TELECOMMUNICATIONS SPECIFICATIONS

TELECOMMUNICATIONS SPECIFICATION

PART 1 - GENERAL

1. GENERAL PROVISIONS: DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK IN CONTRACT. REFER TO ALL DRAWINGS ASSOCIATED WITH THIS PROJECT (EACH TRADE) FOR EXACT LOCATION OF ALL EQUIPMENT AND REQUIRED MOUNTING HEIGHTS.

2. SCOPE: PERFORM WORK AND PROVIDE NEW MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED IN THIS SECTION OF THE SPECIFICATIONS. PROVIDE ALL COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEMS COMPLETE AND FULLY OPERATIONAL. WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
   A) THE DESIGN INTENT AS ILLUSTRATED ON THESE DRAWINGS.
   B) CABLING FOR TELEPHONE, DATA, AND VIDEO SYSTEMS INCLUDING PASSIVE TERMINATION HARDWARE AND COMPONENTS.
   C) CABLING SUPPORT SYSTEMS INCLUDING J-HOOKS, LADDER RACK, VELCRO WRAPS.
   D) ALL TESTING, LABELING AND CERTIFICATIONS NECESSARY FOR COMPLIANCE AND ANY REQUIRED REMEDIAL ACTIONS AND RETESTING DUE TO FAILURE.

3. SITE VISIT: VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS THAT MAY AFFECT WORK OF THIS SECTION BEFORE SUBMITTING BID. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY DISCERNED.

4. RELATED WORK: THE FOLLOWING WORK IS NOT INCLUDED IN THIS SECTION AND WILL BE PROVIDED UNDER OTHER SECTIONS:
   A) CONDUIT, CONDUIT SLEEVES, DEVICE BOXES, PLASTER RINGS, FLOOR BOXES & POKE THROUGH DEVICES.
   B) ELECTRICAL WIRING.
   C) PERIPHERALS CONNECTED TO THE CABLING INFRASTRUCTURE (SERVERS, WORKSTATION COMPUTERS, PRINTERS, SWITCHES/HUBS/ROUTERS, TELEPHONES, TELEVISIONS).
   D) PAINTING.
   E) CUTTING AND PATCHING.

5. CODES, STANDARDS, AUTHORITIES AND PERMITS: ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE BUILDING CODE, THE STATE ELECTRICAL CODE, NFPA, ANSI/NECA, ANSI/TIA/EIA-563-B.3, ANSI/TIA/EIA-569-A, ANSI/TIA/EIA-606, ANSI/TIA/EIA-607 INSTALLATION STANDARDS AND OTHER APPLICABLE CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENT AND OTHER AUTHORITIES HAVING JURISDICTION. CODES, LAWS AND ORDINANCES PROVIDE A BASIS FOR THE MINIMUM INSTALLATION CRITERIA. THESE DRAWINGS AND SPECIFICATIONS ILLUSTRATE THE SCOPE REQUIRED FOR THIS PROJECT, WHICH MAY EXCEED MINIMUM CODE, LAW AND STANDARDS CRITERIA. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY BACKCHARGES AND OBTAIN NECESSARY APPROVALS FROM UTILITY COMPANIES AND AUTHORITIES HAVING JURISDICTION AS REQUIRED FOR THE EXECUTION OF ALL WORK ASSOCIATED WITH THIS PROJECT.

6. SUBMITTALS: PROVIDE SPECIFIED MATERIALS AND EQUIPMENT UNLESS "EQUAL" OR "APPROVED EQUAL" IS EXPLICITLY INDICATED ON THE DRAWINGS. ALLOW ENGINEER A MINIMUM OF 10 WORKING DAYS FOR PROCESSING AND REVIEW OF EACH SUBMISSION. DEVIATIONS TO SPECIFIED MATINGIALS SHALL BE AT THE SOLE RISK OF THE CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES TO THIS AND OTHER TRADES. SUBMITTALS SHALL INDICATE REVIEW AND APPROVAL BY THE RESPONSIBLE CONTRACTOR. SUBMIT FOR REVIEW (6) SETS OF MANUFACTURER'S PRODUCT DATA FOR THE FOLLOWING ITEMS:
   A) FACEPLATES, FURNITURE SYSTEM BEZELS
   B) MODULAR INSERTS (TEL, DATA)
   C) HORIZONTAL CABLE (TEL, DATA)
   D) TERMINATION HARDWARE (PATCH PANELS, WIRING BLOCKS)
   E) CABLE SUPPORTS (LADDER RACK, CABLETRAY, J-HOOKS)
   F) LABELING SCHEME

