDU/CDCDG, in writing, for resolution.
- E. Coordinated Shop drawings must be signed off by each coordinating trade prior to submitting to the Architect. Prepare detailed Shop Drawings in plan view, with cross-sections as necessary, indicating the proposed installation plan for all wood or metal stud framing, HVAC, mechanical, fire sprinkler, plumbing, and electrical installations including support systems, maintenance access, no-fly zones etc. within the ceiling. These Drawings should depict actual elevations and linear dimensions, and all routing changes, transitions, and major offsets deemed necessary to accomplish the installation. Individual Shop Drawings will be prepared for each trade working within the designated space or area; in addition, coordination of the installation shall remain the responsibility of the Contractor. These Shop Drawings shall be submitted to the Architect for review prior to commencement of installation.
- F. Subcontractor shall remove and replace all work that does not comply with the signed off and approved coordinated shop drawings at his own expense. Repair or replace any other Work or property damaged by these operations at no additional cost to PDU.
- G. Where the Drawings are diagrammatic, showing only the general arrangement of the systems, subcontractor shall have responsibility for the fitting of materials and equipment to other parts of the equipment and structure, and to make adjustments as necessary or required to resolve space problems, preserve service room, and avoid architectural and structural elements and the Work of other trades. Contractor may be required to identify certain areas to relocate installations within the spaces depicted on the Drawings, e.g., ductwork may be shifted within the space shown to accommodate other systems. Such functional relocations shall not be deemed a change to the requirements of the Contract. In the event a rerouting of a system appears necessary, Contractor shall clearly highlight the proposed rearrangement on the submitted Shop Drawings.
- H. Do not obstruct spaces and installations required to be clear for operation, maintenance, part replacement, or Applicable Code Requirements. Do not cover any piping, wiring, ducts, or other installations until they have been inspected and approved and required inspection certificates issued. Ensure that anchorage, blocking, joining, and other detailing are provided as required.
- I. Building Information Modeling (BIM) Deliverables: BIM Deliverables are in addition and in conjunction to all other contracted deliverables.
 - 1. GENERAL
 - a. All models to be provided to PDU in native file format as well as Navisworks Document Format (.NWD) or Navisworks Cache Format (.NWC)
 - b. All elements of the project to be created in 3 Dimensions with real world sizes and coordinates

- c. All elements to have identifiable material designations
 - d. All elements to have identity codes or CSI codes attached
 - e. Equipment, doors, and windows to have manufacture and model attached if known.
 - f. The Contractor will facilitate weekly clash meetings using Navisworks. These meetings will be held at a location to be determined by PDU that best suits the project's needs. A minimum of one contact from each firm shall be required to attend and participate in this weekly meeting. This contact must have a working knowledge of the model as well as the authority to authorize changes.
 - g. PDU will setup a model sharing method for the sole purpose of exchanging modeling data. Each firm will be responsible to update their portion of the collaborated model to this website biweekly for the use in the weekly clash meeting.
 - h. All firms shall be responsible for providing models in a Navisworks format. Please refer to www.autodesk.com for information on files that can be converted to Navisworks.
2. LOW VOLTAGE SYSTEMS AND PHOTOMETRIC SYSTEMS
- a. Prepare model and all working and contract documents using one of the following 3D design tools.
 - A. Revit MEP
 - B. AutoCAD MEP
 - C. CAD MEP
 - D. All other formats must be preapproved in writing
 - b. Model all electrical systems.
 - c. Model all distribution boxes
 - d. Model all conduit runs of 2" diameter or larger
 - e. Model all bundled conduit
 - f. Model all cable trays/ladder racks including hangers
 - g. Model all data racks
 - h. Model all underground conduit runs to 5'-0" from edge of building
 - i. Model all curbs and equipment pads
 - j. Model all fixtures
 - k. Specialty systems (Fire Alarm, A/V, Security, Access Control and Telecom, etc.)
 - l. For all fixtures requiring installation or maintenance clearances, model the clearance as a non-visible item in the assembly.
 - m. Model all access panels
 - n. Model all seismic bracing, hangers, cable trays and supports.
 - o. Model all penetrations and openings
 - p. Model all areas and systems that will require coordination with other building components or systems.

8.0 PARTICULAR PROJECT REQUIREMENTS

General Requirements

This project will be a joint effort between McCarthy (The Building GC) and the selected contractor engaged directly by the COSM to build out the Data Center. In such a working arrangement all Safety requirements, working conditions, working hours, jobsite trainings, and all general conditions governed by McCarthy as the GC shall be followed and adhered to by the selected Data Center Contractor. Direction, scheduling, and coordination will be a joint effort with both the COSM, McCarthy, and the selected Data Center Contractor.

The COSM Data Center Project consists of the completion of the Space within the Data Center Envelope. As prepared this space will have a concrete deck, painted walls (with fire rated plywood where applicable), Drop Ceiling, and wall/floor/ceiling penetrations where applicable, provided by McCarthy. Electrical distribution for the Data Center will be provided to the end of row PDU. There will be an overlap of work requiring coordination between the selected contractor and McCarthy regarding the landing of outside plant Copper and Fiber (In McCarthy's Scope) into the data cabinets provided by the selected contractor.

This facility is being constructed in a High Seismic Zone and as such there are Seismic Design Requirements that must be adhered to. (See attached specification section 014600 regarding Seismic Requirements)

Manufacturer specifications for this project have been predefined, selected, registered, and priced through the distribution channels as defined below.

APC Cabinets, RDC, PDU's, and associated manufacturer required installation

Leviton Low Voltage Copper, Fiber, Cable tray, and accessories

UE Corp Electrical distribution, overhead Stanchion Support system and Accessories.

APC and Leviton Materials packages have already been assembled, registered, and priced through CSC/Wesco.

See Attached BOM

For pricing information please contact:

Wayne Brushett

CSC Wesco

760 219 0675

wbrushett@gocsc.com

Starline Busway (UECorp) Electrical distribution, overhead Stanchion Support system, and accessories **See Attached BOM and Pricing**

For pricing information please contact:

Tom Silva

Starline

408 309 5849

tsilva@uecorp.com

System Commissioning

Following the completion of the installation, startup, and acceptance testing of all systems and equipment, the commissioning team will perform detailed point-to-point testing of the system in all operational modes to confirm proper performance and operation. This activity is separate and independent from the contractor startup and site acceptance testing activity; however the contractors, suppliers, and manufacturers will be a part of the commissioning team and participate in the commissioning process. All systems will be fully commissioned. Contractor fees shall include all related load bank rental and setup fees for the commissioning process.

Integrated Systems Testing

Upon completion of the commissioning of all systems, integrated systems testing will be conducted. Integrated systems testing is conducted to observe and verify the integration and performance of all systems under actual operating conditions and various maintenance and failure scenarios.

Integrated systems will include placing multiple resistive load banks on the data center floor to simulate the computer loads. The load banks will be connected to the PDU feeders and fed from UPS power.

9.0 SCOPE OF WORK

The data center project has been broken into four specific areas as defined in the scope below.

1. Provisioning and Installation of data center Cabinets, PDU's, ARD's and Associated APC Hardware
2. Provisioning and Installation of Cabling and all related support systems
3. Provisioning and installation of Electrical Distribution Busway within the Data Center.
4. Design, Provisioning, and installation of security fencing within the Data Center.

Section #1 Data Center Cabinets, PDU's, ARD's and associated APC Hardware

The selected contractor will provide and install ACP ISX# ISX0001532476-0014
ISX Number includes Onsite delivery coordination, placement, and configuration of Cabinets, and Installation of Air Removal Doors, Temperature Sensor installation, ISX InfraXtructure Management Software and hardware and Solution Accessories by APC. (See Attached BOM for Details)

Contractor will be responsible for coordination with McCarthy/APC for the transport of cabinets from 1st floor delivery area to second floor Data Center location (See Attached summary of proposed pathway) All building surfaces will be required to be protected for this equipment move.

Contractor will be responsible for coordinating layout of cabinets, seismically bolting down cabinets, baying cabinets together, installation of Cabinet PDU's, connection of PDU's to Starline Busway, and "Rekeying" cabinets.

Cabinets located within the PSC side of the Data Center will be required to be "re-keyed" using a traditional Lock and Key. Cabinets located within the ISD side of the Data Center will be required to have key card access locks installed that will work with the building Access System. Contractor will need to coordinate with McCarthy and the County Project Development Team to define this hardware specification.

*Note: The selected contractor is only responsible for the installation of the hardware **NOT** the configuration.*

Specifics related to labor provided by APC can be found within their scope of work/ISX number or by contacting APC directly. CDCDG is also available for a detailed explanation of the APC services included.

Please refer to the drawing package for cabinet layout and configuration.

Section #2 Provisioning and Installation of Telecommunications Cabling and all related support systems

The Selected Contractor will provide and install Copper and Fiber telecommunications cabling within the Data Center and between the Data Center and IDF's and MPOE's.

The Data Center is comprised of two specific spaces, The PSC Side (Rows 1-3) and the ISD Side (Rows 4-6) The infrastructure design has been developed with specific criteria and input from the COSM and was developed based on current need, expansion, and future bandwidth potential that the County anticipates. It is a hybrid solution consisting of Top of Rack / End of Row Fiber and Copper with a copper analog overlay (primarily on the PSC side) for specific Radio functionality.

Cable tray pathways will be stacked with dual 12" wide cable trays above each row and a "Cross Row" single 12" tray as defined in the attached drawing set. Fiber runner will be installed above each row for fiber distribution from End of Row to Top of Rack. All cable tray will be supported from the top of cabinet utilizing the Starline Stanchion System included in the Starline BOM. (See Attached Detail in drawing set)

Descriptions below correspond with the single line drawing set (attached) for Fiber and Copper Cabling.

NOTE: All Fiber and CAT 6 Copper “In Row” lengths and all Copper connecting Patch Panels in the Cabinets to 66 Blocks on the wall should be verified prior to ordering. The entire Fiber solution utilizes an MTP pre terminated format and will come pre-tested from the factory.

Field testing will be required, but at a reduced quantity for validation purposes only. All Factory tests will need to be included in the project close out package. All copper will be factory terminated on one end with field termination required on the other with full field testing included based on the standards defined in section 4.

Grounding and Bonding will be required and will require tying into the perimeter cable tray installed by McCarthy in accordance with the standards defined in section 4.

Fiber Layer

1. *PSC*
End of Row to End of Row R1-C1 to R2-C1, R1-C1 to R3-C1, R2-C1 to R3-C1
60 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
2. *ISD*
End of Row to End of Row R4-C1 to R5-C1, R4-C1 to R6-C1, R5-C1 to R6-C1
60 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
3. *ISD TO PSC*
End of Row to End of Row R1-C1 to R5-C1, R2-C1 to R5-C1, R3-C1 to R5-C1
36 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 36 Pair LC/APC SM, 3 MTP SM
4. *PSC ROW 1*
End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
5. *PSC ROW 2*
End of Row to Top of Rack R2-C1 to R2-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
6. *PSC ROW 3*
End of Row to Top of Rack R3-C1 to R3-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
7. *ISD ROW 4*
End of Row to Top of Rack R4-C1 to R4-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
8. *ISD ROW 5*
End of Row to Top of Rack R5-C1 to R5-C2, C3, C4, C5, C6, C7, C8, C9, C10
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM
9. *ISD ROW 6*
End of Row to Top of Rack R6-C1 to R6-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11
12 Pair LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pair LC/APC SM, 3 MTP SM

Building Backbone Fiber Optic Cabling

10. 1st Floor IDF to DC R5 C1 24 Pair LC/UCP MMOM4, 12 Pair LC/APC SM @ 200'
11. 2nd Floor IDF to DC R5-C1 24 Pair LC/UCP MMOM4, 12 Pair LC/APC SM @ 75'

12. MPOE West to MPOE South 72 Pair LC/UCP MMOM4, 72 Pair LC/APC SM @ 175'
13. MPOE West to DC R5-C1 144 Pair LC/UCP MMOM4, 144 Pair LC/APC SM @ 250'
14. MPOE South to DC R5-C1 144 Pair LC/UCP MMOM4, 144 Pair LC/APC SM @ 200'

Copper Layer #1

15. PSC

End of Row to End of Row R1-C1 to R2-C1, R1-C1 to R3-C1, R2-C1 to R3-C1
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)

16. ISD

End of Row to End of Row R4-C1 to R5-C1, R4-C1 to R6-C1, R5-C1 to R6-C1
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)

17. ISD TO PSC

End of Row to End of Row R1-C1 to R5-C1, R2-C1 to R5-C1, R3-C1 to R5-C1
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)

18. PSC ROW 1

- A. End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- C. R1-C4 (Dispatch Distribution) to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- D. R1-C4 (Dispatch Distribution) to R2-C2 (Viper 1 Cab)
96 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- E. R1-C4 (Dispatch Distribution) to R3-C5 (Misc. 1 Cab)
48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- F. R1-C4 (Dispatch Distribution) to R3-C7 (Motorola Cab 1)
48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- G. R1-C4 (Dispatch Distribution) to R3C8 (Motorola Cab2)
48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- H. R1-C4 (Dispatch Distribution) to R2-C5 (Logging Recorder Cab)
48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- I. R1-C4 (Dispatch Distribution) to R1-C7 (Message Switch Cabinet)
48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- J. R1-C8 (Lawnet Cabinet) to Wall Cross Connect
50 Pair Copper (Patch Panel-RJ14 to 66 Block)

19. PSC ROW 2

- A. End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- C. R2-C2 (Viper 1 Cab) to Wall Cross Connect
200 pair Copper (Patch Panel to 66 Block)
- D. R2-C5 (Logging Recorder Cab) to Wall Cross Connect
200 Pair Copper (Patch Panel to 66 Block)

20. PSC ROW 3

- A. End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- C. R3-C2 (TEA Radio Cab) to Wall Cross Connect
200 Pair Copper (Patch Panel to 66 Block)
- D. R3-C5 (Misc. Cab) to Wall Cross Connect
50 Pair Copper (Patch Panel to 66 Block)
- E. R3-C7 (Motorola Cab 1) to Wall Cross Connect
200 Pair Copper (Patch Panel to 66 Block)
- F. R3-C8 (Motorola Cab 2) to Wall Cross Connect
200 Pair Copper (Patch Panel to 66 Block)
- G. R3-C9 (Motorola Cab 3) to Wall Cross Connect
200 Pair Copper (Patch Panel to 66 Block)
- H. R3-C10 (Motorola Cab 4) to Wall Cross Connect
50 Pair Copper (Patch Panel to 66 Block)
- I. R3-C3 (FSA 1 Cabinet) to Wall Cross Connect
50 Pair Copper (Patch Panel to 66 Block)
- J. R3-C11 (Paging Cab) to Wall Cross Connect
50 Pair Copper (Patch Panel to 66 Block)

21. ISD ROW 4

- A. End of Row to Top of Rack R4-C1 to R4-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- C. R4-C7 (Radio Cab 2) to Wall Cross Connect
150 Pair Copper (Patch Panel to 66 Block)

22. ISD ROW 5

- A. End of Row to Top of Rack R5-C1 to R5-C2, C3, C4, C5, C6, C7, C8, C9, C10
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)

23. ISD ROW 6

- A. End of Row to Top of Rack R6-C1 to R6-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11
24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- B. End of Row to Wall Cross Connect
24 Copper CAT 5 Cables (Patch Panel to 66 Block)

24. PSC Cross Connect to Outside Rooms

- A. 300 Pair from Backboard to MPOE West
(66 Block to 66 Block)
- B. 100 Pair from Backboard to MPOE South
(66 Block to 66 Block)

- C. 100 Pair from Backboard to IDF 2nd Floor
(66 Block to Patch Panel)

25. ISD Cross Connect to Outside Rooms

- A. 150 Pair from Backboard to MPOE West
(66 Block to 66 Block)
- B. 150 Pair from Backboard to MPOE South
(66 Block to 66 Block)
- C. 100 Pair from Backboard to IDF 1st Floor
(66 Block to Patch Panel)
- D. 100 Pair from Backboard to IDF 2nd Floor
(66 Block to Patch Panel)

Section #3 Provisioning and Installation of Starline Busway Electrical Distribution and all related support systems

The Selected Contractor will procure and install the Starline Busway system designed for the distribution of A/B power in the Data Center. McCarthy provided PDU's will be located at the end of each row and provide corresponding A/B power for each row within the Data Center (See attached Drawing set).

The selected contractor will be required to coordinate with McCarthy for the installation and connection of the Starline Busway to the Schneider End of Row PDU's.

The selected contractor will need to coordinate with McCarthy/COSM for Electrical System Testing and Integrated System Testing once the Starline Busway and APC Cabinets/PDU's have been installed in accordance with section 9.

Section #4 Design, Provisioning, and Installation of Security fencing separating PSC and ISD sides of the Data Center.

The Selected Contractor will be required to design a fence separation the PSC and COUNTY sides of the data center. The fence should consist of two sections located on the north and south end of row 3. Each section of fence will need to go from the respective cabinet at the end of each row to the corresponding wall and will need to include a "crash" gate for egress from the PSC side of the Data Center into the ISD side of the Data Center. Fencing height will need to be floor to ceiling with appropriate pathways/cutouts for any cable pathways that it will impede.

FENCING WILL BE REQUIRED TO COMPLY WITH A “HIGH SEISMIC” OR SEISMIC ZONE 4 REQUIREMENT. (SEE ATTACHED SEISMIC REQUIREMENTS)

APPENDICIES

Appendix A- Concept Drawings Package

Appendix B - Elevation Drawings

Appendix C - Bill of Materials / Seismic Requirements / Project Specifications

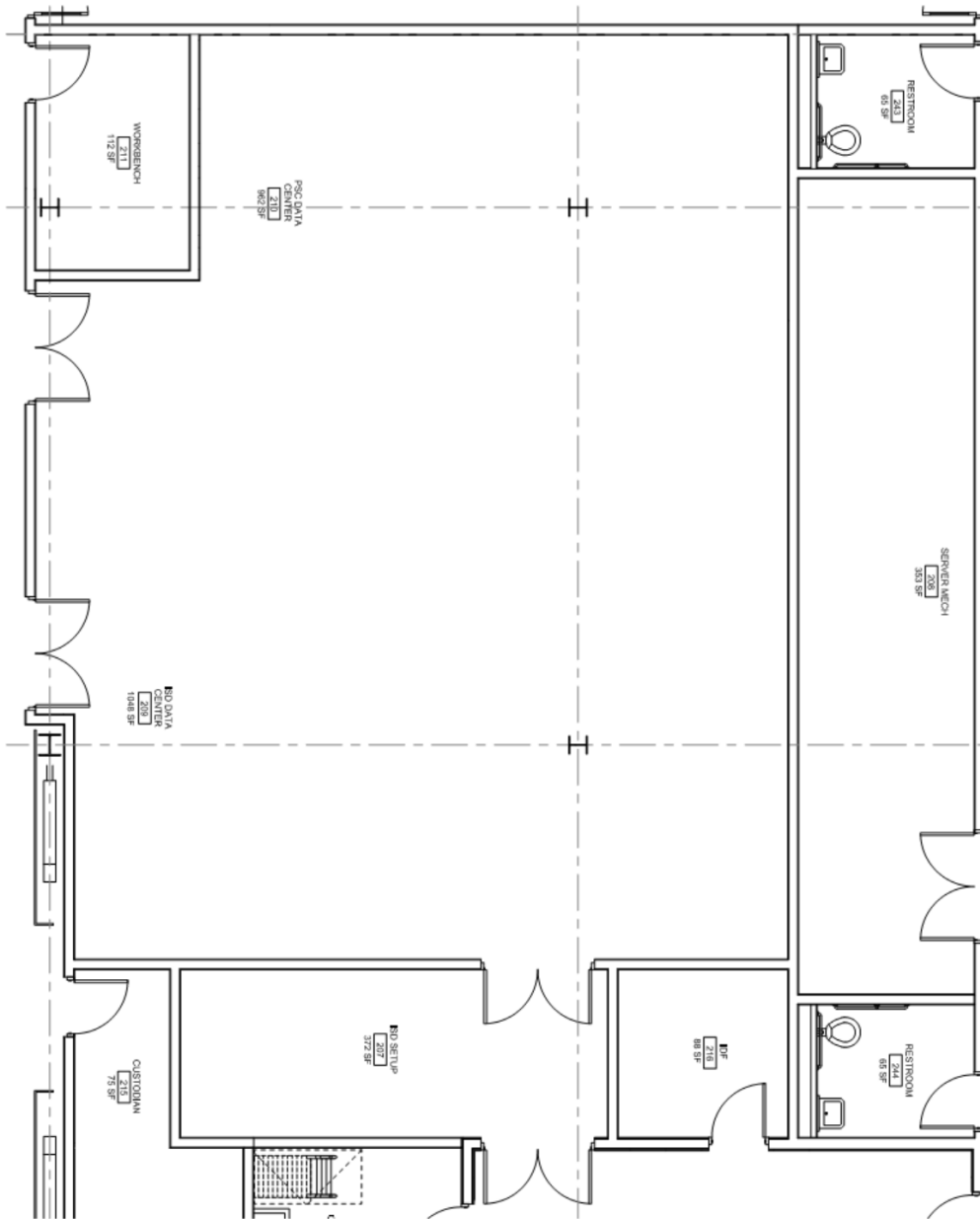
Appendix D - PLA Agreement

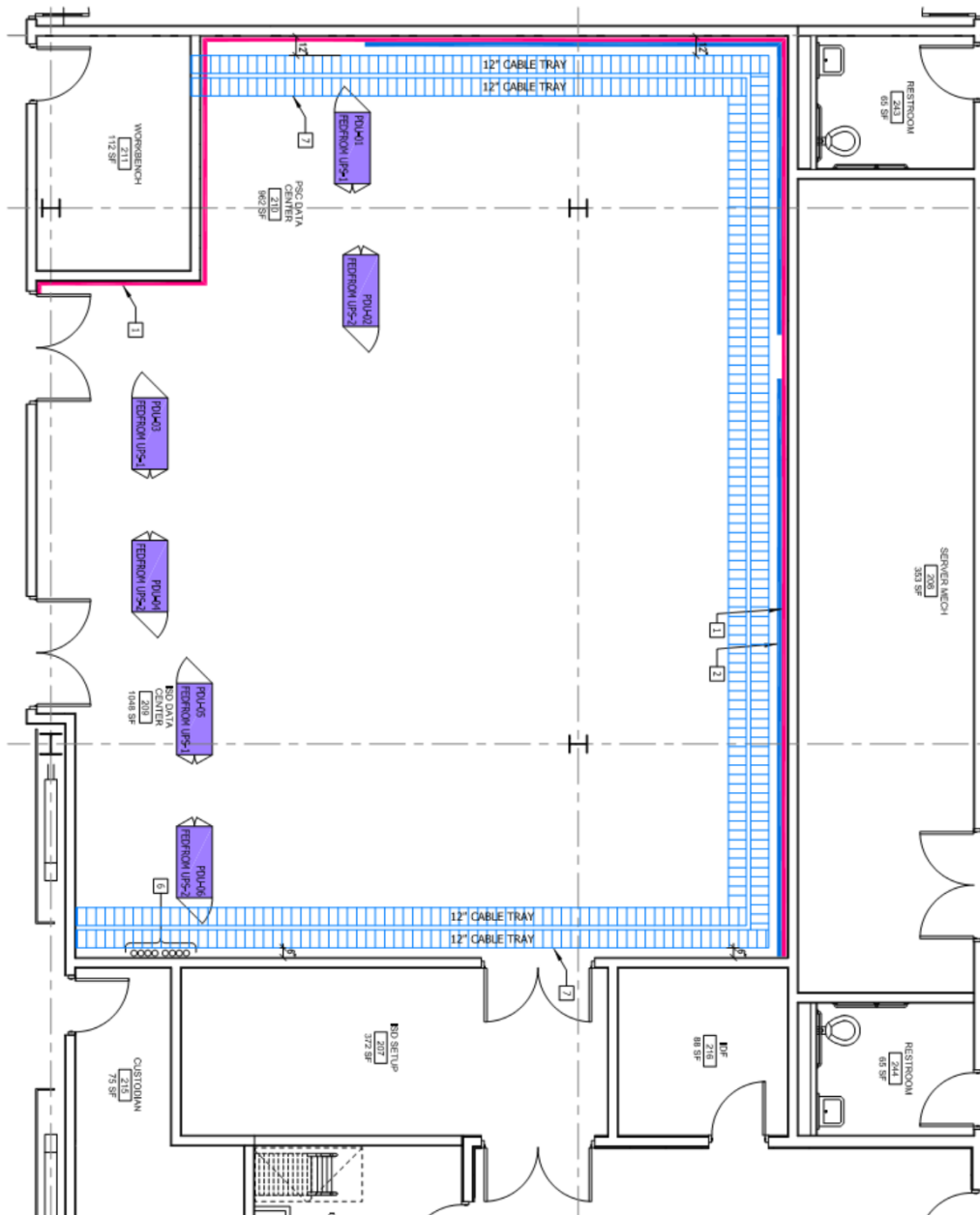
Appendix A



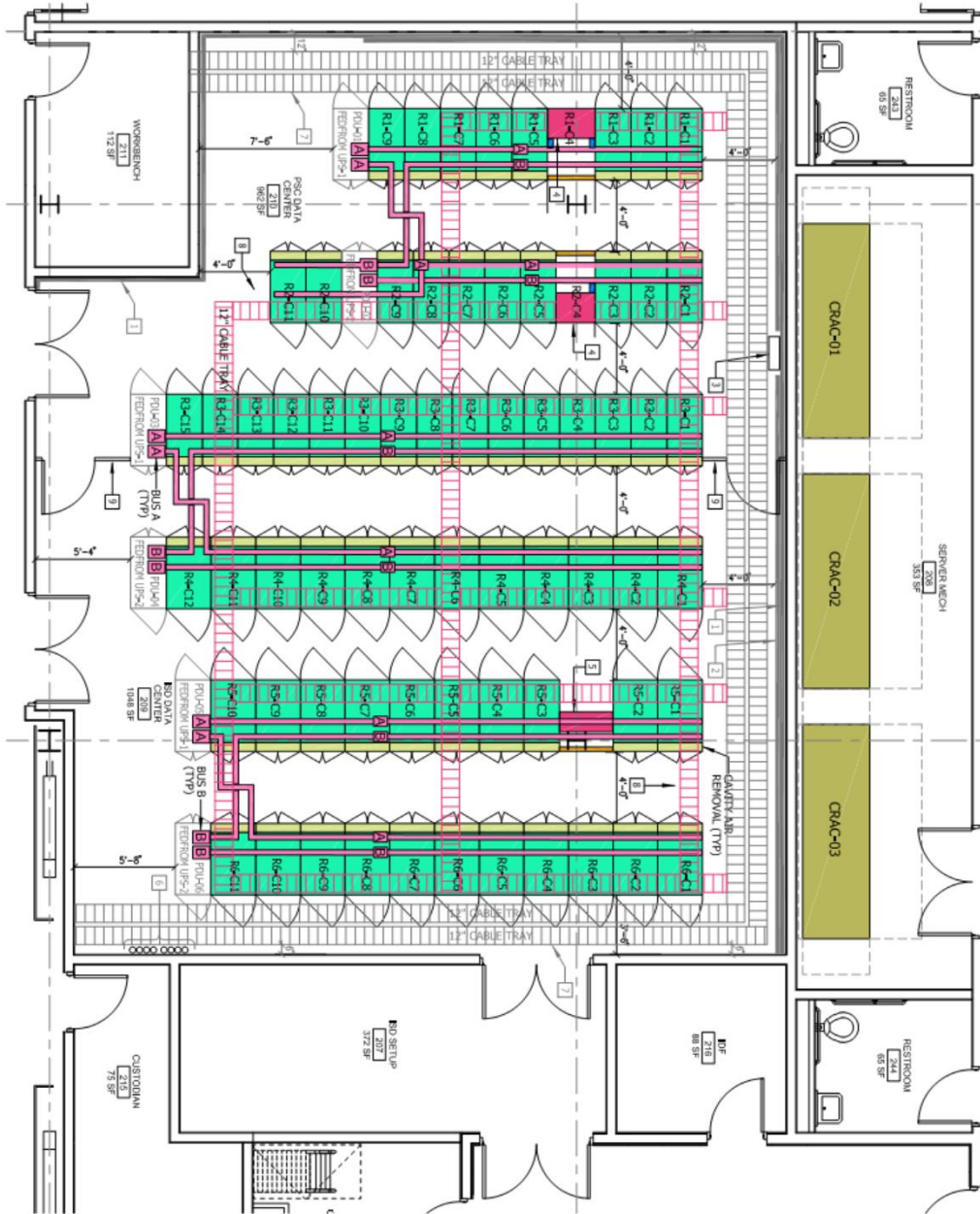
FINAL CONSTRUCTION DRAWING
SAN MATEO - DATA CENTER

SCALE: 3/16" = 1'-0"
JUNE 17, 2018
SK-1



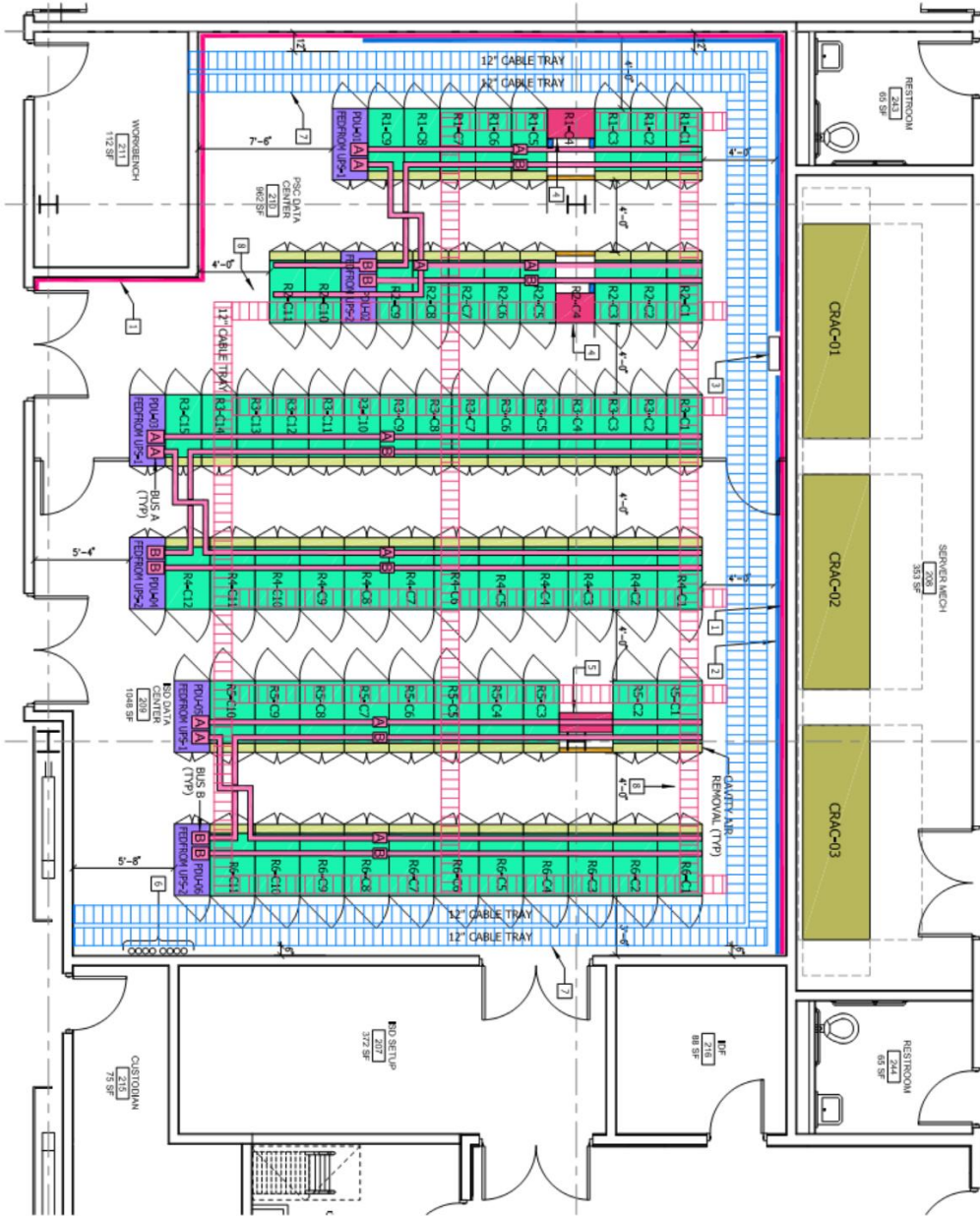


- REFERENCE NOTES**
- 1 3/4 INCH PLYWOOD BACKING.
 - 2 66 BLOCKS WITH SPARK GAP, 6-3/4 INCHES WIDTH FOR INCOMING FEED CABLES.
 - 3 7" DEEP PAGING CONTROLLER.
 - 4 20" 2-POST RELAY RACK WITH VERTICAL WIRE MANAGEMENT.
 - 5 24" X 24" POST MOUNTED NEMA BOX.
 - 6 (8) 4" CONDUIT ONLY STUBS.
 - 7 CABLE TRAY TO BE INSTALLED BY THE DBE.
 - 8 CABLE TRAY TO BE INSTALLED BY A THIRD PARTY CONTRACTOR.



REFERENCE NOTES

- 1 3/4 INCH PLYWOOD BACKING.
- 2 66 BLOCKS WITH SPARK GAP, 6-3/4 INCHES WIDTH FOR INCOMING FEED CABLES.
- 3 7" DEEP PAGING CONTROLLER.
- 4 20" 2-POST RELAY RACK WITH VERTICAL WIRE MANAGEMENT.
- 5 24" X 24" POST MOUNTED NEMA BOX.
- 6 (8) 4" CONDUIT ONLY STUBS.
- 7 CABLE TRAY TO BE INSTALLED BY THE DBE.
- 8 CABLE TRAY TO BE INSTALLED BY A THIRD PARTY CONTRACTOR.
- 9 SECURITY FENCE SEPARATING PSC FROM ISD. FENCE SHOULD BE FLOOR TO DROP CEILING WITH EMERGENCY CRASH GATE LEADING INTO ISD AREA.



- REFERENCE NOTES**
- 1 3/4 INCH PLYWOOD BACKING.
 - 2 66 BLOCKS WITH SPARK GAP, 6-3/4 INCHES WIDTH FOR INCOMING FEED CABLES.
 - 3 7\"/>

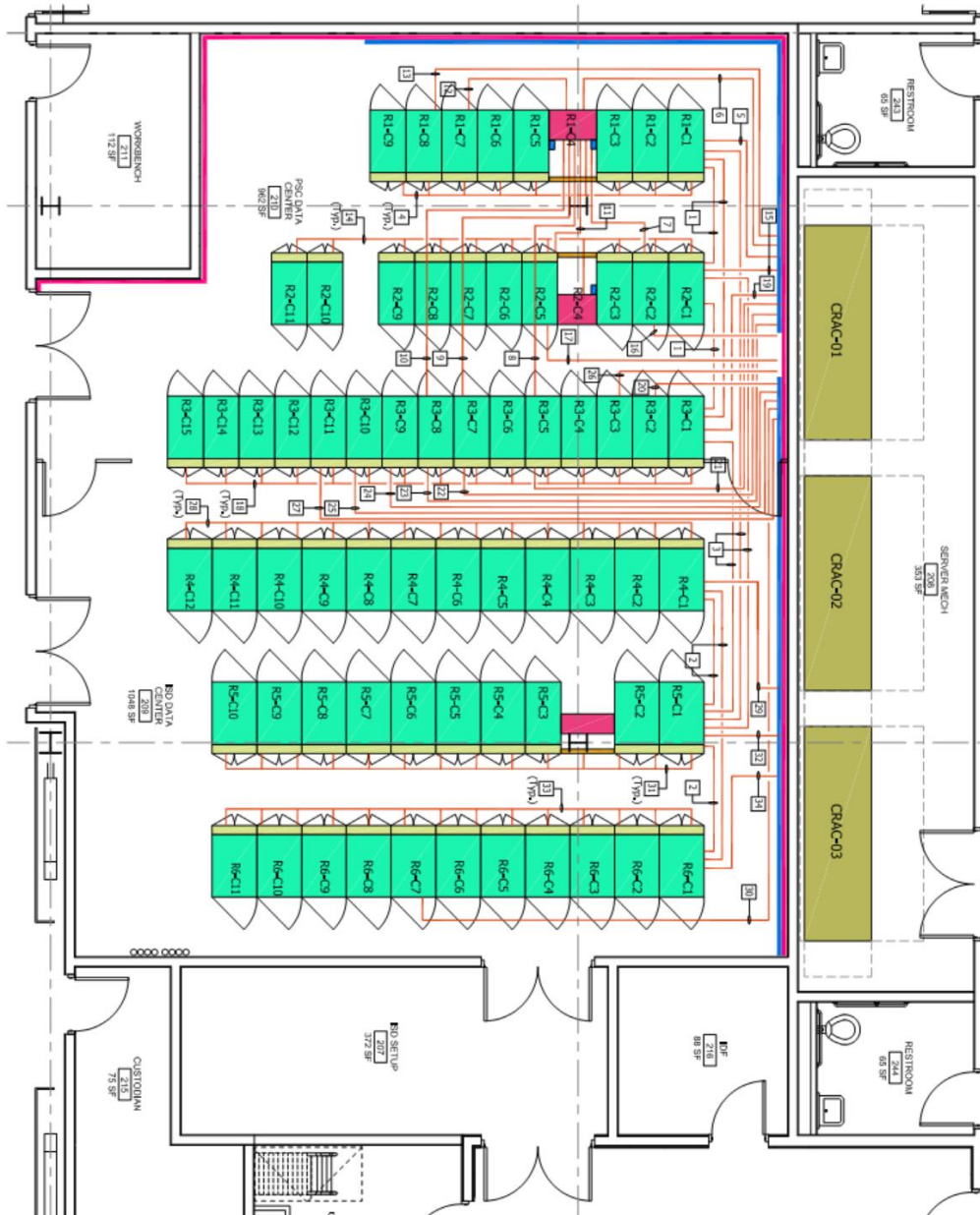


REFERENCE NOTES - FIBER

- 1 End of Row to End of Row R1-C1 to R2-C1, R1-C1 to R2-C1, 60 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 2 End of Row to End of Row R4-C1 to R5-C1, R4-C1 to R5-C1, 60 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 3 End of Row to End of Row R1-C1 to R5-C1, R2-C1 to R5-C1, 60 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 4 End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 5 End of Row to Top of Rack R2-C1 to R2-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 6 End of Row to Top of Rack R3-C1 to R3-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 7 End of Row to Top of Rack R4-C1 to R4-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 8 End of Row to Top of Rack R5-C1 to R5-C2, C3, C4, C5, C6, C7, C8, C9, C10, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN
- 9 End of Row to Top of Rack R6-C1 to R6-C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, 12 Pairs LC/UPC MMOM4, 3 MTP 40GB MMOM4, 12 Pairs LC/APC SN, 3 MTP SN

BUILDING BACKBONE FIBER OPTIC CABLING NOTES

- 1 1st Floor IDF to DC R5 C1, 24 Pairs LC/UPC MMOM4, 12 Pairs LC/APC SN @ 200'
- 2 2nd Floor IDF to DC R5 C1, 24 Pairs LC/UPC MMOM4, 12 Pairs LC/APC SN @ 75'
- 3 MPOE West to MPOE South 72 Pairs LC/UPC MMOM4, 72 Pairs LC/APC SN @ 175'
- 4 MPOE West to DC R5-C1, 144 Pairs LC/UPC MMOM4, 144 Pairs LC/APC SN @ 250'
- 5 MPOE South to DC R5-C1, 144 Pairs LC/UPC MMOM4, 144 Pairs LC/APC SN @ 200'



REFERENCE NOTES - COPPER

- 1 End of Row to End of Row R1-C1 to R2-C1, R1-C1 to R2-C1, R2-C1 to R3-C1
- 2 24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 3 End of Row to End of Row R4-C1 to R5-C1, R4-C1 to R5-C1, R5-C1 to R6-C1
- 4 24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 5 End of Row to End of Row R1-C1 to R2-C1, R2-C1 to R3-C1, R3-C1 to R4-C1
- 6 24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 7 End of Row to Top of Rack R1-C1 to R1-C2, C3, C4, C5, C6, C7, C8, C9
- 8 24 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 9 End of Row to Wall Cross Connect
- 10 24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- 11 R1-C4 (Dispatch Distribution) to Wall Cross Connect
- 12 24 Copper CAT 5 Cables (Patch Panel to 66 Block)
- 13 R1-C4 (Dispatch Distribution) to R2-C2 (Upper 1 Cab)
- 14 96 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 15 R1-C4 (Dispatch Distribution) to R2-C5 (Upper 1 Cab)
- 16 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 17 R1-C4 (Dispatch Distribution) to R2-C7 (Message Switch Cabinet)
- 18 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 19 R1-C4 (Dispatch Distribution) to R2-C8 (Message Switch Cabinet)
- 20 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 21 R1-C4 (Dispatch Distribution) to R2-C9 (Message Switch Cabinet)
- 22 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 23 R1-C4 (Dispatch Distribution) to R2-C10 (Message Switch Cabinet)
- 24 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 25 R1-C4 (Dispatch Distribution) to R2-C11 (Message Switch Cabinet)
- 26 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 27 R1-C4 (Dispatch Distribution) to R2-C12 (Message Switch Cabinet)
- 28 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 29 R1-C4 (Dispatch Distribution) to R2-C13 (Message Switch Cabinet)
- 30 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 31 R1-C4 (Dispatch Distribution) to R2-C14 (Message Switch Cabinet)
- 32 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 33 R1-C4 (Dispatch Distribution) to R2-C15 (Message Switch Cabinet)
- 34 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 35 R1-C4 (Dispatch Distribution) to R2-C16 (Message Switch Cabinet)
- 36 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 37 R1-C4 (Dispatch Distribution) to R2-C17 (Message Switch Cabinet)
- 38 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 39 R1-C4 (Dispatch Distribution) to R2-C18 (Message Switch Cabinet)
- 40 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 41 R1-C4 (Dispatch Distribution) to R2-C19 (Message Switch Cabinet)
- 42 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 43 R1-C4 (Dispatch Distribution) to R2-C20 (Message Switch Cabinet)
- 44 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 45 R1-C4 (Dispatch Distribution) to R2-C21 (Message Switch Cabinet)
- 46 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 47 R1-C4 (Dispatch Distribution) to R2-C22 (Message Switch Cabinet)
- 48 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 49 R1-C4 (Dispatch Distribution) to R2-C23 (Message Switch Cabinet)
- 50 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 51 R1-C4 (Dispatch Distribution) to R2-C24 (Message Switch Cabinet)
- 52 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 53 R1-C4 (Dispatch Distribution) to R2-C25 (Message Switch Cabinet)
- 54 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 55 R1-C4 (Dispatch Distribution) to R2-C26 (Message Switch Cabinet)
- 56 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 57 R1-C4 (Dispatch Distribution) to R2-C27 (Message Switch Cabinet)
- 58 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 59 R1-C4 (Dispatch Distribution) to R2-C28 (Message Switch Cabinet)
- 60 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 61 R1-C4 (Dispatch Distribution) to R2-C29 (Message Switch Cabinet)
- 62 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 63 R1-C4 (Dispatch Distribution) to R2-C30 (Message Switch Cabinet)
- 64 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 65 R1-C4 (Dispatch Distribution) to R2-C31 (Message Switch Cabinet)
- 66 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 67 R1-C4 (Dispatch Distribution) to R2-C32 (Message Switch Cabinet)
- 68 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 69 R1-C4 (Dispatch Distribution) to R2-C33 (Message Switch Cabinet)
- 70 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 71 R1-C4 (Dispatch Distribution) to R2-C34 (Message Switch Cabinet)
- 72 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 73 R1-C4 (Dispatch Distribution) to R2-C35 (Message Switch Cabinet)
- 74 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 75 R1-C4 (Dispatch Distribution) to R2-C36 (Message Switch Cabinet)
- 76 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 77 R1-C4 (Dispatch Distribution) to R2-C37 (Message Switch Cabinet)
- 78 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 79 R1-C4 (Dispatch Distribution) to R2-C38 (Message Switch Cabinet)
- 80 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 81 R1-C4 (Dispatch Distribution) to R2-C39 (Message Switch Cabinet)
- 82 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 83 R1-C4 (Dispatch Distribution) to R2-C40 (Message Switch Cabinet)
- 84 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 85 R1-C4 (Dispatch Distribution) to R2-C41 (Message Switch Cabinet)
- 86 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 87 R1-C4 (Dispatch Distribution) to R2-C42 (Message Switch Cabinet)
- 88 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 89 R1-C4 (Dispatch Distribution) to R2-C43 (Message Switch Cabinet)
- 90 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 91 R1-C4 (Dispatch Distribution) to R2-C44 (Message Switch Cabinet)
- 92 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 93 R1-C4 (Dispatch Distribution) to R2-C45 (Message Switch Cabinet)
- 94 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 95 R1-C4 (Dispatch Distribution) to R2-C46 (Message Switch Cabinet)
- 96 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 97 R1-C4 (Dispatch Distribution) to R2-C47 (Message Switch Cabinet)
- 98 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)
- 99 R1-C4 (Dispatch Distribution) to R2-C48 (Message Switch Cabinet)
- 100 48 Copper CAT 6 Cables (Patch Panel to Patch Panel)

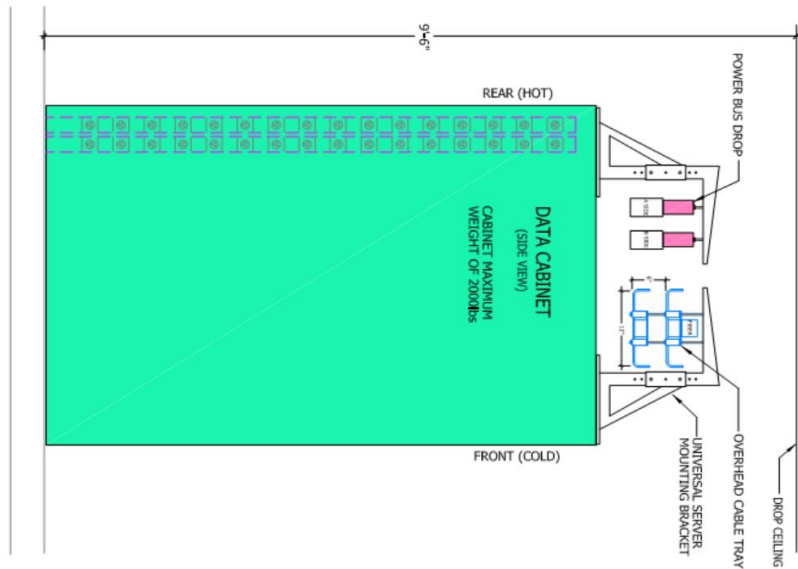
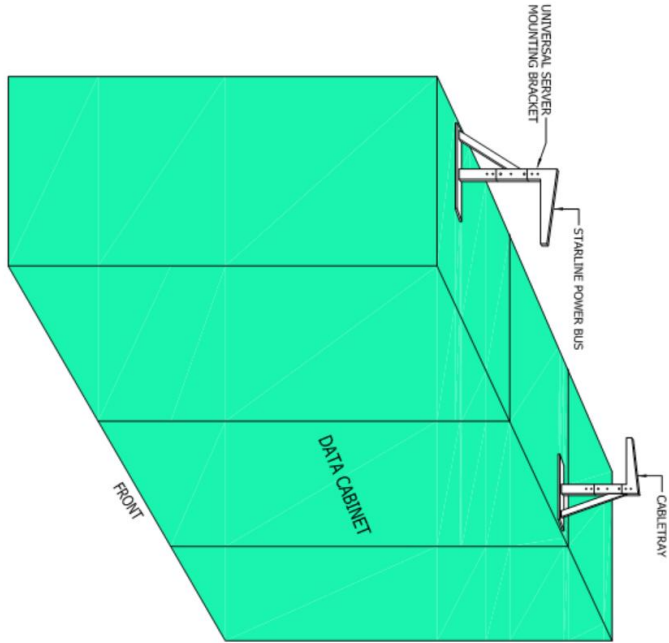
(Notes Continued on SK-7)