7. OPERATION AND MAINTENANCE DATA: SUBMIT (3) SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING SYSTEM DESCRIPTION, WIRING DIAGRAMS, WRITTEN WARRANTY, RECOMMENDED SPARE PARTS AND ROUTINE MAINTENANCE REQUIREMENTS WITH RECOMMENDED INTERVALS FOR THE FOLLOWING:
   A) HORIZONTAL CABLING TEST REPORTS
   B) PASSIVE COMPONENTS (TEL, DATA).

8. RECORD DRAWINGS: CAD RECORD DRAWING FILES SHALL BE SUBMITTED AT THE COMPLETION OF THE PROJECT SHOWING THE "AS-BUILT" CONDITION INCLUDING WORK INSTALLED AND ALL MODIFICATIONS OR ADDITIONS TO ORIGINAL DESIGN. THE CONTRACTOR SHALL OBTAIN THE AUTOCAD FILES FOR PREPARATION OF AS-BUILT DRAWINGS FROM THE ARCHITECT. THE ARCHITECT AND ENGINEER ARE NOT GRANTING TO THE CONTRACTOR ANY OWNERSHIP OR PROPERTY INTEREST IN THE CAD DRAWINGS BY THE DELIVERY OF THE CAD FILES TO THE CONTRACTOR. THE CONTRACTOR'S RIGHTS TO USE THE CAD FILES AND DRAWINGS ARE LIMITED TO USE FOR THE SOLE PURPOSE OF ASSISTING IN THE CONTRACTOR'S PERFORMANCE IN ITS CONTRACTUAL OBLIGATIONS WITH RESPECT TO THIS PROJECT. ANY REUSE AND/OR OTHER USE BY THE CONTRACTOR WILL BE AT THE CONTRACTOR'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ENGINEER.

9. WARRANTIES: WARRANTY INSTALLATION IN WRITING FOR ONE YEAR FROM DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. REPAIR, REPLACE OR PROVIDE TEMPORARY ACCOMMODATIONS FOR DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN 24 HOURS OF NOTIFICATION. WARRANTY SHALL INCLUDE A CONTACT PERSON (NAME AND 24 HOUR TELEPHONE NUMBER) FOR SERVICE REQUESTS. CORRECT DAMAGE CAUSED WHILE MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER WARRANTY PERIOD AT NO ADDITIONAL COST. THE CONTRACTOR SHALL BE A CERTIFIED INSTALLER OF THE CONNECTIVITY MANUFACTURER WITH THE ABILITY TO PROVIDE THE 25 YEAR EXTENDED WARRANTY FROM THE CONNECTIVITY/CABLING MANUFACTURER.

10. COORDINATION: CONFER WITH ALL OTHER TRADES RELATIVE TO LOCATION OF ALL APPARATUS AND EQUIPMENT TO BE INSTALLED AND SELECT LOCATIONS SO AS NOT TO CONFLICT WITH WORK OF OTHER SECTIONS. WORK INSTALLED THAT CREATES INTERFERENCE OR RESTRICTS ACCESS REQUIRED BY CODE OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT NO ADDITIONAL COST TO THE OWNER. THIS CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL RACKS, CABINETS, UPS, ALL MEP EQUIPMENT, AND ALL IT RELATED EQUIPMENT WITH THE OWNER'S INFORMATION TECHNOLOGY REPRESENTATIVE PRIOR TO INSTALLATION. THIS CONTRACTOR SHALL PROVIDE COORDINATION DIMENSIONED DRAWINGS OF ALL EQUIPMENT WITHIN TELECOMMUNICATION ROOMS, SERVER ROOMS, LAN ROOMS, ETC. TO ENGINEER FOR RECORD.