Appendix B



ELEVATION DETAILS
SAN MATEO - DATA CENTER

SCALE: 3/16" = 1'-0"
JUNE 17, 2018
SK-8



Appendix C

SECTION 014600 – SEISMIC DESIGN REQUIREMENTS FOR NON STRUCTURAL ELEMENTS

1.1 SUMMARY

- A. This Section includes seismic requirements for components and systems of the building that are “nonstructural”, meaning that these items are not part of the structural support of the building itself. This covers a broad range of items including building systems (e.g. HVAC, electrical power and low voltage, plumbing systems, telecom systems, etc.), major interior and exterior elements (e.g. interior walls, floors and ceilings; exterior cladding and framing, etc.), and equipment & furnishings within the building. Generally, the more critical the component or system is in terms of safety or for the continued operation of the building, the more seismic requirements are needed. These seismic requirements range from strapping of FF&E components to seismic anchoring/bracing and component certification of critical building systems. Of particular importance is the Article “Performance Requirements”; this includes a listing of components considered ‘Critical’ and a table that summarizes seismic requirements for a range of components and systems to be found in the building. Special Seismic Certification will be required for systems/components listed as ‘Critical’ or per Note 2 of Table 1.
- B. The requirements of this Section shall apply to architectural, mechanical, electrical, plumbing, fire suppression, and elevator systems identified in Table 1 of this Section.
- C. Related Requirements:
 - 1. Division 05 Section "Cold Formed Metal Framing"
 - 2. Division 05 Section "Metal Fabrications"
 - 3. Division 05 Section "Metal Stairs"
 - 4. Division 06 Section "Architectural Casework"
 - 5. Division 06 Section "Exterior Finish Carpentry"
 - 6. Division 06 Section "Flush Wood Paneling"
 - 7. Division 07 Section "Wall Cladding"
 - 8. Division 07 Section "Unit Pavers"
 - 9. Division 08 Section "Hollow Metal Doors and Frames"
 - 10. Division 08 Section "Overhead Coiling Doors"
 - 11. Division 08 Section "Sectional Doors"
 - 12. Division 08 Section "Glazed Aluminum-Framed Assemblies"
 - 13. Division 08 Section "Metal-Framed Skylights"
 - 14. Division 08 Section "Glazing"
 - 15. Division 09 Section "Non-Structural Metal Framing"
 - 16. Division 09 Section "Acoustical Tile Ceilings"
 - 17. Division 09 Section "Access Flooring"
 - 18. Division 10 Section "Toilet Compartments"
 - 19. Division 10 Section "Folding Panel Partitions"
 - 20. Division 10 Section "Storage Shelving"
 - 21. Division 11 Section "Residential Appliances"
 - 22. Division 14 Section "Electric Traction Elevators"
 - 23. Division 21 "Fire Suppression"
 - 24. Division 22 "Plumbing"

25. Division 23 "Heating Ventilating and Air Conditioning"
26. Division 26 "Electrical"
27. Division 27 "Communications"
28. Division 28 "Electronic Safety and Security"

1.2 DESIGN BUILD APPROACH

- A. This document is issued to give Bidders a basis for preparing a proposal to design and install nonstructural bracing elements for this project that meet both project and applicable code requirements.
 1. Coordinate other Work affected by this specification section to meet project and code requirements.
- B. Use this Specification as a guide to meet or exceed stated minimum design performance requirements, workmanship, materials, and construction.
 1. Work that results in not meeting the criteria described in this Section, or adversely affects Work described in other Sections, must be reviewed and approved by the County prior to being incorporated into the Project.
 2. See Division 01 'Substitution Procedures' for instructions on submitting proposed substitutions to Construction Manager.
 3. See Division 01 'Quality Requirements' and 'Product Requirements' for intent in listing any specific products, Basis of Design, or mock-ups. They generally are meant to establish or verify a baseline level of performance criteria to meet or exceed.
- C. Investigate and be apprised of applicable codes, rules, and regulations as enforced by Authority Having Jurisdiction (AHJ).
- D. Visit the Site of the proposed construction. Verify and inspect the existing site to determine conditions that affect this work.

1.3 REFERENCES

- A. Definitions:
 1. Non-Structural Building Elements: Components or systems that are not part of the building's structural system whether inside or outside, above or below grade. Non-structural components of buildings include:
 - a. Architectural Elements: Facades that are not part of the structural system and its shear resistant elements; cornices and other architectural projections and parapets that do not function structurally; glazing; nonbearing partitions; suspended ceilings; stairs isolated from the basic structure; cabinets; bookshelves; non-building system equipment; and storage racks.
 - b. Electrical Elements: Power and lighting systems; substations; switchgear and switchboards; auxiliary engine-generator sets; transfer switches; motor control centers; motor generators; selector and controller panels; fire suppression and alarm systems; IT systems; and telephone and communication systems.

- c. Mechanical Elements: Heating, ventilating, and air-conditioning systems; plumbing systems; sprinkler systems; pneumatic systems; boiler equipment and components.
 - d. Transportation Elements: Mechanical, electrical and structural elements for transport systems, i.e., elevators and dumbwaiters, including hoisting equipment and counterweights.
2. AHJ: Authority Having Jurisdiction – The governmental agency or sub-agency that regulates the construction process. This may be a local building department, state agency, federal entity or other body or bodies having statutory authority.
 3. Attachment: Means by which components and their supports are secured or connected to the seismic force resisting system of the structure. Such attachments include anchor bolts, welded connections, and mechanical fasteners.
 4. Component: A part or element of an architectural, electrical, or mechanical nonstructural system.
 5. Critical: A performance class of Designated Seismic Systems that denotes specific systems and components required to function for life safety purposes after an earthquake, systems and components containing hazardous materials, systems and components that are needed for continued operation of the facility, and systems and components that will require substantial time to repair following an earthquake.
 - a. Critical systems and components have a component importance factor, I_p , of 1.5
 - b. Critical systems and components require special seismic certification
 6. Designated Seismic System: Those architectural, electrical and mechanical systems and their components that require seismic design in accordance with ASCE 7 and for which the component importance factor, I_p , is 1.5 according to ASCE 7 or as designated with I_p of 1.5 in the Article “Performance Requirements” of this specification.
 7. Ductile Piping: Piping systems constructed with steel, aluminum, or copper.
 8. FF&E: Furniture, Fixtures and Equipment.
 9. IAS: International Accreditation Service, Inc.
 10. Non-ductile Piping: Piping or tubing systems constructed with plastic, cast iron, glass, or ceramics.
 11. Performance Class: Classification used to identify nonstructural systems and components as ‘Critical’ or ‘Non-Critical’.
 - a. Note: The term Performance Class is not defined by the CBC or ASCE 7. The term is presented here as a tool to communicate nonstructural seismic design requirements.
 12. Special Inspector: An IAS accredited CBC special inspection agency or qualified professional engineer who demonstrates competence, to the satisfaction of the building official (or Authority Having Jurisdiction [AHJ]), for inspection of the designated seismic systems. The County or the registered design professional in responsible charge acting as the County’s agent shall employ one or more special inspectors to provide periodic inspections during installation of designated seismic systems.

13. Seismic Qualification Certificates: Certificates for equipment, accessories, and components that state they have met Special Seismic Certification requirements, as described in this specification. Also called seismic component certificates.
 14. Special Seismic Certification: “Seismic Qualification Certificate” provided by Manufacturer with assurance that after a Design Earthquake (DE) equipment shall maintain: Structural Integrity, and Functionality. Special Seismic Certification shall meet CBC 2013 Section 1705A.12.4 and ASCE 7-10 Section 13.2.2 requirements.
 - a. Systems and components listed as ‘Critical’ or listed per Note 2 in Table 1 of this specification Section require special seismic certification.
 15. Support: Those structural members, assemblies of members, or manufactured elements, including braces, frames, legs, lugs, snubbers, hangers, saddles, or struts, which transmit loads between the nonstructural components and the structure.
- B. Standards - Current Edition, Typ.:
1. Current edition of the California Building Code (CBC) Section 1613 and current edition of ASCE 7, American Society of Civil Engineers “Minimum Design Loads for Buildings and Other Structures”, Section 13 and Section 15.5.3, shall define the minimum requirements for seismic design of nonstructural systems.
 - a. Special Seismic Certification – See Definitions above.
 - b. In some cases the Article “Performance Requirements” of this Specification requires a higher level of seismic performance than that required by the referenced standards. The higher level shall be used.
 2. American Concrete Institute (ACI):
 - a. 355.2 Qualification for Post-Installed Mechanical Anchors in Concrete and Commentary
 - b. 318 Appendix D Anchoring to Concrete
 - c. American Institute of Steel Construction (AISC): Load and Resistance Factor Design
American Society of Civil Engineers Minimum Design Loads for Building and Other Structures
 3. American Society for Testing and Materials (ASTM):
 - a. A/36/A36M Standard Specification for Carbon Structural Steel
 - b. A/53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - c. A307 Standard Specification for Carbon Steel Bolts and Studs; 600,000 PSI Tensile Strength
 - d. A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
 - e. A325M Standard Specification for High-Strength Bolts for Structural Steel Joints (Metric)
 - f. A490 Standard Specification for Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength
 - g. A490M Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric)
 - h. A500/A500m Standard Specification for Cold-Form Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

- i. A501 Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
 - j. A615/A615M Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - k. A992/A992M Standard Specification for Steel for Structural Shapes for Use in Building Framing
 - l. A996/A996M Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
 - m. E488-96 Standard Test Method for Strength of Anchors in Concrete and Masonry Elements
 - n. E580 Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions
 - o. American National Standards Institute (ANSI) and Rack Manufacturers' Institute (RMI): Specification For The Design, Testing and Utilization of Industrial Steel Storage Racks (ANSI MH16.1)
- 4. American Welding Society (AWS):
 - a. AWS D1.1 Structural Welding Steel
 - b. AWS D1.3 Structural Welding Sheet Steel
 - 5. International Code Council Evaluation Service (ICC-ES): Index of Reports can be found at <http://www.icc-es.org/reports/index.cfm>
 - 6. National Fire Protection Association: Installation of Sprinkler Systems (NFPA-13)
 - 7. OSHPD Code Application Notice 2-1708A.5 – Certification of Equipment and Nonstructural Components
 - 8. American Society of Mechanical Engineers (ASME)
 - a. Standard B31 Standards for Pressure Piping

1.4 QUALITY REQUIREMENTS

- 1. Shop-Drawing Preparation:
 - a. Have seismic-force-restraint shop drawings and calculations prepared by a Design Engineer specified above in paragraph 1.4 A.2
 - b. Submit design tables and information used for the design-force levels, stamped and signed by a Design Engineer specified above in paragraph 1.4 A.2
 - c. See 'Submittals' article in this specification for additional information.
- 2. Special Seismic Certification for Designated Seismic Systems:
 - a. Each manufacturer of designated seismic system components shall provide a certificate of compliance indicating that the component and its mounting system or anchorage have been tested or analyzed to withstand required seismic loads and maintain operability. Qualification shall be by an actual test on a shake table with three-dimensional shock tests, an analytical method using dynamic characteristics and forces and/or experience data based upon nationally recognized procedures acceptable to the AHJ. Certificate must be verified by an IAS accredited inspection body or other independent inspection entity acceptable

to the AHJ. Components shall be labeled with an identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an accredited agency that indicates that the representative sample of the product or material and its testing have been evaluated and listed by an accredited inspection body agency.

- b. If a particular component has no manufacturer available that has been evaluated and listed by an accredited inspection body agency, then qualification must be by analysis performed by a professional engineer registered in the jurisdiction where the Project is located. Professional engineer must be approved by the authority having jurisdiction and experienced in providing engineering services of the kind indicated. Analysis must include an evaluation of stress and deflection developed through the entire load path from the center of applied seismic load to the equipment anchorage. Analysis must consider dynamic characteristics and the response spectrum required by code.
- c. Special Seismic Certification for distribution systems such as piping and ductwork shall include a stress analysis of the pipe/duct, supports, bracing and anchors. The stress analysis shall include gravity and seismic demands and shall include an analytical assessment of connections and consideration of movement of points of attachment. The effects of in-line devices, where present, shall be considered in the analysis. Conformance with NFPA 13 2010 will satisfy Special Seismic Certification requirements for fire suppression piping.
- d. See 'Submittals' and 'Performance Requirements' articles in this specification for additional information.

3. Coordination:

- a. Do not install seismic restraints until seismic restraint submittals have been reviewed and accepted by the entity/entities identified on the Design Engineer specified above in paragraph 1.4 A.2
- b. Verify that multiple systems installed in the same vicinity can be installed without conflict.
- c. Verify tolerances between installed items to confirm that unbraced components will not come into contact with restrained equipment or structural members during an earthquake. When contact is possible, provide seismic restraint or provide justification to the satisfaction of the registered design professional in responsible charge of the project that contact will not cause unacceptable damage to the components in contact, their supports, finishes or other elements that are contacted.
- d. Coordinate and install trapeze or other multi-pipe hanger systems prior to pipe installation.

1.5 PERFORMANCE REQUIREMENTS

A. General

1. EMC Designated as an Essential Services Facility per California Code of Regulations (CCR) Title 24, Part 1, Chapter 4
2. Risk Category: IV (ASCE/SEI 7, Current Edition and Ref. CBC Table 1604.5)
3. Project Risk Design Category: F
4. Design earthquake spectral response acceleration short period (Sds) for Project: Per County's Geotechnical Report.
5. Wind Exposure Category: As determined by AHJ for Project Location and Project Type.
6. The calculated story drift for acceptable lateral systems shall not exceed 75% of the values allowed by ASCE 7 Table 12.2-1. (See narrative for acceptable lateral system types)
7. The calculated story drift for non-structural components, systems, equipment and support/anchoring shall be based on the full (100%) values allowed by ASCE 7 Table 12.2-1.

B. Design Responsibility

1. General: Where shown on Bidding Documents, details establish basic dimensions, profiles, sightlines, and appearance. Design seismic bracing and support systems and anchorages to withstand their own weights, loads due to pressure and suction of wind, seismic forces, thermal stresses, and building movement.
2. Design Engineer: Where seismic design is required by this Section, employ a registered structural engineer registered in the State of California and experienced in the area of seismic force restraints to design all structural elements of the seismic bracing system. This engineer shall prepare, stamp, and sign required structural drawings and calculations.
3. Modifications: Minor dimension and profile adjustments to those shown may be made in the interests of fabrication or erection methods or techniques, and the ability of the design to satisfy performance requirements, provided the visual design concept (general profile and shape, location of components, and dimension points) are maintained and such adjustments are approved by the Construction Manager at time of shop drawing review.

C. Seismic Design Criteria for Nonstructural Systems

1. See 'General' section of this Article for building Risk Category, Seismic Design Category, and other applicable criteria.
2. Special Seismic Certification: Systems and components listed as 'Critical' or listed per Note 2 in Table 1 of this Article require special seismic certification.

3. Performance Class for nonstructural systems and components shall be as follows:

a. Critical (C) – See Definitions.

- 1) The following list describes systems and components that are Critical for this project. Some of the listed items are anticipated for inclusion in the Project, though this is subject to the actual Design-Build Entity's design. If the Design-Build Entity uses a similar or equivalent system or component to one listed as Critical, then that similar/equivalent item shall also be considered as Critical.
- 2) See 'Submittals' Article of this specification Section for additional requirements.
- 3) Specific Critical systems and components include the following:
 - a) Required to function for life safety purposes
 - b) Systems needed for continued operation of the facility
 - c) Hazardous material
 - d) Exhaust and smoke control fans
 - e) Fire alarm systems
 - f) Fire suppression systems (all including clean agent system)
 - g) Fire suppression maintenance air compressor
 - h) Fire pumps
 - i) Fire sprinkler control valve
 - j) Alarm check valve
 - k) Water motor alarm
 - l) Fire alarm bell
 - m) Water flow switches
 - n) Fire suppression water detention tank and piping
 - o) Plumbing pipe valves and fittings
 - p) Domestic/potable water detention tank and piping
 - q) Rain water harvesting/detention tank and piping
 - r) Sanitary detention tank, valving and piping
 - s) Well pumps
 - t) Sump pump
 - u) Water Heater
 - v) Cartridge Pumps
 - w) Variable frequency drives
 - x) Air handling units
 - y) Air terminal units
 - z) HVAC heat exchangers
 - aa) Ground-loop/geothermal piping and equipment
 - bb) Cooling towers
 - cc) HVAC chillers and heat pumps, evaporators and condensers
 - dd) HVAC air conditioners
 - ee) Computer Room AC units (with humidity control)
 - ff) HVAC pumps
 - gg) HVAC Fans
 - hh) HVAC Heat Exchanger

- ii) HVAC Boiler
- jj) Emergency lighting
- kk) Main Distribution Panel
- ll) Electrical transfer switches and equipment
- mm) Electrical Switchgear and switchboards
- nn) Electrical service equipment and panelboards
- oo) Backup power generators and all associated components, starting batteries, charger (Genset)
- pp) Backup power generator fuel tanks and fuel systems
- qq) Portable backup power generator docking equipment
- rr) Electrical Transformers
- ss) Uninterruptable Power Supply Systems (UPS)
- tt) Surge protection equipment and devices
- uu) Audio-visual equipment
- vv) Communications equipment
- ww) IT/telecom cabinets and racks
- xx) IT/telecom overhead ladder racking and under floor cable tray
- yy) Access control system and equipment
- zz) Wall cladding anchoring/fastening and support systems
- aaa) Glazing and Framing (interior and exterior)
- bbb) Elevators

b. Non-Critical (NC) for all other nonstructural systems and components.

4. Systems or components considered as Rugged Equipment per OSHPD do not require special seismic certification if verification that the equipment is considered rugged by OSHPD is provided to and approved by the AHJ.
5. Component Importance Factor (Ip) for nonstructural systems and components shall be per ASCE 7 Sections 13.1.3 & 15.5.3, the above listed Critical systems/components, and Table 1 of this specification Section.
6. Design earthquake spectral response coefficients: See County-supplied geotechnical report.

D. Table 1: Seismic Design Requirements for Nonstructural Systems

- The seismic design requirements for each nonstructural system shall be as indicated in Table 1 below. Seismic forces (F_p) and displacements (D_p) shall be calculated in accordance with ASCE 7 Sections 13.3.1 and 13.3.2.

Table 1				
Nonstructural System	Performance Class (Component Importance Factor, Ip)	Seismic Design Required?		Comments
		Component (See Note 2)	Support and Attachment	
Architectural Systems:				
Interior Nonstructural Walls and Partitions	NC (1.0)	Yes	Yes	
	C (1.5)	Yes	Yes	Supporting other Critical components.
Exterior Nonstructural Walls	C (1.5)	Yes	Yes	
Exterior Wall Cladding	C (1.5)	Yes	Yes	Cladding anchoring/fastening and support systems
Glazing/ Glazed Assemblies / Windows/ Skylights	C (1.5)	Yes	Yes	Glazing and framing systems meet: <ul style="list-style-type: none">• Requirements of CBC Chapter 24• Displacement and fallout requirements of ASCE 7 Section 13.5.9.• Framing systems fastened to supporting structure to resist seismic design loads.• See ‘Installation’ Article of this specification Section for additional information.
Interior Wall Paneling	NC (1.0)	No	Yes	Paneling anchoring/fastening and support systems

Ceilings	NC (1.0)	Yes	Yes	Anchoring/fastening and support systems including seismic bracing for suspended ceiling systems. See 'Installation' Article of this specification Section for additional information.
Access Flooring	C (1.5)	Yes	Yes	
Casework and Built-in cabinetry/storage/shelving	NC (1.0)	No	Yes	See ASCE 7 Section 15.5.3 for Steel Storage Racks
	C (1.5)	Yes	Yes	Supporting other Critical components.
FF&E non-movable items (For FF&E items in Contract and N.I.C.)	NC (1.0)	No	Yes	All fixed FF&E items shall be seismically strapped or mechanically fastened in place to prevent over- turning or movement of the FF&E component. All FF&E item's doors, shelves, and other access devices shall be designed to resist opening and spilling of contents during an earthquake (via, locks, magnetic latches, stays, elastic
FF&E movable items (For FF&E items in Contract and N.I.C.)	NC (1.0)	No	Yes	All movable or portable FF&E items shall be capable of being locked in place to resist the lateral seismic movement of the item (via, wheel locks, strapping, removable anchoring, etc.). All FF&E item's doors, shelves, and other access devices shall be designed to resist opening and spilling of contents during an earthquake (via, locks, magnetic latches, stays, elastic shelf chords,
Audio-Visual Equipment	C (1.5)	Yes ●	Yes	For equipment permanently installed in project.
Appliances /Kitchen Equipment	NC (1.0)	No	Yes	See 'Installation' Article in this specification for additional information.

Communications Equipment	C (1.5)	Yes ●	Yes	For systems and equipment needed for continued operation of the facility
Fire Suppression and Plumbing Systems:				
Fire Suppression Alarm and Sprinkler System	C (1.5)	No	Yes	Design shall be in accordance with NFPA 13 and CBC 1613.6.3 (ASCE 7 Section 13.6.8.3)
General Fire Suppression and Plumbing Equipment (Components)	NC (1.0)	No	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> • Components mounted 4 feet or less above floor and weighing more than 400 lb. • Components mounted more than 4 feet above the floor and weighing more than 20 pounds or, for distribution systems, weighing more than 5 lb/ft.
	C (1.5)	Yes (Note 1) ●	Yes	Support and attachment, seismic design and special seismic certification required for all components.
Piping Systems	NC (1.0)	No	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> • Ductile piping systems having a nominal pipe size greater than 3 inches. • Non-ductile systems of all sizes.

	C (1.5)	Yes	Yes	<p>Component design shall consider the allowable stress for pipe materials defined by ASCE 7 Section 13.6.3 and 13.6.11</p> <p>Support and attachment seismic design required for:</p> <ul style="list-style-type: none"> • Ductile piping systems having a nominal pipe size greater than 1 inch. • Non-ductile piping systems of all sizes.
Mechanical and Electrical Systems:				
General Mechanical and Electrical Equipment (Components)	NC (1.0)	No	Yes	<p>Support and attachment seismic design required for:</p> <ul style="list-style-type: none"> • Components mounted 4 feet or less above floor and weighing more than 400 lb. • Components mounted more than 4 feet above the floor and weighing more than 20 pounds or, for distribution systems, weighing more than 5
	C (1.5)	<p>Yes (Note 1)</p> <ul style="list-style-type: none"> • 	Yes	<p>Support and attachment seismic design and special seismic certification required for all components.</p>

Piping Systems	NC (1.0)	No	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> • Ductile piping systems having a nominal pipe size greater than 3 inches. • Non-ductile systems of all sizes.
	C (1.5)	Yes	Yes	Component design shall consider the allowable stress for pipe materials defined by ASCE 7 Section 13.6.3 and 13.6.11 Support and attachment seismic design required for: <ul style="list-style-type: none"> • Ductile piping systems having a nominal pipe size greater than 1 inch. • Non-ductile piping systems of all sizes.
HVAC Duct Systems	NC (1.0)	No	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> • Duct systems having a cross sectional area of 6 square feet or greater.
	C (1.5)	Yes	Yes	Component design shall consider the duct material and strength and method of connection between sections. <ul style="list-style-type: none"> • Support and attachment seismic design required for all ducts.
Conduit and Cable Tray	NC (1.0)	No	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> • Conduit systems having a nominal conduit size 2 inches or greater.

	C (1.5)	Yes ●	Yes	Support and attachment seismic design required for: <ul style="list-style-type: none"> ● Conduit systems for critical components. ● Cable Tray
Electric Traction Elevator	C (1.5)	Yes ●	Yes	
<p style="text-align: center;"><u>Notes:</u></p> <p>1. Active mechanical and electrical equipment which must remain operable following the design earthquake shall be certified by the supplier as operable, and components with hazardous contents shall be certified by the supplier as maintaining containment following the design earthquake. Components certified for Seismic Zone 4 earthquake demands of the 1997 Uniform Building Code shall be accepted.</p> <p>2. A) Items shown with the following symbol: ● will also require Special Seismic Certification in accordance with CBC, Chapter 17 and ASCE 7 Chapter 13 requirements for Designated Seismic Systems. A Seismic Qualification Certificate and appropriate labeling is required.</p> <p>B) All other items requiring seismic design of components shall meet 2013 CBC Section 1613A requirements.</p>				

1.6 SUBMITTALS

- A. In addition to submittals required by individual specification Sections, provide a statement of compliance with the requirements of this Section for any affected system.
- B. Design Build Entity to provide County with a complete listing of systems and components for their design defined as 'Critical' or requiring special seismic certification per Table 1 of this Specification before design is approved by County.
- C. Submittals and Tests and Inspections requirements described in Div. 01 Section 'Quality Requirements.'
- D. Submittals required by AHJ and 2013 CBC Chapter 17A.
- E. Submit Seismic Qualification Certificates for components of Designated Seismic Systems or as explicitly required by individual specification Sections.
- F. Submit a coordinated set of equipment anchorage drawings prior to installation including:
 1. Description, layout, and location of items to be anchored or braced with anchorage or brace points noted and dimensioned.
 2. Details of anchorage or bracing at large scale with all members, parts brackets shown, together with all connections, bolts, welds etc. clearly identified and specified.
 3. Numerical value of design seismic brace loads.

4. For expansion bolts, include design load and capacity if different from those specified.
- G. Submit prior to installation, a coordinated set of bracing drawings for seismic protection of piping, with data identifying the various support-to-structure connections and seismic bracing structural connections, include:
 1. Single-line piping diagrams on a floor-by-floor basis. Show all suspended piping for a given floor on the same plain.
 2. Type of pipe (Copper, steel, cast iron, insulated, non-insulated, etc.).
 3. Pipe contents.
 4. Structural framing.
 5. Location of all gravity load pipe supports and spacing requirements.
 6. Numerical value of gravity load reactions.
 7. Location of all seismic bracing.
 8. Numerical value of applied seismic brace loads.
 9. Type of connection (Vertical support, vertical support with seismic brace etc.).
 10. Seismic brace reaction type (tension or compression). Details illustrating all support and bracing components, methods of connections, and specific anchors to be used.
- H. Submit prior to installation, bracing drawings for seismic protection of suspended ductwork and suspended electrical and communication cables, include:
 1. Details illustrating all support and bracing components, methods of connection, and specific anchors to be used.
 2. Numerical value of applied gravity and seismic loads and seismic loads acting on support and bracing components.
 3. Maximum spacing of hangers and bracing
 4. Seal of registered structural engineer responsible for design.
- I. Submit design calculations prepared and sealed by the registered structural engineer specified above in paragraph 1.4 A.2
- J. Submit for concrete anchors, the appropriate ICC evaluation reports.

1.7 MATERIALS

- A. The following listed materials are typically used for seismic anchoring, bracing, attachment and fastening:
- B. Steel
 1. Structural steel: ASTM A36, A36M, A992.
 2. Structural tubing: ASTM A500, Grade B.
 3. Steel pipe: ASTM A53/A53M, Grade B.
 4. Bolts and nuts: ASTM, A307, A325, A325M, A490, A490M, ASTM A563.
 5. Lag bolts and screws: ASME B18.2.1 (ASME B18.2.3.8M), ASTM A563.
 6. Powder driven anchors: NES NER-272.
- C. Light Gage Non-Load Bearing Metal Framing
 1. Metal studs: A653 Grade 33, ASTM A1011 Grade 33, ASTM A446 Grade A or D, or ASTM

County of San Mateo Project Development Unit – RFP – Data Center Infrastructure Buildout – Region Operations Center (ROC)

- A570.
 - 2. Tie wires: ASTM A641/A641M.
 - 3. Screws for fastening to cold-formed metal framing: ANSI B18.6.4.
- D. Welding
 - 1. Welding filler metal: AWS A5.1.
- E. Post-installed Anchors
 - 1. Expansion or sleeve anchors: Pre-qualified for use in seismic applications per ASTM E488.
 - 2. Adhesive anchors: Pre-qualified for use in seismic applications per ASTM E488.
- F. Seismic Restraint Cables
 - 1. Pre-stretched galvanized carbon steel cable 7x19 strand core, ASCE-19, ASTM A-1023 1A, ASTM A-603 or stainless steel.
- G. Channel Strut And Fittings
 - 1. Strut: ASTM A 1011SS Gr 33 or ASTM A 653 Gr 33.
 - 2. Fittings: ASTM A 575, A 576, A36 or A 635.

1.8 INSTALLATION

- A. General Requirements
 - 1. For items identified in Table 1 furnish and install supports, braces, connections, hardware and anchoring devices to withstand code-required seismic forces and seismic deformations without shifting or overturning. For components with $I_p = 1.5$, in addition to providing code-required seismic forces and deformations, provide installations capable of providing post-earthquake functionality.
 - 2. Construct seismic restraints and anchorages that do not inhibit thermal expansion and contraction of distribution systems. Utilize ASME Standard B31 when utilizing common supports for both thermal and seismic loading.
 - 3. Maintain fire ratings of assemblies as specified elsewhere or on the drawings in addition to compliance with the criteria set forth below.
 - 4. Provide equipment supports and anchoring devices to withstand the seismic design forces, so that when seismic design forces are applied, the equipment cannot displace, overturn, or become inoperable.
 - 5. Provide anchorages in conformance with recommendations of the equipment manufacturer and as shown on approved shop drawings and calculations.
- B. Nonstructural Exterior Wall Components
 - 1. Nonstructural exterior wall framing
 - a. Design framing to resist out-of-plane seismic design force, movement due to temperature changes, and relative vertical movement between floors.
 - b. Design framing to accommodate code-required interstory drift without damage that compromises the exterior wall's water, moisture and thermal barriers.
 - c. Design framing with sufficient out-of-plane stiffness to prevent damage to

cladding or veneer when subjected to code-required out-of-plane forces.

2. Veneer
 - a. Fasten veneer to substrate to accommodate out-of-plane seismic design force and deformation of supporting framing.
 - b. Anchored veneer shall be detailed to prevent moisture penetration from weather that could corrode anchors.
3. Nonstructural Prefabricated Panels
 - a. Design prefabricated panels and connections capable of resisting in-plane and out-of-plane forces and story drift deformations in accordance with ASCE-7.
4. Glazing/Glazed Assemblies/Windows and Skylights
 - a. Design glazing to resist out-of-plane seismic design force
 - b. Design glazing to meet the most stringent requirement of the following:
 - 1) Design glazing to accommodate code-required relative displacement to resist fallout as set forth in ASCE 7 Section 13.5.9, CBC Chapter 24, and not less than 0.5".
 - a) Seismic Relative Displacements based on maximum calculated code value for story drift (not including any drift-limit factors placed on the building structural system).
 - 2) Drift limit for glass components shall be determined in accordance with AAMA 501.6 or by engineering analysis.
 - c. In lieu of calculations, compliance with design criteria may be established by testing in accordance with AAMA 501.4

C. Interior Partitions

1. Heavy partitions (masonry, glass block, etc.):
 - a. Design wall and connections to resist out-of-plane seismic design force.
 - b. Provide connection detail between the building structure and heavy partition to accommodate seismic relative displacement between partition and structure.
 - c. Maintain fire rating at connections in rated construction.
 - d. Properly anchor walls to the structure for restraint, so as to carry lateral loads imposed due to earthquake along with their own weight and other lateral forces.
2. Light partitions (metal stud or wood stud):
 - a. Design partitions to resist out-of-plane seismic design force. Design force shall be based on the weight of the partition framing, finishes, soffits, connected casework or equipment, and ceilings for which it provides bracing. Out-of-plane design force shall not be less than 5 psf.
 - b. Design partitions to accommodate code-required interstory drift.
 - c. Fasten veneer to partition framing to resist code required forces and deformation of studs.
 - d. Where partition does not extend to the structure, the partition height does not exceed 9 feet, the linear weight of the partition does not exceed the product of 10 pounds times the height in feet of the partition and the partition horizontal load does not exceed 5 psf, lateral bracing to the building structural is not required. For all other conditions, provide supplemental bracing or framing to

resist out-of-plane seismic design force. Such bracing or framing shall be independent of splayed wire ceiling bracing. Design wall bracing or framing for compatibility with ceiling deflection requirements, fire ratings and architectural treatments.

- e. Metal Stud Framing: Meet Installation requirements described in:
 - 1) Load Bearing Framing: Div. 05 Section 'Cold-Formed Metal Framing'
 - 2) Non-Load Bearing Framing: Div. 09 Section 'Non-Structural Metal Framing'

D. Ceilings

- 1. Suspended acoustic tile ceilings:
 - a. Design and install ceiling in accordance with ASTM E580.
 - b. For Seismic Design Categories D, E and F, provide bracing at regular intervals to resist code design forces and limit vertical and lateral movement. Suspended ceilings with areas less than or equal to 144 square feet and that are surrounded by walls or soffits that are laterally braced to the structure above are exempt from seismic design requirements.
 - c. Where ceilings are unbraced or splayed wire bracing is used to resist seismic forces and limit lateral deflections, provide 1 inch clearance around all penetrations through the ceiling sprinkler drops. If flexible sprinkler drops are used and have been certified to accommodate 1 inch of movement, the 1 inch clearance requirement may be waived.
 - d. Provide independent support of lighting fixtures, diffusers, cable trays, electrical conduit and other ceiling appurtenances.
 - e. Ceiling system design load W_p shall be taken as not less than 4 psf.
- 2. Ceilings directly fastened to structural framing or furred with materials that are directly applied to structural framing
 - a. Fasten ceiling to framing to resist the vertical seismic design forces and the weight of the ceiling and all connected light fixtures, sprinklers, HVAC appurtenances.

E. Parapets, Roof Screen Walls, Appendages, Canopies, Marquees, Signs, Chimneys, And Stacks

- 1. Exterior appendages
 - a. Design component and connections to resist out-of-plane seismic design force and code wind force.
 - b. Design and provide supplementary framing and/or backing as required to support and anchor to structural framing.
 - c. Provide details that do not compromise water, moisture and thermal barriers.

F. Access Floors

- 1. Provide restraint to resist seismic design force in any direction. Use components that have been tested in accordance with CISCA "Recommended Test Procedures for Access Floors."
- 2. The use of adhesive-only anchorage of pedestals is prohibited in Seismic Design Categories D through F.

G. Stairways

1. Stairs (including treads, risers, landings and enclosures)
 - a. Design components and connections to resist seismic design force
 - b. Design stairs to accommodate code-required interstory drift. Acceptable means shall include isolating the stair from experiencing internal stresses due to code-required interstory drift or provide substantiating evidence to demonstrate that stair can accommodate code-required interstory drift.
 - c. Design and provide supplementary framing as required to support and anchor to structural framing.
 - d. Design components and connections to maintain fire rating when subjected to seismic design forces and deformations.

H. Freestanding Walls or Fences

1. Freestanding walls and fences:
 - a. Design wall/fence and foundation capable of resisting out-of-plane seismic design force and code wind forces including out-of-plane forces.

I. Mechanical and Plumbing Components

1. Floor and base-mounted mechanical equipment (e.g. boilers, furnaces, pumps, chillers, manufacturing, process machinery, etc.), vibration isolated equipment and associated system vibration and seismic controls for connections.
 - a. Design equipment anchorage to resist seismic design force in any direction.
 - b. Design vibration and seismic controls for equipment to include base and isolator requirements.
 - c. Provide flexible connection between equipment and interconnected piping.
 - d. Where equipment is mounted on vibration isolators and restraints, use isolators and restraints designed for amplified code forces per ASCE 7 and with demonstrated ability to resist required forces including gravity, operational and seismic forces.
 - e. Provide supplemental steel or concrete base as required for mounting equipment on isolators. Where equipment is not designed to be point loaded, provide base capable of transferring gravity and seismic demands from equipment to isolator base plate anchorage.
 - f. Where concrete floor thickness is less than required for expansion anchor installation per ICC-ESR, install through bolt in lieu of expansion anchor. Where timber/wood floor or other substrate is inadequate for installation of lag bolts, screws or other mechanical fasteners, furnish and install supplemental framing or blocking to transfer loads to structural elements.
2. Suspended mechanical equipment
 - a. Design support and bracing to resist seismic design force in any direction.
 - b. Provide flexible connection between equipment and interconnected piping.
 - c. Brace equipment hung from spring mounts using cable or other bracing that will not transmit vibration to the structure.
 - d. As an alternate to project-specific design of seismic bracing, use of proprietary

restraint systems with a certificate of compliance verified and listed by an accredited inspection body is acceptable. Use of a certified product does not preclude the requirement for shop drawings.

3. Wall-mounted mechanical equipment
 - a. Design support and bracing to resist seismic design force in any direction.
 - b. Install backing plates or blocking as required to deliver load to primary wall framing members. Do not anchor to gypsum wallboard, plaster or other wall finish that has not been engineered to resist imposed loads.
4. Piping
 - a. Provide seismic bracing for piping as required by Table 1.
 - b. Provide supports, braces and anchors to resist gravity and seismic design forces.
 - c. Design piping and piping risers to accommodate code-required interstory drift.
 - d. Provide flexible connections between floor-mounted equipment and suspended piping; between unbraced piping and restrained suspended items; as required for thermal movement; at building separations and seismic joints; and wherever relative differential movements could damage pipe in an earthquake.
 - e. Brace resiliently-supported pipe with cable bracing or alternate means designed to prevent transmission of vibrations and noise to structure.
 - f. Brace every run (5' or more in length) with two transverse and one longitudinal bracing locations. For pipes and connections constructed of ductile materials (copper, ductile iron, steel or aluminum and brazed, welded or screwed connections) provide transverse bracing at not more than 40 feet on center and longitudinal bracing at spacing not more than 80 feet on center. For pipes and their connections constructed of nonductile materials (cast iron, no-hub pipe and plastic or non-UL listed grooved coupling pipe), provide transverse bracing at not more than 20 feet on center and longitudinal bracing at spacing not more than 40 feet on center. Alternatively, explicitly design piping and connections to resist gravity and seismic forces and seismic deformations.
 - g. Provide lateral restraint for risers at not more than 30 feet on center or as required for horizontal runs, whichever is less.
 - h. Where piping is explicitly exempt from seismic bracing requirements, provide flexible connections between piping and connected equipment, including in-line devices such as VAV boxes and reheat coils.
 - i. Where piping is explicitly exempt from seismic bracing requirements, install piping such that swinging of the pipes will not cause damaging impact with adjacent components, finishes or structural framing. This will be considered satisfied if there is horizontal clear distance of at least $\frac{2}{3}$ the hanger length between subject components. If swinging of exempted piping can cause damaging contact with adjacent components, finishes or structural framing, add swing restraints as required to eliminate contact.
 - j. As an alternate to project-specific design of seismic bracing, use of proprietary restraint systems with a certificate of compliance verified and listed by an accredited inspection body is acceptable. Use of a certified product does not preclude the requirement for shop drawings.
 - k. Re-use of existing hangers: Where pipes are being installed in existing facilities,

the re-use of existing hangers at locations of seismic bracing will be judged on a case-by-case basis by the registered project design professional. Unless otherwise shown on the drawings, it shall be assumed that all hangers supporting new piping and located at a seismic brace will be installed new.

5. Ductwork

- a. Provide seismic bracing for ducts with cross sectional area greater than 6 square feet (independent of the duct contents) and for ducts containing hazardous materials.
- b. Provide supports, braces and anchors to resist gravity and seismic design forces.
- c. Design ducts and duct risers to accommodate code-required interstory drift.
- d. Provide independent support for in-line devices weighing more than 20 pounds. Provide independent support and bracing for all in-line devices weighing more than 75 pounds. Unbraced piping attached to braced in-line equipment shall be provided with adequate flexibility to accommodate differential displacements.
- e. Appurtenances such as dampers, louvers and diffusers shall be positively attached to the ductwork with mechanical fasteners.
- f. Duct supports shall be designed to resist not less than 150% of the weight of the duct. For seismic design categories D, E and F, ducts weighing over 10 plf shall not be hung using power driven fasteners.
- g. As an alternate to project-specific design of seismic bracing, use of proprietary restraint systems with a certificate of compliance verified and listed by an IAS accredited inspection body or otherwise accepted by the Authority Having Jurisdiction is acceptable. Use of a certified product does not preclude the requirement for shop drawings.

6. Tanks

- a. Design tank anchorage to resist seismic design force.
- b. Design tank legs or supporting structure to resist seismic design force.
- c. Design underground tank anchorage systems to resist seismic design force, including buoyancy forces that may result due to seismic-induced liquefaction.
- d. Provide flexible connections between tank and interconnected piping.

7. Fire suppression equipment and piping

- a. See requirements for suspended piping.
- b. See requirements for floor-mounted and wall-mounted equipment.
- c. Satisfy requirements of NFPA 13 and the force and displacement requirements of ASCE 7. All components shall be UL listed.
- d. Provide end of line restraint as required by NFPA 13.

J. Electrical Equipment

1. Electrical Equipment

- a. Design equipment to resist seismic design force in any direction
- b. Batteries on racks shall be provided with acid resistant and corrosion resistant wrap-around restraints or shall be otherwise prevented from movement within battery rack. Racks shall be designed to resist seismic design force.
- c. Electrical cabinet design shall comply with the applicable National Electrical

Manufacturers Association (NEMA) standards.

- d. Supports shall be designed to accommodate the seismic relative displacement between points of support.
 - e. Where equipment is mounted on vibration isolators and restraints, use isolators and restraints designed for amplified code forces and with demonstrated ability to resist required forces including gravity, operational and seismic forces.
2. Conduit, cable tray, bus duct, raceways, bundled cabling
- a. Provide supports and anchoring so that, upon application of seismic forces and deformations, conduit/cable tray/bus duct/raceway/bundled cabling will not displace sufficiently to cause damage to wires, connections, adjacent or connecting equipment, building members or finishes.
 - b. Provide seismic bracing of conduit/cable tray/bus duct/raceway/bundled cabling to resist gravity and seismic design forces.
 - c. Provide gravity support for conduit/cable tray/bus duct/raceway/bundled cabling that is independent of suspended ceiling framing.
 - d. Design conduit/cable tray/bus duct/raceway/bundled cabling to accommodate code-required interstory drift.
 - e. As an alternate to project-specific design of seismic bracing, use of proprietary restraint systems with a certificate of compliance verified and listed by an accredited inspection body is acceptable. Use of a certified product does not preclude the requirement for shop drawings.
 - f. Provide flexible connections wherever relative differential movement could damage conduit/cable tray/bus duct/raceway/bundled cabling in an earthquake.
3. Light fixtures
- a. Design fixture connections to resist seismic design force.
 - b. For lights in suspended ceilings:
 - 1) For lights weighing 56 pounds or less, provide positive mechanical connection between fixtures and ceiling framing to resist seismic design force and gravity load. Provide 2 independent wires at diagonally opposite corners connected to structural framing. For lights weighing more than 56 pounds, provide independent support and bracing.
 - c. For lights in light framed ceilings and walls:
 - 1) For lights weighing 56 pounds or less, provide positive mechanical connection between the fixture and the ceiling/wall framing capable of resisting required gravity and seismic demands. Provide ceiling and wall framing capable of delivering demands from the light fixture to the structure.
 - d. For pendant mounted fixtures:
 - 1) Verify that fixture will not displace in such a manner as to hit adjacent lighting and/or architectural elements or other suspended items. Connection to the structure shall allow a 360 degree range of motion. If pendant fixture could come in contact another item when swinging in a 45 degree arc from vertical in any direction, provide bracing to limit movement and avoid interaction. Design load shall be 1.4 times the
operating weight acting down with a simultaneous horizontal load of 1.4 times

the operating weight.

4. Communication systems including alarm systems
 - a. See requirements for electrical equipment and conduit, cable tray, bus duct, raceways, bundled cabling.
- K. Transportation Components
 1. Elevator and escalators
 - a. Design for conformance with seismic requirements of ASME A17.1.
 - b. Design to resist seismic design force specified herein. The more stringent design force shall govern.
 - c. Elevator/escalator equipment and controller supports and attachments shall be designed to resist seismic design force.
 - d. Elevators travelling with a speed of 150 ft/min or greater shall be provided with a seismic switch in accordance with ASCE 7.
 - e. Provide retainer plate at the top and bottom of the car and counterweight.
- L. Storage Racks And Shelving
 1. Light duty storage racks and shelving
 - a. Provide restraint to resist seismic design force in any direction.
 - b. Where restraint is provided by anchorage to a wall, verify that wall has adequate strength to resist anchor demands. Install backing plates or blocking as required to deliver load to primary wall framing members. Do not anchor directly to gypsum wallboard, plaster or other wall finish that has not been engineered to resist imposed loads.
 2. Industrial storage racks
 - a. Design for conformance with latest version of Rack Manufacturers Institute (RMI) Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks and the seismic design requirements of ASCE 7. Where design criteria conflict, the more stringent shall apply.
- M. FF&E: Systems Furniture & Office Furniture:
 1. Design furniture anchorage to resist seismic design force in any direction
 2. Interconnect adjacent pieces to cause them to respond together when resisting lateral forces.
 3. Where furniture is supported on raised access flooring, provide bracing and anchorage to the supporting floor below.
 4. Equip all drawers with properly engaged, lockable latches.
 5. Equip any doors with properly engaged, locatable latches.
 6. Attach adjustable shelving with supports that prevent the shelves from dislodging due to seismic forces.
- N. Televisions, Monitors
 1. Design support and bracing for wall-mounted and suspended televisions/monitors to resist seismic design force in any direction.
 2. Where restraint is provided by anchorage to a wall, verify that wall has adequate strength to resist

anchor demands. Install backing plates or blocking as required to deliver load to primary wall framing members. Do not anchor directly to gypsum wallboard, plaster or other wall finish that has not been engineered to resist imposed loads.

3. Use mounting brackets certified for resistance to seismic loads.

O. Desktop Computers

1. Provide straps, high friction pads, snubbers or other mechanisms as required to resist seismic design forces.
2. All connections shall be readily demountable and shall not damage computer housing.

P. Computer and Communications Racks & Cabinets, Filing Cabinets, Bookcases, and Boards

1. Design equipment anchorage to resist seismic design force in any direction
2. Where cable tray is connected to the top of racks or cabinets, design seismic restraint to include the tributary weight of the cable tray and components.
3. Interconnect adjacent cabinets to cause them to respond together when resisting lateral forces.
4. Where equipment is supported on raised access flooring, provide bracing and anchorage to the supporting floor below.
5. Anchor filing cabinets that are more than 2 drawers high to the floor or walls, and equip all drawers with properly engaged, lockable latches.
6. Anchor bookcases that are more than 30 inches high to the floor or walls, and equip any doors with properly engaged, locatable latches.
7. Attach adjustable shelving with supports that prevent the shelves from dislodging due to seismic forces.

Q. Appliances and Kitchen Equipment

1. Design equipment anchorage to resist seismic design force in any direction.
2. Connections shall enable the equipment to be readily disengaged to enable the equipment to be relocated for cleaning.
3. Provide flexible connections between connected piping and appliances/equipment. If appliance/equipment is restrained with removable "tethers," provide sufficient flexibility in connections to accommodate full range of movement associated with tether.

R. Demountable Partitions

1. Use system engineered for use in regions of seismicity. Anchor to structure to resist seismic design force in any direction.

S. Shelf- And Counter-Mounted Contents

1. Provide straps, mechanical barriers, high friction pads, snubbers or other mechanisms as required to resist seismic design forces.
2. All connections shall be readily demountable and shall not damage or permanently alter contents.
3. Restraints shall not prevent items from being added to or removed from shelf or counter.

1.9 FIELD QUALITY CONTROL

- A. Provide a quality assurance plan as required by ASCE 7, Appendix 11A for installation of the following per CBC Chapter 17. Reference this specification for the definition of special inspector. A minimum of 3 special inspections shall be performed (pre-construction, mid- construction, and final inspection):
 - 1. Heating, ventilating, and air-conditioning (HVAC) ductwork containing hazardous materials or smoke control and anchorage of such ductwork.
 - 2. Piping systems and mechanical units containing flammable, combustible or highly toxic materials.
 - 3. Vibration-isolated systems and associated seismic restraints where indicated on the construction documents or submittals. All restraints require a nominal clearance of 0.25" or less between the equipment support frame and restraint.
 - 4. Exterior wall panels and their anchorage
 - 5. Suspended ceiling system and their anchorage
 - a. Verify member type and size, verify that bracing elements such as splayed wires and compression struts are installed as detailed; test anchorage to structure
 - 6. Steel storage racks 8' or higher
 - a. Verify that connections of the racks to the structure are installed as detailed on the drawings. Spot check the connection of horizontal beams to uprights verifying fastener tightness
 - 7. Access floors
 - a. Verify that anchorage matches detail on the drawings
 - b. Verify connection of access floor framing to support posts
 - c. Inspect installation of post-installed anchors
 - d. Test post installed anchors
 - 8. All electrical equipment
- B. Seismic Qualification Certifications
 - 1. Verify that the label, anchorage or mounting conforms to the certificate of compliance for Designated Seismic Systems defined in this specification.

END OF SECTION 014600

SECTION 00 2001

INSTRUCTIONS FOR PROPOSALS

Proposals are requested by the San Mateo County Project Development Unit (hereinafter “Owner”, “County” or “PDU”) for a general construction contract, or work described in general, and the following additional terms.

ARTICLE I – NOTICE

- A. The County of San Mateo is seeking proposals from interested contractors for the Regional Operations Center (ROC) Data Center Infrastructure Build Out.
- B. County will receive proposals from either an individual, partnership, joint venture, corporation, association, or other recognized legal entity, that is appropriately licensed in this State.
- C. County will base the selection and award of this contract based on its determination of “best value” according to objective criteria related to the experience of the entity and project personnel, project plan, financial strength of the entity, safety record of the entity, and price.

ARTICLE II– REQUIREMENTS FOR SUBMISSION OF PROPOSALS

2.01. Required Pre-Proposal Review

- A. Prior to submission of Proposal, Proposer must conduct a careful examination of the Request for Proposals Documents and understand the nature, extent, and location of Work to be performed.
- B. Submission of a Proposal shall constitute a Proposer’s representation and guarantee that it has complied with all required Pre-Proposal Review Requirements.

2.02. Questions and Answers

- A. Proposers must direct to Owner in writing all questions about the meaning or intent of Request for Proposals Documents. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by written Addenda and posted on the PDU project website at <https://cmo.smcgov.org/pdu> **by September 5, 2018**. Owner may not answer questions received after the date set forth in paragraph 1.01 of Document 00 1001.
- B. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect, and Proposers shall not rely on oral statements. Owner reserves the right not to respond to questions received after the date set forth in section 6.0.
- C. Prior to submission of a Proposal, Proposer must communicate in writing to Owner any objections, questions or asserted ambiguities regarding the terms, conditions and procedures set forth in the Proposal Documents (including without limitation this Document 00 2001); submission of a Proposal shall constitute Proposer’s consent to such terms, conditions and procedures and waive any right to subsequently assert such matters in protest of the final award.

2.03. Addenda

- A. Addenda may also be issued to modify the Request for Proposal Documents as deemed advisable by Owner. Addenda shall be acknowledged by number in Document 00 4001 (Proposal Price Form) and shall be part of the Contract Documents. A complete listing of Addenda may be secured from Owner.

ARTICLE III – RECEIPT OF PROPOSALS

3.01. Date and Time

- A. Sealed Proposals will be received by Owner until date and time indicated in RFP. All Proposal envelopes will be time-stamped to reflect their submittal time. Owner shall reject all Proposals received after the specified time and will return such Proposals to Proposers unopened.

County of San Mateo Project Development Unit – RFP – Data Center Infrastructure Buildout – Region Operations Center (ROC)

3.02. Required Contents of Proposals

- A. Proposers must submit Proposals in accordance with this Document 00 2001. Proposals must contain the Required Contents specified below.
- B. Document 00 4001 (Proposal Price Form). Proposers must submit Proposals on Document 00 4001 (Proposal Price Form) in accordance with the provisions of Document 00 4001. Proposers must complete all Proposal items and supply all information required by Request for Proposals documents and specifications. Total Proposal Price shall be the sum of the following Cost Items for all Project Components:
 - 1. Enclosed Data Center Cabinets Material and Tax
 - 2. Enclosed Data Center Cabinets Labor
 - 3. Cable Tray Material & Tax
 - 4. Cable Tray Labor
 - 5. Copper Cabling Material and Tax
 - 6. Copper Cabling Labor
 - 7. Fiber Material and Tax
 - 8. Fiber Labor
 - 9. Electrical Work and (Star Line) Material and Tax
 - 10. Electrical Work and (Star Line) Labor
 - 11. General Conditions
 - 12. Commissioning
 - 13. Project Management
 - 14. BIM
 - 15. Bonds
- C. Proposers must submit the following evidence for the prequalification process along with their proposal:
 - 1. Documentation that the contractor has 10+ years of work experience
 - 2. Documentation that the contractor has completed projects in similar size, scope, type.
 - 3. Documentation that lists 20+ projects which have been in actual and satisfactory use for the past 5 years
 - 4. Contractor must employ and include on the Project team a BICSI RCDD, DCDC, and BICSI Certified technicians. Please provide proof of active Design Certifications (RCDD & DCDC)
 - 5. Resume of proposed personnel in contractor's organization that have at least 5 years' experience in the 1) design, 2) fabrication, 3) installation of equipment comparable in quality and type to that required herein and 4) a listing of not less than 5 projects, comparable in quality and type to this project that have been executed by the proposed project personnel. Resume shall address each of the four items above for each person.
 - 6. Copy of California's Contractor's License.
 - 7. Provide statement indicating the firm has not filed for bankruptcy protection within the past 10 years.
 - 8. Submit a letter from the manufacturer stating that this firm is a factory-trained fully authorized distributor and installer of their complete line of product.
 - 9. Submit a statement letter from the Surety Company stating that a 100% Payment and Performance Bond will be supplied if selected as the successful contractor
 - 10. Requests shall be considered only from competent and reputable firms who specialize in this particular branch of work and who can demonstrate to the satisfaction of the Owner that they are fully capable of completing the work in accordance with requirements. The Owner reserves the right to consider each request on merits of material furnished or otherwise at their disposal, and to reject

any or all requests which are not in the owner's best interest. The Owner's decision in this matter will be final and incontestable.

D. Proposer's Project Plan. Proposer must submit Proposed Project Plan, Staffing Plan, and Safety Project Plan. The Project Plan shall include, to the extent possible, a narrative on Proposer's proposed plan to complete the Work, and why that Plan is advantageous to Owner. The Project Plan may also address:

1. Proposer's Management Philosophy and Strategy. Proposer shall generally describe its strategy to deliver this Project on time and on budget using the contractor delivery method.
2. Construction Planning, Bidding Strategies, and Performance.
 - a. Proposer shall describe how pre-construction services will be planned and performed on this Project, including the proposed methodology for reviewing design documents and site conditions, and the proposed phasing and bid package strategies.
 - b. Proposer shall describe how construction services will be planned and executed on this Project, including its subcontracting plan, any proposed outreach and utilization plans, and advertising and awarding plans. Proposer shall describe its methodology for coordination of work including site preparation, demolition, and construction phasing to avoid impact on the normal operations and services of the buildings in the vicinity and claim avoidance measures.
 - c. Proposer shall describe how it plans to establish, maintain, and update the Project schedule during design and how to assure timely Project completion.
3. Interface and Coordination with the County and its User Groups. Proposer shall describe the methodology it plans to use to coordinate and manage communications with the County and its user groups throughout design and construction. Proposer shall describe how it will efficiently document/track decisions and associated cost impacts to keep County well informed.
4. Quality Control and Problem Solving. Proposer shall describe the quality control program for this Project, including specific techniques and procedures to be used. Proposer shall describe how it will handle and resolve issues that require effective communication and skilled facilitation with Owner and the project team.
5. Technology and Innovative Techniques. Proposer shall describe how it will use innovative techniques and technology to support the Project and may include experience and capabilities with BIM analysis.

G. Balance of Required Contents: Insurance and Certifications.

1. Letter from Surety Proposer should provide a letter from a surety duly licensed to do business in the State of California, having a financial rating from A. M. Best Company of A-, VII or better.
2. For all trade subcontractors not covered by the CCIP for onsite operations, and for all trade subcontractors for offsite coverage, the following minimum limits apply:
 1. General liability: Combined single limit for bodily injury and property damage per occurrence and in the aggregate. General aggregate shall apply per project. Limits shall not be less than; o \$1,000,000 occurrence / \$2,000,000 aggregate
 2. Commercial auto liability: Combined single limit for bodily injury and property damage. Limits shall not be less than: \$1,000,000
 3. Worker's compensation and employer's liability: Limits shall not be less than: o Employers' liability – \$1,000,000

4. Other coverage/limits: Limits shall not be less than: o The General Aggregate limit shall apply separately to Subcontractor's work under this contract.

For subcontracts in excess of \$250,000 an additional \$5,000,000 Excess Liability Insurance policy shall be maintained over the General Liability coverage that shall, at a minimum, include coverage for the exposures set forth in CMR's Master Subcontract Agreement. All insurance policies required to be obtained by subcontractor shall be subject to approval by CMR for conformance to the Prime Contract requirements. All such policies shall be issued by a company rated by Best as A- or better with a financial classification of VIII or better or an equivalent rating by Moody's or Standard & Poor's. Policies issued by companies for Workers' Compensation and Employer's Liability Insurance may be issued by companies (i) that have a Best rating of A- or better, and a financial classification of VIII or better (or an equivalent rating by Standard & Poor or Moody's); or (ii) that are acceptable to the County of San Mateo. Proposal Submission

- A. The responses to this RFP should be bound and printed vertically ("portrait" orientation) on standard 8 ½" by 11" papers. The responses should not exceed **30 pages; single sided** (excluding covers or tabs that do not contain submittal content, certification/forms required by this RFP, resumes, financial and bonding information), but will preferably be much shorter. Type size should be no smaller than 10 point, but preferably larger. The top of page one of the responses should state Respondent's name, address, phone, fax, e-mail, and contact name. Include page numbering of the 25 pages of Proposal responses. Cover letter is optional.
- B. Proposers should address every item requested, where requested, in each section of this RFP, even if the items were addressed in other sections in the proposals. Brevity and clarity are of utmost importance. Responses comprised of standard marketing materials that do not specifically address the items below will not be evaluated; however, Respondents may include five (5) bound copies of their marketing materials, as long as they are not permanently attached to the Proposal. Responses that do not comply with all applicable requirements may not be considered.
- C. Proposers shall submit their Proposals and all deliverables in a manner that is structured to permit easy and definitive evaluation of each Factor identified herein as Evaluation Factors.
- D. Proposals shall be required to include any written responses of a Proposer to any questions or requests for information of Owner made as part of the Proposal evaluation process after submission of the Proposal.
- E. Proposals must be full, complete, clearly written and using the required forms. Proposers shall make any change in the Proposal by crossing out the original entry, entering and initialing the new entry. Proposer's failure to submit all required documents strictly as required entitles Owner to reject the Proposal as non-responsive. All Proposers must submit Proposals containing each of the required documents supplied in this Project Manual.

ARTICLE IV – PROPOSAL OPENING AND EVALUATION

4.01. Initial Evaluation for Patent Defects and/or Proposals Not Meeting Pass/Fail Responsibility Criteria

- A. Owner will open the Proposals and perform a preliminary review to identify any patently defective Proposals (including without limitation Proposals where the Proposer does not meet any applicable Criteria.) Owner's action on defective Proposals may include refusal to evaluate such Proposals and elimination of Contractor submitting such Proposals from the evaluation process. Owner reserves all rights to take any action consistent with its authority and/or the requirements of this Document 00 2001 (Instructions for Proposals), including, without limitation, requesting additional information after receipt and opening of Proposals and waiving inconsequential defects.
- B. All Proposals from Contractor which remain after the preliminary review shall be evaluated by a Selection Committee comprised of individuals selected by the Owner. The Review Panel will review the Proposals and award points as described in this Document.

4.02. Owner Investigations

- A. Owner may conduct reasonable investigations and reference checks of Proposer and other persons and organizations as Owner deems necessary to assist in the evaluation of any Proposal and to establish Proposer's responsibility, qualifications, financial ability and ability to perform the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time. Submission of a Proposal constitutes Proposer's consent to the foregoing.

- B. Owner shall have the right to consider information provided by sources other than Proposer. Owner shall have the right to communicate directly with Proposer's surety regarding Proposer's bonds.

4.03. Evaluation Factors and Interviews

- A. The Owner will evaluate each Proposal based upon the following factors, with the maximum number of points allocated to each factor as indicated in the Points Matrix below.

FACTORS	MAXIMUM POINTS
1. Experience and Qualifications	40
2. Price	25
3. Project Plan	25
4. Safety Record and Safety Plan	5
5. Financial Strength	5
TOTAL (Maximum Points)	100

B. Evaluation Factor Description.

1. **Experience and Qualifications** - The Contractor whose Proposal describes a team which Owner determines is the most qualified, when compared with the teams proposed by other Contractors, shall receive forty (40) points under this factor. Contractors determined to have a less qualified team shall receive less than forty (40) points, as determined by the Owner. Proposals shall be evaluated based upon the Contractor's knowledge/skill/ability/experience and Key Personnel, experience with public sector, California/Bay Area construction experience with applicable laws, building codes and regulations, Owner/Designer/Contractor interaction strategies, experience with comparable facilities and other aspects of project management. In the event that interviews are conducted, 30% of the contractor's score.
2. **Price** - Total Proposal Price shall be the sum of Cost Items:
 - 1) Enclosed Data Center Cabinets Material and Tax
 - 2) Enclosed Data Center Cabinets Labor
 - 3) Cable Tray Material & Tax
 - 4) Cable Tray Labor
 - 5) Copper Cabling Material and Tax
 - 6) Copper Cabling Labor
 - 7) Fiber Material and Tax
 - 8) Fiber Labor
 - 9) Electrical Work and (Star Line) Material and Tax
 - 10) Electrical Work and (Star Line) Labor
 - 11) General Conditions
 - 12) Commissioning
 - 13) Project Management
 - 14) BIM
 - 15) Bond

The Contractor whose Proposal Price is the lowest among the submitted Proposals shall receive twenty-five (25) points under this factor. The other Contractors who's Proposal Prices are higher than the lowest shall receive pro-rated points calculated as a percentage of the lowest Proposal Price.

3. **Project Plan** - The Contractor whose Proposal describes a superior Project Plan, determined by the selection committee, shall receive twenty-five (25) points under this factor. Contractors determined to have less superior Project Plans shall receive less than twenty (25) points, as determined by the selection committee.
 4. **Acceptable Safety Record and Safety Plan** - The Contractor's Safety Record and Safety Plan shall be assessed based upon the Contractor's Experience Modification Rate (EMR) and Safety Plan. The Contractor with a superior EMR and Safety Plan, when compared with the EMR and Safety Plan of other Contractors, shall receive five (5) points under this factor. Contractors determined to have a less superior EMR and Safety Plan may receive less than five (5) points, as determined by the Owner. Contractors with an EMR of 1.25 may not be qualified to bid on this project.
 5. **Financial Strength** - The Contractor whose Proposal describes superior Financial Strength, as determined by the selection committee, and when compared with the Financial Strength of other Contractors who submit Proposals, shall receive five (5) points under this factor. Contractors determined to have less superior Financial Strength may receive less than five (5) points, as determined by the Owner.
- C. **Interviews.** Selection Committee selected by the Project Development Unit will conduct an in-depth evaluation of the Proposals submitted and select a minimum of three (3) Contractors for interviews. Interview format and details will be provided at a later date. The Selection Committee will notify Contractors of the results of the evaluation by mail or email to the designated contact.
- D. **Discrepancies.** Owner will resolve discrepancies between (1) the multiplication of units of Work and unit prices in favor of the unit prices; (2) the indicated sum of any column of figures and the correct sum thereof in favor of the correct sum; and (3) written words and figures, or words and numerals, in favor of the words.
- E. **Tie Breaker.** In an event there is then a tie in the total number of points awarded to more than one Proposal, the Proposal that, in the Owner's sole discretion is determined to provide a superior Project as compared to the other Proposal receiving a tied score, shall be considered to provide the Best Value to the Owner.

ARTICLE V – AWARD

5.01. Notice of Intent to Award

- A. If the Contract is to be awarded, Owner will award the Contract to the responsive Contractor whose Proposal is determined to provide the Best Value to the Owner. Best Value will be assigned to the Proposal that scores the greatest number of points in accordance with the methodology described herein. The qualifying Contractor with the most points will be awarded the Contract as provided in this Document 00 2001 (Request for Proposals).

5.02. Determination of Best Value

- A. Upon completion of Owner's evaluation of all Proposals, Owner shall rank the responsive Contractors based on the evaluation factors set forth in paragraphs 3.02 and 4.03 (plus tie breaks scoring if appropriate), from most advantageous to least advantageous to the Owner. Owner shall publicly announce its intent to award the Contract for the Project by issuing **Document 00 5051 (Notice of Intent to Award)**, and by posting

Document 00 5105 (Notice of Award) on Owner's website and by electronically mailing it to the Contractors who submitted Proposals for this Project. **Document 00 5105** will be deemed properly delivered at the time it is posted on the Owner's website.

ARTICLE VI – MANDATORY PROPOSAL PROTEST PROCEDURES

6.01. Submission of Written Proposal Protest

- A. Any proposal protest in connection with the contract or work described in general in Document 00 1001 (Notice Inviting Proposals) must be submitted in writing to Deborah Bazan, Director, Project Development Unit, 1402 Maple Street, Redwood City, California (Owner's Office), before 3:00 P.M. of the fifth Business Day following issuance of Document 00 5051 (Notice of Intent to Award). Owner will publish on PDU website and use reasonable efforts to deliver by e-mail a copy of Document 00 5051 to all Proposers who submitted Proposals no later than the Business Day after issuance, although any delay or failure to do so will not extend the Proposal protest deadline described above.
- B. The initial protest document must contain a complete statement of the basis for the protest.
- C. The protest must refer to the specific portion of the document that forms the basis for the protest.
- D. The protest must include the name, address, and telephone number of the person representing the protesting party.
- E. Only Proposers whom the Owner otherwise determines are responsive and responsible are eligible to protest a Proposal; protests from any other Proposer will not be considered. In order to determine whether a protesting Proposer is responsive and responsible, Owner may evaluate all information contained in any protesting Proposer's Proposal and conduct the same investigation and evaluation as Owner is entitled to take regarding a Best Value Proposer.

6.02. Exclusive Remedy

- A. The procedure and time limits set forth in this paragraph are mandatory and are Proposer's sole and exclusive remedy in the event of Proposal protest. Proposer's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Proposal protest, including presenting a Government Code Claim or initiating legal proceedings. A Proposer shall not rely on a protest submitted by another Proposer but must timely pursue its own protest.

ARTICLE VII – AWARD AND EXECUTION OF CONTRACT

7.01. Notice of Award and Submittal of Executed Contract Documents

- A. If Contract is to be awarded, it will be awarded to the Best Value Proposer. Owner will issue Document 00 5105 (Notice of Award) to the successful Proposer.

7.02. Failure to Execute and Deliver Documents

- A. If Proposer to whom Contract is awarded, within the period described in this Document 00 2001, fails or neglects to execute and deliver all required Contract Documents and file all required bonds, insurance certificates, and other documents, Owner may, in its sole discretion, rescind the award.
- B. Upon such failure to timely deliver all required Contract Documents as set forth herein, Owner may determine the next Best Value Proposer and proceed accordingly. Such Award, if made, will be made within sixty (60) days after such failure.

7.03. Bond

- A. The successful bidder will be required to obtain and must submit the following:
 - 1. (Performance Bond), fully executed by successful Proposer and surety, Submit one (1) original.

2. (Labor and Material Payment Bond), fully executed by successful Proposer and surety, Submit on (1) original.

ARTICLE VIII – GENERAL CONDITIONS AND REQUIREMENTS

8.01. Modification of Commencement of Work

- A. Owner expressly reserves the right to modify the date(s) for the Commencement of Work or any portion thereof under the Contract and to independently perform and complete work or services related to Project. Owner accepts no responsibility to Proposer for any delays attributed to Owner's need to complete independent work at the Site.
- B. Owner shall have the right to communicate directly with Best Value Proposer's performance bond surety, to confirm the performance bond. Owner may elect to extend the time to receive faithful performance and labor and material payment bonds.

8.02. Conformed Project Manual

- A. Following Award of Contract, Owner may prepare a conformed Project Manual reflecting Addenda issued during the Proposal period, which will, failing objection, constitute the approved Project Manual.

8.03. Not Used

8.04. Wage Rates and Skilled and Trained Workforce

- A. Copies of the general prevailing wage rates for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, may be obtained from the Department of Industrial Relations. Also, Proposer shall post the applicable prevailing wage rates at the Site. By submission of this Proposal, Proposer agrees to comply with the terms and conditions of Owner's Project Labor Agreement.

8.05. Withdrawal of Proposals

- A. Proposers may withdraw their Proposals at any time prior to the Proposal opening time fixed in this Document 00 2001, only by written request for the withdrawal of Proposal filed with Owner at Owner's Office. Proposer or its duly authorized representative shall execute the request to withdraw Proposal.

8.06. Ineligible Contractors and Subcontractors

- A. Owner shall not accept a Proposal from a Proposer who is ineligible to propose or work on, or be awarded, a public works project pursuant to California Labor Code section 1777.1 or 1777.7. Proposers and the Contractor who is awarded the project contract shall not utilize, or allow work by, any subcontractor who is ineligible to propose or work on, or be awarded, a public works project pursuant to California Labor Code section 1777.1 or 1777.7. (See California Public Contract Code section 6109.) The California Division of Labor Standards Enforcement publishes a list of debarred contractors and subcontractors on the Internet at www.dir.ca.gov/DLSE/debar.html.

8.07. Equal Employment Opportunity. Contractor shall comply with all applicable federal, state, and local laws, rules, and regulations in regard to nondiscrimination in employment because of race, color, ancestry, national origin, religion, sex, marital status, age, medical conditions, disability, or other reasons.

8.08. Public Records Act Requests

- A. Pursuant to the Public Records Act, Owner will make available to the public all correspondence and written questions submitted during the Proposal period, all Proposal submissions opened in accordance with the procedures of this Document 00 2001, and all subsequent Proposal evaluation information. All submissions not opened will remain sealed and eventually be returned to the submitter. Except as otherwise required by law, Owner will not disclose trade secrets or proprietary financial information submitted that has been designated confidential by a Proposer. Any such trade secrets or proprietary financial information that a Proposer believes should be exempted from disclosure shall be specifically identified and marked as such. Blanket-type identification by designating all pages or whole sections shall not be permitted and shall be invalid. The specific information must be clearly identified as such.

- B. Upon a request for records regarding this Proposal, Owner will notify Proposer involved within ten (10) Days from receipt of the request of a specific time when the records will be made available for inspection. If Proposer timely identifies any "proprietary, trade secret, or confidential commercial or financial" information that Proposer determines is not subject to public disclosure, and requests Owner to refuse to comply with the records request, Proposer shall take all appropriate legal action and defend Owner's refusal to produce the information in all forums; otherwise, Owner will make such information available to the extent required by applicable law, without restriction.
- C. Information disclosed to Owner and all items in opened submissions are the property of Owner unless Proposer makes specific reference to data that is considered proprietary. Subject to the requirements in the Public Records Act, reasonable efforts will be made to prevent the disclosure of information except on a need-to-know basis during the evaluation process.

8.09. Reservation of Rights

- A. Owner reserves the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional Proposals, and to reject the Proposal of any Proposer as non-responsive as a result of any error or omission in the Proposal, or if Owner believes that it would not be in the best interest of the Project to make an award to that Proposer, whether because the Proposal is not responsive or the Proposer is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. For purposes of this paragraph, an "unbalanced Proposal" is one having nominal prices for some Cost items and enhanced prices for other Cost items.
- B. Owner may retain Proposal securities and Proposal bonds of other than the Best Value Proposer for a reasonable time, not exceeding ninety (90) Days after award of Contract. Owner may reject any or all Proposals and waive any informalities or minor irregularities in the Proposals. Owner also reserves the right, in its discretion, to reject any or all Proposals and to re-bid the Project.

8.10. Modification/ Addition to Instructions for Proposals. Owner reserves the right to modify existing procedures and instructions and will notify all Proposers if Owner exercises this right.

END OF DOCUMENT 00 2001

SCHEDULE OF PROPOSAL PRICES

All Cost items, including lump sums and unit prices, must be filled in completely. Cost items are described or referenced in Document 01 1000 (Summary of Work) or Document 00 2001 (Instructions for Proposals). Quote in figures only, unless words are specifically requested.

NO.	COST ITEM ^D	PERCENT ^C	DOLLAR AMOUNT ^A
1	Enclosed Security Cabinets Material and Tax	#DIV/0!	\$0.00
2	Enclosed Security Cabinets Labor	#DIV/0!	\$0.00
3	Cable Tray Material & Tax	#DIV/0!	\$0.00
4	Cable Tray Labor	#DIV/0!	\$0.00
5	Copper Cabling Material and Tax	#DIV/0!	\$0.00
6	Copper Cabling Labor	#DIV/0!	\$0.00
7	Fiber Material and Tax	#DIV/0!	\$0.00
8	Fiber Labor	#DIV/0!	\$0.00
9	Electrical Work and (Star Line) Material and Tax	#DIV/0!	\$0.00
10	Electrical Work and (Star Line) Labor	#DIV/0!	\$0.00
11	General Conditions	#DIV/0!	\$0.00
12	Commissioning	#DIV/0!	\$0.00
13	Project Management	#DIV/0!	\$0.00
14	BIM	#DIV/0!	\$0.00
15	Bond	#DIV/0!	\$0.00
Total Proposal Price (Sum of Cost Items 1, Thru 15) =			\$0.00

[Enter Prices in the Red color fields to calculate the Total Proposal Price]

Total Project Proposal Price:

(Words)



County of San Mateo - ISX0001532476-0026 Ops Center Replacement -

CSC

Prepared For:
COUNTY OF SAN MATEO

Quote Number: 2018-376195-1
Quote Date: 6/18/2018
Expiration Date: 9/13/2018
Opportunity Number: OP-170316-5971505



Products and Services

ISX0001532476-0026

ISXD Design 1

Room Components - Equipment

Item No.	Qty.	Product	Description
11	34	AR3100	APC NetShelter SX 42U Server Rack Enclosure 600mm x 1070mm w/ Sides Black
12	32	AR3150	NetShelter SX 42U 750mm Wide x 1070mm Deep Enclosure with Sides Black
13	34	ACF400	Rack Air Removal Unit SX 100-240V 50/60HZ for NetShelter 600mm enclosures.
14	32	ACF402	APC Rack Air Removal Unit SX 100-240V 50/60 Hz with 750mm Wide Frame
15	66	ACF126	APC Rack Air Removal Unit SX Ducting Kit 24 inch
16	6	NBRK0250	NetBotz Rack Monitor 250
17	7	NBPD0150	NetBotz Rack Sensor Pod 150
18	54	AP9335TH	APC Temperature & Humidity Sensor
19	4	AP9224110	APC 24 Port 10/100 Ethernet Switch
20	4	AR8429	Horizontal Cable Organizer 1U w/brush strip
21	7	3827GY-5	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
22	12	3827GY-10	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
23	10	3827GY-15	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
24	7	3827GY-20	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
25	7	3827GY-25	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
26	14	3827GY-30	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
27	13	3827GY-35	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
28	20	3827GY-40	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
29	15	3827GY-50	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
30	20	3827GY-75	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
31	10	47136WH	APC RJ45F/RJ45F, WHITE, IN LINE COUPLER, CAT 5, RJ45F/RJ45F
32	2	AP95100	StruxureWare Data Center Expert, 100 Node License Only
33	1	AP94VMACT	StruxureWare Data Center Expert Virtual Machine Activation Key - Physical/Paper SKU

Room Components - Services

Item No.	Qty.	Product	Description
34	2	WSITECOORD	Site Coordination Service
35	33	WASSEM5X8-AX-11	Scheduled Assembly and Start-Up Service for up to two Air Removal Units (ARU)
36	13	WASSEMNB-NB-10	NetBotz Assembly Services



Room Components - Services

Item No.	Qty.	Product	Description
37	20	WASSEM5X8-3R-PX-10	5X8 Scheduled Assembly of 1-3 Additional Racks
38	3	WASSEM5X8-5R-PX-20	5X8 Scheduled Assembly Service for 1-5 Racks
39	1	WNSC01	Data Center Management Software Configuration Suite
39.1	1	WNSC0101	Data Center Expert Software Configuration
39.1.1	1	WNSC010102	Data Center Expert Basic Administration
39.1.2	1	WNSC010103	Data Center Expert Advanced Administration
39.1.3	9	WNSC010104	Data Center Expert Alarm Threshold Configuration
39.1.4	3	WNSC010105	Data Center Expert Alarm Action Configuration
39.1.5	3	WNSC010106	Data Center Expert Alarm Profile Configuration
39.1.6	3	WNSC010108	Data Center Expert Network Management Configuration
39.1.7	203	WNSC010111	Data Center Device Identification
39.2	1	WNSC011	Data Center Management Software Configuration Option
39.2.1	1	WNSC010101	Data Center Management Software Configuration Base Service
39.2.2	2	WNSC0105	Data Center Follow On Preparation Service
39.3	1	WNSC0104	Data Center Post Configuration Review
39.3.1	1	WNSC010401	Data Center Expert Post Configuration Review
40	1	WCONFIG1NB-NB-10	Netbotz Configuration Service in ISX Designer 1
41	1	WMS1YRVM	1 Year StruxureWare Data Center Expert Virtual Machine Software Support Contract
42	2	WMS1YR100N	1 Year 100 Node StruxureWare Data Center Expert Software Support Contract
43	1	WNSWADCE2V1Y	StruxureWare Data Center Expert Periodic Maintenance Contract, 2 visits/year

Additional Parts - Equipment

Item No.	Qty.	Product	Description
1	30	AP4450	Rack ATS, 100/120V, 15A, 5-15 in, (10) 5-15R out
2	60	AR7580A	Vertical Cable Manager for NetShelter SX 750mm Wide 42U (Qty 2)
3	108	AR8008BLK	Horizontal Cable Organizer Side Channel 18 to 30 inch adjustment
4	60	AR7581A	Hinged Covers for NetShelter SX 750mm Wide 42U Vertical Cable Manager (Qty 2)
5	4	AR8652	Spacer Bracket for 4 Post Racks, 6" Wide (Qty 2)
6	78	AP8865	Rack PDU 2G, Metered, ZeroU, 8.6kW, 208V, (36) C13 & (6) C19 & (2) 5-20
7	66	AP8632	Rack PDU 2G, Metered-by-Outlet with Switching, ZeroU, 30A, 100-120V, (24) 5-20R
8	66	AR7701	NetShelter SX Bolt-Down Kit
9	16	AR7305A	NetShelter SX 42U 1070 Split Feed Through Side Panels Black Qty 2
10	69	AR7721	Vertical Cable Manager for NetShelter SX 600mm Wide 42U (Qty 2)

County of San Mateo - Ops Center Replacement - Redwood City, CA - CSC
(clone)
Quote Number: 2018-376195-1



Important Quotation Information:

Quote Status: Approved (Expiration Date: 9/13/2018)

Total Weight: 44559.54 LBS / 20211.98 KGS

Any potential discount, as given in the Products section of this Quotation, is granted exclusively for the Products and Quantity that are intended for the designated end user for its own use, and not for resale. Schneider Electric IT reserves the right to validate/verify the requested quantity of goods to be supplied to the end user. Schneider Electric IT may exercise this right either before releasing the goods for sale to direct partner* or after such sale. As such, partner is responsible for ensuring appropriate documentation/data/information is obtained from end-user and retained to enable validation/verification by Schneider Electric IT. Schneider Electric IT is entitled to request back, and therefore invoice partner, the amount of discount provided to partner for any outstanding SKU/Qty claimed by partner but not received by end user.

*Partner refers to Direct Partner, Reseller or Distributor.

County of San Mateo - Ops Center Replacement - Redwood City, CA - CSC
(clone)
Quote Number: 2018-376195-1



Terms and Conditions

ANY ORDER PLACED PURSUANT TO THIS QUOTATION SHALL BE GOVERNED SOLELY BY THE TERMS
AND CONDITIONS SET FORTH AT http://www.apc.com/corporate/legal/legal_order.cfm

Regional Operations Center (ROC) Infrastructure Buildout Bill of Materials

Line	Qty	Part Number	Description
			LEVITON
1	12	5R2UD-S24	ENCL UHDX 2U EMPTY
2	137	5R1UD-S12	ENCL UHDX 1U EMPTY
3	192	906-42LM2-21C	[CUSTOM ITEM]: HDX2 OM4 MTP-LC 12010
4	144	900-42NM2-S5C	[CUSTOM ITEM]: HDX 24 OM4 MTPM-MTPM CV
5	144	9r1-U2LM2-21C	[CUSTOM ITEM]: HDX2 SM 24F MTP-LC CONV
6	144	900-U2NM2-S5C	[CUSTOM ITEM]: HDX 24 OS2 MTPM-MTPM CV
7	126	49255-D48	PNL QP 48PT 1U
8	126	491RU-HFO	DUCT HORZ 1RU F/O
9	126	49005-DMB	MGR CBL BAR HI-DENSITY
10	1	FTU-FW4144JJ019F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
11	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
12	1	FTU-AW4048JJ027F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 27 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
13	1	FTU-FW4048JJ047F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 47 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
14	1	FTU-AW4048JJ047F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 47 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
15	1	FTU-FW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
16	1	FTU-AW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

17	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
18	1	FTU-AW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
19	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
20	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
21	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
22	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
23	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
24	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
25	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

26	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
27	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
28	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
29	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
30	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
31	1	FTU-FW4144JJ019F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
32	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
33	1	FTU-FW4048JJ035F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 35 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
34	1	FTU-AW4048JJ035F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 35 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

35	1	FTU-FW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
36	1	FTU-AW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
37	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
38	1	FTU-AW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
39	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
40	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
41	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
42	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
43	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

44	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
45	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
46	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
47	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
48	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
49	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
50	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
51	1	FTU-FW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
52	1	FTU-AW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

53	1	FTU-FW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
54	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
55	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
56	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
57	1	FTU-FW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
58	1	FTU-AW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
59	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
60	1	FTU-AW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
61	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

62	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
63	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
64	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
65	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
66	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
67	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
68	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
69	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
70	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

71	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
72	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
73	1	FTU-FW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
74	1	FTU-AW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
75	1	FTU-FW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
76	1	FTU-AW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
77	1	FTU-FW4048JJ040F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 40 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
78	1	FTU-AW4048JJ040F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 40 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
79	1	FTU-FW4048JJ043F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 43 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

80	1	FTU-AW4048JJ043F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 43 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
81	1	FTU-FW4048JJ046F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 46 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
82	1	FTU-AW4048JJ046F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 46 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
83	1	FTU-FW4048JJ049F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 49 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
84	1	FTU-AW4048JJ049F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 49 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
85	1	FTU-FW4144JJ019F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
86	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
87	1	FTU-FW4144JJ019F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
88	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

89	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
90	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
91	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
92	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
93	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
94	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
95	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
96	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
97	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

98	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
99	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
100	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
101	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
102	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
103	1	FTU-FW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
104	1	FTU-AW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
105	1	FTU-FW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
106	1	FTU-AW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

107	1	FTU-FW4048JJ040F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 40 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
108	1	FTU-AW4048JJ040F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 40 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
109	1	FTU-FW4048JJ043F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 43 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
110	1	FTU-AW4048JJ043F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 43 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
111	1	FTU-FW4144JJ019F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
112	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
113	1	FTU-FW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
114	1	FTU-AW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
115	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

116	1	FTU-AW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
117	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
118	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
119	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
120	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
121	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
122	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
123	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
124	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

125	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
126	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
127	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
128	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
129	1	FTU-FW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
130	1	FTU-AW4048JJ010F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 10 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
131	1	FTU-FW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
132	1	FTU-AW4048JJ013F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 13 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
133	1	FTU-FW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

134	1	FTU-AW4048JJ016F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 16 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
135	1	FTU-FW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
136	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
137	1	FTU-FW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
138	1	FTU-AW4048JJ022F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 22 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
139	1	FTU-FW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
140	1	FTU-AW4048JJ025F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 25 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
141	1	FTU-FW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
142	1	FTU-AW4048JJ028F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 28 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

143	1	FTU-FW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
144	1	FTU-AW4048JJ031F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 31 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
145	1	FTU-FW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
146	1	FTU-AW4048JJ034F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 34 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
147	1	FTU-FW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
148	1	FTU-AW4048JJ037F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 37 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
149	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
150	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
151	1	CT-U6P12L027F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 27 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

152	1	CT-U6P12L027F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 27 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
153	1	CT-U6P12L047F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 47 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
154	1	CT-U6P12L047F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 47 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
155	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
156	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
157	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
158	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
159	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
160	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

161	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
162	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
163	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
164	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
165	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
166	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
167	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
168	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
169	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

170	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
171	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
172	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
173	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
174	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
175	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
176	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
177	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
178	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

179	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
180	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
181	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
182	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
183	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
184	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
185	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
186	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
187	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

188	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
189	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
190	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
191	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
192	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
193	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
194	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
195	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
196	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

197	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
198	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
199	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
200	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
201	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
202	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
203	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
204	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
205	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

206	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
207	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
208	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
209	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
210	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
211	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
212	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
213	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
214	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

215	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
216	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
217	1	CT-U6P12L041F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 41 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
218	1	CT-U6P12L041F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 41 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
219	1	CT-U6P12L044F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 44 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
220	1	CT-U6P12L044F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 44 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
221	1	CT-U6P12L047F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 47 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
222	1	CT-U6P12L047F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 47 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
223	1	CT-U6P12L050F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 50 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

224	1	CT-U6P12L050F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 50 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
225	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
226	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
227	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
228	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
229	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
230	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
231	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
232	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

233	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
234	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
235	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
236	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
237	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
238	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
239	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
240	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
241	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

242	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
243	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
244	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
245	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
246	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
247	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
248	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
249	1	CT-U6P12L041F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 41 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
250	1	CT-U6P12L041F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 41 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

251	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
252	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
253	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
254	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
255	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
256	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
257	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
258	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
259	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

260	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
261	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
262	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
263	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
264	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
265	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
266	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
267	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
268	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

269	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
270	1	CT-U6P12L010F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 10 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
271	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
272	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
273	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
274	1	CT-U6P12L016F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 16 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
275	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
276	1	CT-U6P12L019F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 19 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
277	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

278	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
279	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
280	1	CT-U6P12L025F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 25 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
281	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
282	1	CT-U6P12L028F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 28 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
283	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
284	1	CT-U6P12L031F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 31 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
285	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
286	1	CT-U6P12L034F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 34 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

287	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
288	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
289	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
290	1	CT-U6P12L013F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 13 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
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293	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
294	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
295	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

296	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
297	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
298	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
299	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
300	1	CT-U6P12L030F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 30 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
301	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
302	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
303	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
304	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

305	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
306	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
307	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
308	1	CT-U6P12L038F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 38 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
309	1	CT-U6P12L046F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 46 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
310	1	CT-U6P12L046F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 46 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
311	1	CT-U6P12L046F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 46 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
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313	64	49253-	MGR CBL HORZ 1RU 4" RNG
314	900	5G110-	JACK EXTREME C5E (ANY STD COLOR)
315	200	PPRTN-RLG	PLUG PORT PROTECT LC RD
316	5	ETRTN-	TOOL EXTRACTION SLC RD
317	56	S4DCT-	DUCT SOLID 4X4 W/CVR
318	7	S4HTE-	TEE HORZ 4X4 W/CVR
319	3	S4HEL-	ELBW HRZ 4X4 90DG W/CVR
320	8	S4HCR-HCC	CROSS HORIZ 4X4 W/CVR
321	7	S4END-	CAP END 4X4
322	115	S4JNR-	JOINER SLOTLESS 4X4

323	171	S4LRU-	KIT MNTG LADDER+UNI 4"
324	64	900-S4DRP-OTT	[CUSTOM ITEM]: OVER THE TOP DROP-OFF
325	1	SMTRE-	DUCT KIT MITRE 4-8-12"
326	972	6H460-03L	PCORD 1G HF HD6 3' BL
327	972	6H460-05L	PCORD 1G HF HD6 5' BL
328	972	6H460-07L	PCORD 1G HF HD6 7' BL
329	972	6H460-10L	PCORD 1G HF HD6 10' BL
330	488	903-54DLC-M01	[CUSTOM ITEM]: PCORD OM4 LC-LC 1M
331	488	900-54DLC-M02	[CUSTOM ITEM]: PCORD OM4 LC-LC 2M
332	488	UPDLC-	PCORD OS2 LC-LC 1M
333	488	UPDLC-	PCORD OS2 LC-LC 2M
334	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
335	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
336	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
337	1	CT-U6P12L035F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 35 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
338	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
339	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
340	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,
341	1	CT-U6P12L022F-JEA24Y-ONA00N-CB03E	Copper Trunks: Cat 6 UTP CMP Cable assembly; bundle of 12 Blue cables; 22 feet length, Berk-Tek - LANmark-1000 (UTP) branded cable used, TIA/EIA Wiring T568B, Tested to TIA 568-C.2, Custom labelling, First End with Pulling Eye; First End: Jack connector with Black Jack 24 inch breakout length, Even Cut; Second End: Open with 6 inch breakout length,

342	1	FTU-FW4144JJ027F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 27 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
343	1	FTU-AW4048JJ027F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 27 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
344	1	FTU-FW4144JJ027F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 27 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTMP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
345	1	FTU-AW4048JJ019F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 19 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
346	90	61110-B*6	JACK EXTREME C6 25PK (ANY STD COLOR)
347	18	42LM2-21C	HDX2 Unity MTP Cassette, 0.50dB 24-fiber OM4, LC to 1x24-Fiber MTP, 120G to 10G, Black Latch
348	18	U2LM2-21C	[CUSTOM ITEM]: HDX2 SM 24F MTP-LC CONV
349	2	5R2UD-S24	ENCL UHDX 2U EMPTY
350	2	5R1UD-S12	ENCL UHDX 1U EMPTY
351	18	42LM2-21C	HDX2 Unity MTP Cassette, 0.50dB 24-fiber OM4, LC to 1x24-Fiber MTP, 120G to 10G, Black Latch
352	18	U2LM2-21C	[CUSTOM ITEM]: HDX2 SM 24F MTP-LC CONV
353	2	5R2UD-S24	ENCL UHDX 2U EMPTY
354	2	5R1UD-S12	ENCL UHDX 1U EMPTY
355	28	42LM2-21C	HDX2 Unity MTP Cassette, 0.50dB 24-fiber OM4, LC to 1x24-Fiber MTP, 120G to 10G, Black Latch
356	28	U2LM2-21C	[CUSTOM ITEM]: HDX2 SM 24F MTP-LC CONV
357	4	5R2UD-S24	ENCL UHDX 2U EMPTY
358	2	5R1UD-S12	ENCL UHDX 1U EMPTY
359	4	42LM2-21C	HDX2 Unity MTP Cassette, 0.50dB 24-fiber OM4, LC to 1x24-Fiber MTP, 120G to 10G, Black Latch
360	4	U2LM2-21C	[CUSTOM ITEM]: HDX2 SM 24F MTP-LC CONV
361	2	5R1UD-S12	ENCL UHDX 1U EMPTY

362	1	FTU-FW4144JJ175F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 175 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
363	2	FTU-FW4144JJ250F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 250 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
364	1	FTU-AW4144JJ175F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 175 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
365	2	FTU-AW4144JJ250F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 250 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
366	2	FTU-FW4144JJ200F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 200 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
367	2	FTU-AW4144JJ200F36C36CY-YYBC	Fiber Trunk Unity; 144 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 200 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
368	1	FTU-FW4048JJ200F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 200 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;

369	1	FTU-AW4048JJ200F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 200 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
370	1	FTU-FW4048JJ075F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, 50/125um Laser Optimized 10G-550m Multimode (OM4); 24F Sub-Units Opt-X SJP; Overall Cable length of 75 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F LLMTTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
371	1	FTU-AW4048JJ075F36C36CY-YYBC	Fiber Trunk Unity; 48 Fibers, Singlemode (OS2); 24F Sub-Units Opt-X SJP; Overall Cable length of 75 feet; First End with Pulling Eye, Custom label; Polarity MTP Method B; First End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger; Second End Connector: 24F ULMTP 0.35dB female connector, Breakout length of 36inch into 3mm jacketed fiber, Stagger;
			B-Line/EATON *
372	55	79903898422	90 DEGREE KIT BEND OR TEE JNCT KIT 90 DEGREE
373	46	66251630140	FT2X12X10 ELG 2"D x 12"W x 10'L Electro-galv
374	110	78205154314	FTSTLC SPLC BAR FLEXTRAY
375	2	79903895639	SB85219096FB
376	100	78101119705	BW4 LADDER RCK BW4 WING CLIP
377	3	79903833912	SB86086D096FB - PNL CBL MGT HIGH DENSITY DOUBLE SIDED CABL
378	5	799038	SB7200410EFB
			Prewired 66 Block
379	120	PS066DFT5	PREWIRED 50PR 66 WIRING BLOCK W/DUAL FEMALES TELCO CONNECTOR
			TELCO ASSEMBLY *
380	110	25-C5E-P90X-CMP-50ft	C5E CMP 25pr Telco Male pigtail 50ft
381			per foot price adder
			Contractor to verify length and use multiplier provided above of \$3.90/per ft added. This is for a base line of 50ft cable but does not represent actual cable length for this project.
382	52	CEX-25-C5E-PP90-CMP-50FT	Cat5e CMP 25pr telco male to male 50ft (Quoting 90 degree hoods)
383			per foot price adder
			Contractor to verify length and use multiplier provided above of \$3.90/per ft added. This is for a base line of 50ft cable but does not represent actual cable length for this project.
			APC *

		Product	Description
	34	AR3100	APC NetShelter SX 42U Server Rack Enclosure 600mm x 1070mm w/ Sides Black
	32	AR3150	NetShelter SX 42U 750mm Wide x 1070mm Deep Enclosure with Sides Black
	34	ACF400	Rack Air Removal Unit SX 100-240V 50/60HZ for NetShelter 600mm enclosures.
	32	ACF402	APC Rack Air Removal Unit SX 100-240V 50/60 Hz with 750mm Wide Frame
	66	ACF126	APC Rack Air Removal Unit SX Ducting Kit 24 inch
	6	NBRK0250	NetBotz Rack Monitor 250
	7	NBPD0150	NetBotz Rack Sensor Pod 150
	54	AP9335TH	APC Temperature & Humidity Sensor
	4	AP9224110	APC 24 Port 10/100 Ethernet Switch
	4	AR8429	Horizontal Cable Organizer 1U w/brush strip
	7	3827GY-5	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	12	3827GY-10	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	10	3827GY-15	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	7	3827GY-20	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	7	3827GY-25	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	14	3827GY-30	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	13	3827GY-35	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	20	3827GY-40	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	15	3827GY-50	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	20	3827GY-75	APC CATEGORY 5 UTP 568B PATCH CABLE, GREY, RJ45M/RJ45M
	10	47136WH	APC RJ45F/RJ45F, WHITE, IN LINE COUPLER, CAT 5, RJ45F/RJ45F
	2	AP95100	StruxureWare Data Center Expert, 100 Node License Only
	1	AP94VMACT	StruxureWare Data Center Expert Virtual Machine Activation Key - Physical/Paper SKU
	2	WSITECOORD	Site Coordination Service
	33	WASSEM5X8-AX-11	Scheduled Assembly and Start-Up Service for up to two Air Removal Units (ARU)
	13	WASSEMNB-NB-10	NetBotz Assembly Services
	20	WASSEM5X8-3R-PX-10	5X8 Scheduled Assembly of 1-3 Additional Racks
	3	WASSEM5X8-5R-PX-20	5X8 Scheduled Assembly Service for 1-5 Racks
	1	WNSC01	Data Center Management Software Configuration Suite
	1	WNSC0101	Data Center Expert Software Configuration
	1	WNSC010102	Data Center Expert Basic Administration
	1	WNSC010103	Data Center Expert Advanced Administration
	9	WNSC010104	Data Center Expert Alarm Threshold Configuration
	3	WNSC010105	Data Center Expert Alarm Action Configuration
	3	WNSC010106	Data Center Expert Alarm Profile Configuration
	3	WNSC010108	Data Center Expert Network Management Configuration
	203	WNSC010111	Data Center Device Identification
	1	WNSC011	Data Center Management Software Configuration Option
	1	WNSC010101	Data Center Management Software Configuration Base Service
	2	WNSC0105	Data Center Follow On Preparation Service
	1	WNSC0104	Data Center Post Configuration Review
	1	WNSC010401	Data Center Expert Post Configuration Review
	1	WCONFIG1NB-NB-10	Netbotz Configuration Service in ISX Designer 1
	1	WMS1YRVM	1 Year StruxureWare Data Center Expert Virtual Machine Software Support Contract
	2	WMS1YR100N	1 Year 100 Node StruxureWare Data Center Expert Software Support Contract
	1	WNSWADCE2V1Y	StruxureWare Data Center Expert Periodic Maintenance Contract, 2 visits/year
	30	AP4450	Rack ATS, 100/120V, 15A, 5-15 in, (10) 5-15R out
	60	AR7580A	Vertical Cable Manager for NetShelter SX 750mm Wide 42U (Qty 2)
	108	AR8008BLK	Horizontal Cable Organizer Side Channel 18 to 30 inch adjustment
	60	AR7581A	Hinged Covers for NetShelter SX 750mm Wide 42U Vertical Cable Manager (Qty 2)
	4	AR8652	Spacer Bracket for 4 Post Racks, 6" Wide (Qty 2)
	78	AP8865	Rack PDU 2G, Metered, ZeroU, 8.6kW, 208V, (36) C13 & (6) C19 & (2) 5-20
	66	AP8632	Rack PDU 2G, Metered-by-Outlet with Switching, ZeroU, 30A, 100-120V, (24) 5-20R
	66	AR7701	NetShelter SX Bolt-Down Kit
	16	AR7305A	NetShelter SX 42U 1070 Split Feed Through Side Panels Black Qty 2
	69	AR7721	Vertical Cable Manager for NetShelter SX 600mm Wide 42U (Qty 2)
385	1	APC FREIGHT	ONE SHIPMENT TO SAN MATEO

San Mateo DC 2018

BLINE/EATON

Catalog Number	PN#	QTY
90 DEGREE KIT	79903898422	55
FT2X12X10 ELG	66251630140	46
FTSTLC	78205154314	110
SB85219096FB	79903895639	2
BW4	78101119705	100
SB86086D096FB	79903833912	4
SB7200410EFB	799038	1

ICC

PREWIRED 50PR 66 WIRING BLOCK W/DUAL FEMALES TELCO CONNECTOR	PS066DFT50	124
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Cable Exchange

CEX-25-C5E-P90X-CMP-LENGTH

Quote



Universal Electric Corporation
168 Georgetown Rd
Canonsburg, PA 15317-5611
United States
Phone 724-597-7800
Fax 724-916-2221

6/11/2018 1:58:57 PM

Customer ID CTETZ000237

Customer CDCDG

Ship-to Same as Bill-to

Contact Silva, Tom

Email

Mobile

Phone

Fax

United States

United States

Quote ID	Payment Terms	Delivery Terms	Freight	Quote Date	ExpirationDate	Salesperson	Currency
SQETZ002519_1	Net 30 Days			6/11/2018	7/11/2018	Silva, Tom tsilva@uecorp.com	USD CUR_USD_NA
Line	Qty	Item	Unit Price	Extended Price			
EA 1	6.00000	UF250T5C4S-SNSN-0100C-STD0 BUSWAY END FEED, STD, 4 POLE, MECHANICAL LUGS (250AMPS, 600V)	541.00	3,246.00			
EA 2	6.00000	Configurable Busway Sections - Imperial Busway Sections - Imperial Catalog Number: = UF250T5C4R-SNSN-0100C-STD0, Description: = BUSWAY END FEED, REV, 4 POLE, MECHANICAL LUGS (250AMPS, 600V), System Frame: = T5	541.00	3,246.00			
EA 3	2.00000	US250T5C4S-1800C-STD0 BUSWAY STRAIGHT, 4 POLE, 18FT-0IN (250AMPS, 600V)	1,477.00	2,954.00			
EA 4	8.00000	US250T5C4S-1500C-STD0 BUSWAY STRAIGHT, 4 POLE, 15FT-0IN (250AMPS, 600V)	1,242.00	9,936.00			
EA 5	8.00000	Configurable Busway Sections - Imperial Busway Sections - Imperial Catalog Number: = US250T5C4S-1309C-STD0, Description: = BUSWAY STRAIGHT, 4 POLE, 13FT-9IN (250AMPS, 600V), System Frame: = T5	1,165.00	9,320.00			

County of San Mateo Project Development Unit - RPP - Data Center Infrastructure Buildout - Region Operations Center (ROC)

EA	6	4.00000	US250T5C4S-1200C-STD0 BUSWAY STRAIGHT, 4 POLE, 12FT-0IN (250AMPS, 600V)	1,010.00	4,040.00
			Quote		
				Unit Price	Extended Price
EA	7	22.0000	SJK250T5-1 JOINT KIT, B250T5, 4P	54.00	1,188.00
EA	8	12.0000	SEC250T5 END CAP, 250T5 SERIES [Silver]	12.40	148.80
EA	9	1.00000	ST5IT INSTALLATION TOOL-T5 SYSTEMS BI-DIRECTIONAL	163.00	163.00
EA	10	20.0000	CRATE-20FT SHIPPING CRATE, SECTION 11'. TO 20' LONG	28.20	564.00
EA	11	18.0000	UUSCMB-T5-30-1 UNIV. SERVER CABINET MTG. BRACKET, 30" BASE, T5 SYSTEMS [Silver]	309.00	5,562.00
EA	12	63.0000	CBT5HE92-L530-4 CKT BKR W/ L530, 30A, 208Y/120 SV, 120 LV, 22KA, ETL [STANDARD] [SILVER][AN] FOR APC AP 8632 ROWS 1-3 TOTAL 31EA CABINETS	305.00	19,215.00
EA	13	74.0000	CBT5HE92-L2130-4 CB, L2130R, 30A, 208Y/120SV, 120/208 LV, 22k, ETL [Standard][Silver] [ABCN] FOR APC AP 8865 ROWS 4-6 36 CABINETS.	441.00	32,634.00
EA	14	1.00000	CBMT5HE53-(2)L2130-4 CBM, (2)L21-30, 30A, 208Y/120SV, 120/208LV, 22K, ETL [Standard] [Silver][ABCN][ABCN] OPTIONAL PLUG-IN WITH 2EA. L2130R	746.00	746.00
EA	15	1.00000	MISC CBMT5HE93-(2)L530-4 CKT BKR W/ 2EA. L530, 30A, 208Y/120 SV, 120 LV, 22KA, ETL [STANDARD] [SILVER] [AN] OPTIONAL 2EA. L530R	584.00	584.00

Quote



	Line	Qty	Item	Unit Price	Extended Price
EA	16	1.00000	Configurable Busway Sections - Imperial Busway Sections - Imperial Catalog Number: = UF250T5C4S-SLAN-0100C-STD0-M43D3, Description: = BUSWAY END FEED, STD, 4 POLE, MECHANICAL LUGS, M43D3, (250AMPS, 415V), System Frame: = T5 OPTIONAL END FEED WITH ANGLED METER LID.	1,692.00	1,692.00
EA	17	1.00000	SERVICES-SYSTEM STARTUP-1 DAY STARTUP	2,875.00	2,875.00

Sale Amount

98,113.80

Other Charges (Specify)	0.0
0	
0	0.0

Total Amount

98,113.80

All Shipments

All purchase orders must be issued to UEC not to local rep. For shipments within the United States; FOB Canonsburg, PA Freight allowed for all orders exceeding \$20,000, excluding expedited shipments. All others prepay and add. For shipments outside the United States; CIF Ocean/CIP Airfreight Canonsburg, PA. Lead time determined by UEC upon receipt of PO and/or receipt of approved drawings

DISCLAIMER: Quotation is submitted at request of addressee and is valid for 30 days.

Selection of Material that may be ordered is the sole responsibility of the purchaser. The total amount reflected on this quote does not include any applicable Sales tax. All quotes are subject to sales and use tax, which UEC will collect and remit as set forth in the UEC Terms and Conditions, unless an appropriate exemption certificate is provided to UEC at time of order. UEC Terms and Conditions apply to all orders. Terms subject to change without notice.

Starline Startup and System Certification

The Starline Track Busway system under consideration is the highest quality, most reliable and safest power distribution system available today.

Our Starline factory trained and certified technicians will provide a comprehensive system startup certification process confirming our high factory standards while ensuring ongoing reliability of the system and emphasizing operational safety.

Service Summary

On-Site Service: Site trip scheduled after system has been installed and cabling terminated. Visit to be scheduled at customer's convenience.

Service Professionals: All services are performed by Starline Factory Trained and Certified Technicians. Startup procedures satisfies NETA ATS and NEMA BU1.1 specifications.

Extended Starline Standard Manufacturer's Warranty: Upon successful completion of this comprehensive Startup System Certification process, the standard one (1) year manufacturer's warranty will be automatically extended for two (2) years.

Scope of Work: Startup Certification

- 2 Confirm all parts and equipment have been delivered and are within factory specifications
- 3 Complete a visual inspection of installation confirming no loose parts or connections and critical components are in place and connected to factory specifications
- 4 Check voltage and amperage requirements of installed system and confirm electrical design and drawings
- 5 Confirm polarization of system has been installed correctly and is uniform meeting project specifications
- 6 Check that all joints have been properly installed with no visible gaps
- 7 Check that all bus connectors have been installed, fully seated and all set screws have been torqued
- 8 Check that all feeders running into feed units are sized according to code requirements re; system amperage and voltage
- 9 Confirm cable and connections to lugs on feed units are secured to the proper phases
- 10 Check that end feed lugs have proper torque values after leads are installed
- 11 Confirm connections to Ground from MDP panels to End or Top Feeds are terminated to electrical design and factory specifications
- 12 Perform a continuity test verifying all joints, phases and ground are properly connected
- 13 When available, check orientation of plug-in units per specification and

- ensure circuit breaker is in off position
- 14 Perform insulation resistance measurements through joints with low-resistance ohmmeter
- 15 Perform insulation resistance tests of each busway, phase to phase, and phase to ground
- 16 Deliver completed system startup checklist to installing contractor
- 17 Submit any recommendations and/or findings to installing contractor
- 18 Deliver system certification report to installing contractor

Customer Responsibilities

To provide the timely execution of services described above, Starline requests the following:

- 6. Point of Contact: Provide an authorized point of contact(s) specific to this scope of work for scheduling and installation purposes.
- 7. Scheduling: Specify dates available for scheduling service. All visits require 10 business days in advance by contacting Starline Solution Coordinator; please contact Sheri Klein at sklein@uecorp.com or (724) 597-7800 x2029.
- 8. Site Access: Prior to the work date scheduled, please confirm if a customer required escort, security clearance, safety training and badging will be required for Starline personnel.

Our factory trained and certified technicians follow NFPA 70E US/IEEE 1584 UK safety guidelines.

**PROJECT LABOR AGREEMENT
FOR THE COUNTY OF SAN MATEO
COUNTY EMERGENCY DISPATCH & RESPONSE PROJECT**

INTRODUCTION/FINDINGS

This Project Labor Agreement is entered into this 5th day of July, 2015, by and between the County of San Mateo (hereinafter, the "County"), together with contractors and/or subcontractors, who shall become signatory to this Agreement by signing the "Agreement To Be Bound" (Addendum A) (all of whom are referred to herein as "Contractors/Employers"), and the San Mateo County Building & Construction Trades Council ("Council") and its affiliated local Unions that have executed this Agreement (all of whom are referred to collectively as "Unions").

The purpose of this Agreement is to promote efficiency of construction operations for the County of San Mateo Emergency Dispatch and Response Project (the Project) and to provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thereby promoting the public interest in assuring the timely and economical completion of the Project. The County and the Council may mutually agree in writing to add additional components to the Project's Scope of Work to be covered under this PLA.

WHEREAS, the timely and successful completion of the Project is of the utmost importance to the County to avoid increased costs resulting from delays in construction; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work, including those to be represented by the Unions signatory to this Agreement and employed by contractors and subcontractors who are signatory to this Agreement; and

WHEREAS, it is recognized that on a Project of this magnitude with multiple contractors and bargaining units on the job site at the same time over an extended period of time, the potential for work disruption is substantial without an overriding commitment to maintain continuity of work; and

WHEREAS, the interests of the general public, the County, the Unions and the Contractor/Employers would be best served if the construction work proceeded in an orderly manner without disruption because of strikes, sympathy strikes, work stoppages, picketing, lockouts, slowdowns or other interferences with work; and

WHEREAS, the Contractor/Employers and the Unions desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on the Project by the Contractor/Employer(s) and the Union(s) to the end that a satisfactory, continuous and harmonious relationship will exist among the parties to this Agreement; and

WHEREAS, the parties agree that one of the primary purposes of this agreement is to avoid the tensions that might arise on the Project if Union and nonunion workers of different employers were to work side by side on the Project, thereby leading to labor disputes that could delay completion of the Project; and

WHEREAS, this Agreement is not intended to replace, interfere with, abrogate, diminish or modify existing local or national collective bargaining agreements in effect during the duration of the Project, insofar as a legally binding agreement exists between the Contractor/Employer(s) and the affected Union(s), except to the extent that the provisions of this Agreement are inconsistent with said collective bargaining agreements, in which event, the provisions of this Agreement shall prevail; and

WHEREAS, the contracts for the construction of the Project will be awarded in accordance with the applicable provisions of the California State Public Contract Code, and State Senate Bill 854 (Stat. 2014, chapter 28), which became effective January 1, 2015, and any applicable state, local and federal laws and regulations; and

WHEREAS, the County has the absolute right to select the most responsive and responsible Design Build Entity based on best value and final guaranteed maximum price for the award of the design-build contract on the Project; and

WHEREAS, the parties signatory to this Agreement pledge their full good faith and trust to work towards mutually satisfactory completion of the Project;

NOW, THEREFORE, IT IS AGREED BETWEEN AND AMONG THE PARTIES HERETO, AS FOLLOWS:

ARTICLE I
DEFINITIONS

- 1.1 “Agreement” means this Master Project Labor Agreement.
- 1.2 “County” means San Mateo County, its Board of Supervisors, and its officers and employees.
- 1.3 “Contractor/Employer(s)” or “Contractor” means any individual, firm, partnership or corporation, or combination thereof, including joint ventures, that is an independent business enterprise and has entered into a contract with the County or Project Manager or any of its contractors or subcontractors of any tier, with respect to the construction of any part of the Project under contract terms and conditions approved by the County and which incorporate this Agreement.
- 1.4 “Construction Contract” means the public works or improvement contracts awarded by the County after execution of this Agreement, and all contracts and subcontracts executed thereunder, that are necessary to complete the Project.

1.5 “Project” means construction of the new San Mateo County Emergency Dispatch and Response facility located within the County Government Center in Redwood City, CA. The County and the Council may mutually agree in writing to add additional components to the Project’s Scope of Work to be covered under this PLA.

1.6 “Union” or “Unions” means the San Mateo Building and Construction Trades Council, AFL-CIO (“the Council”) and its affiliated local Unions signatory to this Agreement, acting in their own behalf and on behalf of their respective affiliates and member organization whose names are subscribed hereto and who have through their officers executed this Agreement (“Signatory Unions”).

1.7 “Project Manager” means the person or business entity designated by the County to oversee all phases of construction on the Project.

1.8 “Master Agreement” or “Schedule A” means the Master Collective Bargaining Agreement of each craft Union signatory hereto.

1.9 “Council” means the San Mateo County Building & Construction Trades Council.

ARTICLE II

SCOPE OF AGREEMENT

2.1 Parties: The Agreement shall apply and is limited to the County and all Contractors/Employers performing work under construction contracts on the Project, the Council and its affiliated local Unions signatory to this Agreement, acting in their own behalf and on behalf of their respective affiliates and member organizations, whose names are subscribed hereto and who have through their officers executed this Agreement (“Signatory Unions”).

2.2 Applicability: The Agreement shall govern construction of the County’s

Emergency Dispatch and Response Facility, as set forth in Article 1.5. For the purposes of this Agreement, the Project shall be considered completed upon filing of a Notice of Completion, or otherwise provided by applicable State law.

2.3 Covered Work: This Agreement covers, without limitation, all on-site site preparation, surveying, construction, alteration, demolition, installation, improvement, painting or repair of buildings, structures and other works, and related activities for the Project, including, without limitation to the following examples, geotechnical and exploratory drilling, temporary HVAC, landscaping and temporary fencing, pipelines (including those in linear corridors built to serve the project), pumps, and pump stations, and modular furniture installation that is within the craft jurisdiction of one of the Unions and which is directly or indirectly part of the Project. On-site work includes work done for the Project in temporary yards or areas adjacent to the Project, and at any on-site or off-site batch plant constructed solely to supply materials to the Project. This scope of work includes all soils and materials testing and inspection where such testing and inspection is a classification in which a prevailing wage determination has been published.

2.3.1 This Agreement shall apply to any start-up, calibration, commissioning, performance testing, repair, and operational revisions to systems and/or subsystems performed for the Project after completion, for purposes of compliance with the Design Build Entity contract requirements.

2.3.2 This Agreement covers all on-site fabrication work over which the County, Contractor(s) or subcontractor(s) possess the right of control (including work done for the Project in any temporary yard or area established for the Project.). Except as may be limited by the Section titled "Exclusions," below, additionally, this Agreement covers any off-site work, including fabrication necessary for the Project defined herein that is covered by a current Schedule A Agreement or local addenda to a National Agreement of the applicable Union(s) that is in effect as of the execution date of this Agreement.

2.3.3 The furnishing of supplies, equipment or materials which are stockpiled for later use shall not be covered by this Agreement. However, construction trucking work, such as the delivery of ready-mix, asphalt, aggregate, sand or other fill material which are incorporated into the construction process as well as the off-hauling of debris and excess fill, material and/or mud,

shall be covered by the terms and conditions of this Agreement, to the fullest extent provided by law and by prevailing wage determinations of the California Department of Industrial Relations. Contractor/Employer(s), including brokers, of persons providing construction trucking work shall provide certified payroll records to the County within ten (10) days of written request or as required by bid specifications.

2.3.4 Work covered by this Agreement within the following craft jurisdictions shall be performed under the terms of their National Agreements as follows: the NTL Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, and the National Agreement of Elevator Constructors, and any instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Technicians, with the exception that Articles IV, XII and XIII of this Agreement shall apply to such work.

2.4 Exclusions from Project Work: Notwithstanding any other provision of this Agreement, the following limitations, conditions and exceptions shall apply:

- (1) This Agreement shall be limited to construction work on the Project.
- (2) The Agreement is not intended to, and shall not affect or govern the award of public works contracts by the County which are not included in the Project.
- (3) The Agreement shall not apply to a Contractor/Employer's non-construction craft employees, including but not limited to executives, managerial employees, engineering employees and supervisors above the level of General Foreman (except those covered by existing Master Collective Bargaining Agreements), staff engineers or other professional engineers, administrative, management, office and clerical employees.
- (4) This Agreement shall not apply to any work performed on or near or leading to the site of work covered by this Agreement that is undertaken by state, city, county or other governmental bodies or their contractors; or by public or private utilities or their contractors;

2.5 The following shall not be considered Project Work and this Agreement

shall not apply to such work:

- (i) All work by employees of a manufacturer or vendor necessary to maintain its warranty or guaranty or installation of any proprietary or specialty Emergency and Dispatch Response Center systems, including 911 dispatch consoles and data center equipment, where the Unions' members do not possess the skill, knowledge or experience to perform the work, provided that County or such Employer shall not select such manufacturer or vendor to avoid the work being considered Covered Work pursuant to this Section. If there is any dispute concerning this issue, the dispute shall be submitted to arbitration, pursuant to Article XII, Grievance Arbitration Procedure, which shall be conducted on an expedited basis, for resolution;
- (ii) Maintenance and repair work, including on-going maintenance, janitorial, and security services not part of the Project;
- (iii) All non-construction support services contracted by any Contractor/Employer or the County in connection with the Project;
- (iv) Work by employees of the County, design teams (including, but not limited to architects, engineers, and master planners), or any other consultants for the County (including, but not limited to, project managers not performing or subcontracting project work) and their sub-consultants, and other employees of professional service organizations, not performing or subcontracting manual labor within the definition of Project Work;

2.6 Award of Contracts: It is understood and agreed that the County has the absolute right to select any qualified bidder for the award of contracts under this Agreement. The bidder need only be willing, ready and able to execute and comply with this Agreement. It is further agreed that this Project Labor Agreement shall be included in all invitations to propose or solicitations for proposals from contractors or subcontractors for work on the Project that are issued on or after the effective date of this Agreement. A copy of all invitations for request for proposals shall be provided at time of issuance to the San Mateo Building Trades Council.

ARTICLE III

EFFECT OF AGREEMENT

3.1 By executing the Agreement, the Unions and the County agree to be bound by

each and all of the provisions of the Agreement.

3.2 By accepting the award of work under a construction contract for the Project, whether as contractor or subcontractor, the Contractor/Employer agrees to be bound by each and every provision of the Agreement and agrees that it will evidence its acceptance prior to the commencement of work by executing the **Agreement to be Bound** in the form attached hereto as **Addendum A**.

3.3 At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of work under a construction contract, the Contractor/Employer shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor as a precondition of accepting an award of a construction subcontract to agree in writing to be bound by each and every provision of this Agreement prior to commencement of work. The obligations of a contractor may not be evaded by subcontracting.

3.4 This Agreement shall only be binding on the signatory parties hereto, their successors and assigns, and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party. Each Contractor shall alone be liable and responsible for its own individual acts and conduct and for any breach or alleged breach of this Agreement. Any dispute between the Union(s) and the Contractor(s) respecting compliance with the terms of the Agreement shall not affect the rights, liabilities, obligations and duties between the signatory Union(s) and other Contractor(s) party to this Agreement.

3.5 It is mutually agreed by the parties that any liability by a signatory Union to this Agreement shall be several and not joint. Any alleged breach of this Agreement by a signatory Union shall not affect the rights, liabilities, obligations and duties between the signatory Contractor(s) and the other Union(s) party to this Agreement.

3.6 The provisions of this Agreement, including Schedules A's, which are the local Master Agreements of the Signatory Unions having jurisdiction over the work on the Project, shall apply to the work covered by this Agreement, notwithstanding the provisions of any other

local, area and/or national agreements which may conflict with or differ from the terms of this Agreement. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. Where a subject is covered by the provisions of a Schedule A and is not covered by this Agreement, the provisions of the Schedule A shall prevail.

ARTICLE IV

WORK STOPPAGES, STRIKES, SYMPATHY STRIKES AND LOCKOUTS

4.1 The Unions, County and Contractor/Employers agree that for the duration of the Project:

(1) There shall be no strikes, sympathy strikes, work stoppages, picketing, handbilling or otherwise advising the public that a labor dispute exists, or slowdowns of any kind, for any reason, by the Unions or employees employed on the Project, at the job site of the Project or at any other facility of the County because of a dispute on the Project. Nor shall the Unions or any employees employed on the Project participate in any strikes, sympathy strikes, work stoppages, picketing, handbilling, slowdowns, or otherwise advising the public that a labor dispute exists at the jobsite of the Project because of a dispute between Unions and Contractor/Employer on any other project. It shall not be considered a violation of this Article if labor is withheld by a Union due to lack of payments to a Trust Fund or failure to make payroll on the Project. Nothing stated in this Agreement shall prevent Unions from participating in the actions mentioned in this section on jobsites other than the Project jobsite because of disputes between the Unions and Contractor/Employers on projects other than the Project. Prior to withholding its members services for a particular contractor's failure to timely make payments to the applicable Trust Funds, the affected Union shall give at least five (5) days written notice of such failure to pay to the involved contractor and to the County, and the County shall give notice to the Director of Industrial Relations, as required by SB 854 (Stat. 2014, chapter 28). The Contractor shall meet with the Union within the five (5) day period to attempt to resolve the dispute. Upon payment by the delinquent contractor of all monies due and then owing for fringe benefit contributions, the Union shall direct its members to return to work and the Contractor shall return all such members back to work.

(2) As to employees employed on the Project, there shall be no lockout of any kind by a Contractor/Employer covered by the Agreement.

(3) If a Master Agreement expires before the Contractor/Employer completes the performance of work under a construction contract for work covered under this Agreement and the Union or Contractor/Employer gives notice of demands for a new or modified Master Agreement, the Union agrees that it will not strike the Contractor/Employer on said contract for work covered under this Agreement and the Union and the Contractor/Employer agree that the expired Master Agreement shall continue in full force and effect for work covered under this Agreement until a new or modified Master Agreement is reached. If the new or modified Master Agreement provides that any terms of the Master Agreement shall be retroactive, the Contractor/Employer agrees to comply with any retroactive terms of the new or modified Master Agreement which is applicable to employees employed on the project within seven (7) days after the effective date of the new or modified Master Agreement.

4.2 Expedited Arbitration: Any party to this Agreement shall institute the following procedure, prior to initiating any other action at law or equity, when a breach of this Article is alleged to have occurred:

(1) A party invoking this procedure shall notify Robert Hirsch as the permanent arbitrator, or, Barry Winograd, as the alternate under this procedure. In the event that the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is available, then a selection shall be made from the list of arbitrators in Article 12.2. Notice to the arbitrator shall be by the most expeditious means available, with notices by facsimile, email or telephone to the party alleged to be in violation and to the Council and involved local Union if a Union is alleged to be in violation.

(2) Upon receipt of said notice, the County will contact the designated arbitrator named above or his alternate who will attempt to convene a hearing within twenty-four (24) hours if it is contended that the violation still exists.

(3) The arbitrator shall notify the parties by facsimile, email or telephone of the place and time for the hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all parties. A failure of any party to attend said hearings shall not delay the

hearing of evidence or the issuance of any award by the arbitrator.

(4) The sole issue at the hearing shall be whether or not a violation of Article IV, Section 4.1 of the Agreement has occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation or to award damages, which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without a written opinion. If any party desires a written opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with or enforcement of the award. The arbitrator may order cessation of the violation of this Article and other appropriate relief and such award shall be served on all parties by hand or registered mail upon issuance.

(5) Such award may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the arbitrator's award as issued under Section 4.2(4) of this Article, all parties waive the right to a hearing and agree that such proceedings may be *ex parte*. Such agreement does not waive any party's right to participate in a hearing for a final order or enforcement. The Court's order or orders enforcing the arbitrator's award shall be served on all parties by hand or delivered by certified mail.

(6) Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure, or which interfere with compliance, are waived by the parties.

(7) The fees and expenses of the arbitrator shall be divided equally between the party instituting the arbitration proceedings provided in this Article and the party alleged to be in breach of its obligation under this Article.

(8) Should either the permanent or the alternate arbitrator listed above no longer work as a labor arbitrator, the County and the Council shall mutually agree to a replacement.

ARTICLE V
PRECONSTRUCTION CONFERENCE

5.1 The Project Manager shall hold a Preconstruction conference or conferences prior to County's approval of Design Build Entity's construction documents. Such conference(s) shall be attended by a representative each from the participating Contractor/Employers and Union(s) and the Project Manager. The Council may, at its discretion, attend any and all pre-construction conferences. All efforts will be made to hold pre-construction conferences in sufficient time to ensure all parties the ability to properly raise and resolve any issues that may arise out of such conferences, and at a minimum, all such conferences shall be held seven (7) calendar days prior to commencement of construction.

5.2 There shall be periodic meetings for the duration of the Project called by the Council or the Project Manager as needed to discuss issues relating to the construction of the Project. The General Contractor, Construction Manager and/or Primary Employer shall attend all such meetings.

ARTICLE VI
NO DISCRIMINATION

6.1 The Contractor/Employers and Unions agree to comply with all anti-discrimination provisions of federal, state and local law, to protect employees and applicants for employment, on the Project.

ARTICLE VII
UNION SECURITY

7.1 The Contractor/Employers recognize the Union(s) as the sole bargaining representative of all craft employees working within the scope of this Agreement.

7.2 All employees who are employed by Contractor/Employers to work on the Project will be required to become members and maintain membership in the appropriate Union on or before 8 days of consecutive or cumulative employment on the Project. Membership under this section shall be satisfied by the tendering of periodic dues and fees uniformly required to the extent allowed by the law.

7.3 Authorized representatives of the Unions shall have access to the Project whenever work covered by this Agreement is being, has been, or will be performed on the Project.

ARTICLE VIII

REFERRAL

8.1 Contractor/Employers performing construction work on the Project described in the Agreement shall, in filling craft job requirements, utilize and be bound by the registration facilities and referral systems established or authorized by the Unions signatory hereto. The Contractor/Employer(s) shall have the right to reject any applicant referred by the Union(s), in accordance with the applicable Master Agreement.

8.2 The Contractor(s) shall have the unqualified right to select and hire directly all supervisors above general foreman it considers necessary and desirable, without such persons being referred by the Union(s) (unless such craft construction employees are covered by existing Master Collective Bargaining Agreements).

8.3 In the event that referral facilities maintained by the Union(s) are unable to fill the requisition of a Contractor/Employer for employees within a forty-eight (48) hour period (Saturdays, Sundays and Holidays excluded) after such requisition is made by the Contractor/Employer(s), the Contractor/Employer(s) shall be free to obtain work persons from any source. A Contractor who hires any personnel to perform covered work on the Project pursuant to this Section shall immediately provide the appropriate Union with the name and address of such employee(s) and shall immediately refer such employee(s) to the appropriate

Union to satisfy the requirements of Article VII of this Agreement.

ARTICLE IX
WAGES AND BENEFITS

9.1 All Contractor/Employers agree to pay contributions to the established vacation, pension and other form of deferred compensation plan, apprenticeship, and health benefit funds established by the applicable Master Agreement for each hour worked on the Project in the amounts designated in the Schedule A of the Master Agreements of the appropriate local unions.

9.2 By signing this Agreement, the Contractor/Employers adopt and agree to be bound by the written terms of the legally established Trust Agreements, as described in section 9.1, specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractors authorize the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratify and accept the trustees so appointed as if made by the Contractor. The Contractor agrees to execute a separate Subscription Agreement(s) for Trust Funds when such Trust Fund(s) requires such document(s).

9.3 Wages, Hours, Terms and Conditions of Employment: The wages, hours and other terms and conditions of employment on the Project shall be governed by the Master Agreement of the respective crafts to the extent such Master Agreement is not inconsistent with this Agreement. Where a subject is covered by the Master Agreement and not covered by this Agreement, the Master Agreement will prevail. When a subject is covered by both the Master Agreement and this Agreement, to the extent there is any inconsistency, this Agreement will prevail.

9.4 Holidays: Holidays shall be in compliance with the applicable Schedule A agreement.

ARTICLE X
EMPLOYEE GRIEVANCE PROCEDURE

10.1 All disputes involving discipline and/or discharge of employees working on the Project shall be resolved through the grievance and arbitration provision contained in the Master Agreement for the craft of the affected employee. No employee working on the Project shall be disciplined or dismissed without just cause.

ARTICLE XI
COMPLIANCE

11.1 It shall be the responsibility of the Contractor/Employers and Unions to investigate and monitor compliance with the provisions of the Agreement contained in Article IX. Nothing in this agreement shall be construed to interfere with or supersede the usual and customary legal remedies available to the Unions and/or employee benefit Trust Funds to collect delinquent Trust Fund contributions from Employers on the Project. The County shall monitor and enforce compliance with the prevailing wage requirements of the state and Contractors/Employers' compliance with this Agreement.

ARTICLE XII
GRIEVANCE ARBITRATION PROCEDURE

12.1 The parties understand and agree that in the event any dispute arises out of the meaning, interpretation or application of the provisions of this Agreement, the same shall be settled by means of the procedures set out herein. No grievance shall be recognized unless the grieving party (Local Union or District Council on its own behalf, or on behalf of an employee whom it represents, or a Contractor on its own behalf) provides notice in writing to the signatory party with whom it has a dispute within five (5) days after becoming aware of the dispute but in no event more than thirty (30) days after it reasonably should have become aware of the event giving rise to the dispute. The time limits in Section 12.1 may be extended by mutual written

agreement of the parties.

Step 1: Within five (5) business days after the receipt of the written notice of the grievance, the Business Representative of the involved Local Union or District Council, or his/her designee, or the representative of the employee, and the representative of the involved Contractor/Employer shall confer and attempt to resolve the grievance.

Step 2: In the event that the representatives are unable to resolve the dispute within the five (5) business days after its referral to Step 1, within five (5) business days thereafter, the alleged grievance may be referred in writing by either involved party to the Business Manager(s) of the affected Union(s) involved and the Manager of Labor Relations of the Employer(s) or the Manager's designated representative, for discussion and resolution. Regardless of which party has initiated the grievance proceeding, prior to a Step 2 meeting, the Union(s) shall notify its International Union representative(s), which shall advise both parties if it intends on participating in a Step 2 meeting. The Project Manager and the Council shall have the right to participate in any efforts to resolve the dispute at Step 2.

Step 3: If the grievance is not settled in Step 2 within five (5) business days, either party may request the dispute be submitted to arbitration or the time may be extended by mutual consent of both parties. Within five (5) business days after referral of a dispute to Step 3, the representatives shall choose a mutually agreed upon arbitrator for final and binding arbitration. An arbitrator shall be selected by the alternate striking method from the list of five (5) below. The order of striking names from the list of arbitrators shall be determined by a coin toss, the winner of which shall decide whether they wish to strike first or second.

1. William Riker
2. Barry Winogard
3. Morris Davis
4. Robert Hirsch
5. William Engler

The decision of the Arbitrator shall be final and binding on all parties. The Arbitrator shall have no authority to change, amend, add to or detract from any of the provisions of the

Agreement. The expense of the Arbitrator shall be borne equally by both parties. The Arbitrator shall arrange for a hearing on the earliest available date from the date of his/her selection. A decision shall be given to the parties within five (5) calendar days after completion of the hearing unless such time is extended by mutual agreement. A written opinion may be requested by a party from the presiding arbitrator.

The time limits specified in any step of the Grievance Procedure set forth in Section 12.2 may be extended by mutual agreement of the parties initiated by the written request of one party to the other, at the appropriate step of the Grievance Procedure. However, failure to process a grievance, or failure to respond in writing within the time limits provided above, without an agreed upon extension of time, shall be deemed a waiver of such grievance without prejudice, or without precedent to the processing of and/or resolution of like or similar grievances or disputes.

In order to encourage the resolution of disputes and grievances at Steps 1 and 2 of this Grievance Procedure, the parties agree that such settlements shall not be precedent setting.

12.2 Any dispute concerning the interpretation of a Schedule A shall be governed by the grievance and arbitration provisions of the applicable Schedule A. Where an issue is addressed in both this Agreement and the Schedule A, this Agreement shall prevail. Where an issue is addressed in the Schedule A, and not in this Agreement, the Schedule A shall prevail.

12.3 At the time a grievance is submitted under this Agreement or any Master Agreement, the Union(s) may request that the County withhold and retain an amount from what is due and owing to the Contractor(s) against whom the grievance is filed, sufficient to cover the damages alleged in the grievance, should the Union(s) prevail.

The amount shall be retained by the County until such time as the underlying grievance giving rise to the retention is withdrawn, settled, or otherwise resolved, and the retained amount shall be paid to whomever the parties to the grievance shall decide, or to whomever an Arbitrator shall so order.

12.4 Should any of the arbitrators listed in this Article no longer work as a labor arbitrator, the County and the Council shall mutually agree to a replacement.

ARTICLE XIII
WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

13.1 The assignment of Covered Work will be solely the responsibility of the Employer performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of the Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

13.2 All jurisdictional disputes on this Project between or among the building and construction trades Unions and the Employers parties to this Agreement, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Employers and Unions parties to this Agreement.

13.3 If a dispute arising under this Article involves the Northern California Carpenters Regional Council or any of its subordinate bodies, an Arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of John Kagel, Thomas Angelo, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the offices of the California State Building and Construction Trades Council in Sacramento, California, within 14 days of the selection of the Arbitrator. All other procedures shall be as specified in the Plan.

13.4 All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Employer's assignment shall be adhered to until the dispute is resolved. Individual employees violating this section shall be subject to immediate discharge. Each Employer will conduct a pre-job conference with the Council prior to

commencing work. The Project Manager and County will be advised in advance of all such conferences and may participate if they wish. Pre-job conferences for different Employers may be held together.

ARTICLE XIV

APPRENTICES

14.1 Recognizing the need to develop adequate numbers of competent workers in the construction industry, the Contractor/Employer(s) shall employ apprentices of a California State-approved Joint Apprenticeship Program in the respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured.

14.2 The apprentice ratios will be in compliance with the applicable provisions of the California Labor Code and Prevailing Wage Rate Determination.

14.3 There shall be no restriction on the utilization of apprentices in performing the work of their craft provided they are properly supervised.

ARTICLE XV

MANAGEMENT RIGHTS

15.1 The Contractor/Employer(s) shall retain full and, exclusive authority for the management of their operations, including the right to direct their work force in their sole discretion. No rules, customs or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of employees except that lawful manning provisions in the Master Agreement shall be recognized.

ARTICLE XVI
HELMETS TO HARDHATS

16.1 The Contractor/Employers and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractor/Employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

16.2 The Unions and Contractor/Employers agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on the Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

ARTICLE XVII
DRUG & ALCOHOL TESTING

17.1 The use, sale, transfer, purchase and/or possession of a controlled substance, alcohol and/or firearms at any time during the work day is prohibited.

17.2 The Parties agree to recognize and use the Substance Abuse Prevention Program contained in each applicable Union's Schedule A.

ARTICLE XVIII
SAVINGS CLAUSE

18.1 The parties agree that in the event any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void as being in contravention of any applicable law, by a court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect. The parties further agree that if any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void, by a court of competent jurisdiction, the parties shall substitute, by mutual agreement, in its place and stead, an article, provision, clause, sentence or word which will meet the objections to its validity and which will be in accordance with the intent and purpose of the article, provision, clause, sentence or work in question.

18.2 The parties also agree that in the event that a decision of a court of competent jurisdiction materially alters the terms of the Agreement such that the intent of the parties is defeated, then the entire Agreement shall be null and void.

18.3 If a court of competent jurisdiction determines that all or part of the Agreement is invalid and/or enjoins the County from complying with all or part of its provisions and the County accordingly determines that the Agreement will not be required as part of an award to a Contractor/Employer, the unions will no longer be bound by the provisions of Article IV.

ARTICLE XIX
TERM

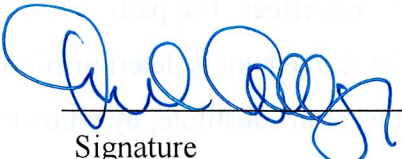
19.1 The Agreement shall be included as a condition of the award of construction contracts for the Project.

19.2 This Agreement shall become effective on the day it is executed by the County and by the Council. The County and the Council agree to meet and confer, as mutually determined by the parties, subsequent to approval of this Project Labor Agreement by the County of San Mateo, regarding the status of and experience with the Project covered by the Agreement. Should either

the County or the Council wish to update this Agreement, the party shall notify the other party in writing during and the parties shall meet and confer in an effort to reach resolution. This Agreement shall remain in full force and effect until the completion of the Project.

COUNTY OF SAN MATEO

Mike Gausy / Deputy County Manager 7/9/15
Print Name/Title Date


Signature

SAN MATEO BUILDING & CONSTRUCTION TRADES COUNCIL AFL-CIO

James Ruiz Gomez BME/EO 7/9/15
Print Name/Title Date


Signature

SIGNATURE BLOCKS FOR ALL SIGNATORY UNIONS

International Association of Heat and Frost
Insulators & Asbestos Workers Local #16



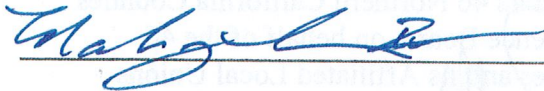
Date: 6-26-15

Brick Layers & Allied Crafts Local #3



Date: 7-1-2015

International Brotherhood of Electrical
Workers Local #617



Date: June 26 2015

International Association of Bridge Structural
& Ornamental Iron Workers Local #377



Date: 4/30/15

International Union of Operating Engineers
Local #3



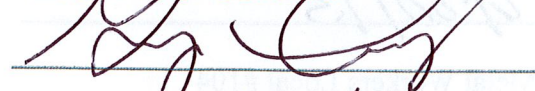
Date: 6-30-15

United Association of Plumbers & Steamfitters
Local Union #467



Date: 6-29-15

District Council of Plasterers & Cement
Masons of No. California



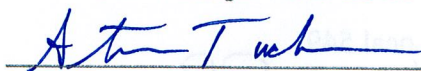
Date: 6/30/15

District Council #16 for Painters #913,
Glaziers #718 & Carpet Layers #12



Date: 6-26-15

Roofers & Waterproofers Local Union #40



Date: 7/7/2015

International Brotherhood of Teamsters Local
Union #853



Date: 6-30-15

Elevator Constructors Local 8



Date: 6-30-15

Laborers Local 67



Date: 6-30-2015

Sprinkler Fitters Local #483

Stanley W. Smith

Date: 6/30/15

Sheet Metal Workers Local #104

Ben W. W.

Date: 7/1/15

Plasterers Local Union #66

Chester W. G.

Date: 6-30-15

Boilermakers Local 549

Mark C. Shan

Date: 7-1-15

Northern California Carpenters Regional
Council, on behalf of the Northern California
Carpenters Regional Council and its Affiliated
Local Unions

[Signature]

Date: 6-30-15

U.A. Local 35

Miguel J. J.

Date: 7-1-15

Sign & Display Local 510

Joseph B. Toback

Date: 6/29/2015

Laborers Local #261

Ramon Hernandez

Date: 6-29-2015

Carpenters 46 Northern California Counties
Conference Board, on behalf of the 46
Counties and its Affiliated Local Unions

[Signature]

Date: 6-30-15

Attachment A: Agreed To Letter of Assent

[Date]

[Addressee]

[Address]

[County and State]

Re: County of San Mateo: Emergency Dispatch and Response Project
Project Labor Agreement -- Letter of Assent

Dear Mr. /Ms. _____:

The undersigned party confirms that it agrees to be a party to and bound by the San Mateo County Emergency Dispatch and Response Project, Project Labor Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms.

By executing this Agreement to Be Bound, the undersigned party subscribes to, adopts and agrees to be bound by the written terms of the legally established trust agreements specifying the detailed basis upon which contributions are to be made into, and benefits made out of, such trust funds and ratifies and accepts the trustees appointed by the parties to such trust funds. Contractor agrees to execute a separate Subscription Agreement(s) for each trust fund that requires such a document.

Such obligation to be a party to and bound by this Agreement shall extend to all work covered by the County of San Mateo Project Labor Agreement undertaken by the undersigned party on the San Mateo County Emergency Dispatch and Response Project. The undersigned party shall require all of its subcontractors, of whatever tier, to become similarly bound for all their work within the scope of this Agreement by signing an identical Agreement to Be Bound.

This letter shall constitute a subscription agreement, to the extent of the terms of the letter.

CONTRACTOR/SUBCONTRACTOR: _____

Project Contract Number: _____

California State License Number:
or Motor Carrier (CA) Permit Number _____

Name and Signature of Authorized Person: _____

(Print Name)

(Title)