11. SUPPORTS: INCLUDE ALL STRUCTURAL STEEL SUPPORTS, HANGER BRACKETS, ETC., REQUIRED FOR THE EXECUTION OF THE WORK OF THIS SECTION. HANGERS SHALL BE PREFINISHED CHANNEL AND THREADED ROD USED WITH APPROVED CLAMPS, HARDWARE, ETC. CHANNEL INSTALLED IN EXTERIOR LOCATIONS SHALL BE GALVANIZED STEEL WITH STAINLESS STEEL HARDWARE. THREADED ROD SUPPORTS SHALL BE FASTENED USING POSITIVE LOCKING MECHANISM ON ALL THREADED ROD HANGER CONNECTIONS WITH LOCKNUTS, LOCK WASHERS, NYLON INSERTS, DOUBLE NUTS, LOCTITE, ETC.

12. FIRESTOPPING: INCLUDE ALL FIREPROOFING NECESSARY FOR THE EXECUTION OF THE WORK OF THIS SECTION. ALL CONDUITS, SLEEVES, AND CABLETRAY ENTRY THAT THE TELECOMMUNICATIONS CONTRACTOR USES TO INSTALL TELECOMMUNICATIONS CABLE SHALL BE PROPERLY FIRESTOPPED PER LOCAL, STATE, AND FEDERAL CODES WITH REUSABLE FIRESTOPPING MATERIALS.

13. HOISTING, SCAFFOLDING AND PLANKING: INCLUDE THE FURNISHING, SET-UP AND MAINTENANCE OF ALL HOISTING MACHINERY, CRANES, SCAFFOLDS, STAGING AND PLANKING AS REQUIRED FOR THE EXECUTION OF WORK FOR THIS SECTION.

14. SEISMIC RESTRAINT REQUIREMENTS: PROVIDE SEISMIC RESTRAINTS AS REQUIRED IN ACCORDANCE WITH THE STATE BUILDING CODE. A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER, LICENSED IN THE APPLICABLE STATE FOR THE PROJECT LOCATION, SHALL PREPARE THE SEISMIC RESTRAINT DESIGN AND CERTIFY THAT THE DESIGN IS IN COMPLIANCE WITH THE STATE BUILDING CODE REQUIREMENTS.

15. PROJECT CLOSEOUT: A CERTIFICATE OF COMPLETION SHALL BE ISSUED BY THE CONTRACTOR INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. FINAL INSPECTION BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT OF THE CERTIFICATE OF COMPLETION. NO DEFICIENCIES IN THE TERMINATION, TESTING AND LABELING SHALL BE PRESENT WHEN REQUESTING FINAL INSPECTION. PREMATURE REQUESTS FOR FINAL INSPECTIONS THAT REQUIRE REINSPECTION OF DEFICIENT ITEMS WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH THE REINSPECTION.

PART 2 - PRODUCTS

1. FACEPLATES FOR MODULAR INSERTS SHALL BE MANUFACTURED BY ORTRONICS. WALL MOUNTED TELEPHONE FACEPLATES SHALL BE STAINLESS STEEL WITH MOUNTING CLIPS FOR SUPPORTING WALL MOUNTED TELEPHONES.

2. ADAPTER BEZELS FOR MODULAR INSERTS INSTALLED WITHIN FURNITURE SYSTEMS SHALL BE MANUFACTURED BY ORTRONICS. COORDINATE EXACT BEZEL MODEL NUMBER WITH FURNITURE SYSTEM MANUFACTURER AND ARCHITECT.

3. MODULAR INSERTS SHALL BE ONE PORT, CATEGORY 5E, 8-POSITION/8-CONDUCTOR, 568-A/B WIRED RJ45 JACK, MANUFACTURED BY ORTRONICS. BLANK INSERTS SHALL BE MANUFACTURED BY ORTRONICS.

4. HORIZONTAL CABLE FOR DATA SHALL BE FOUR-PAIR, 24AWG, PLENUM RATED, CATEGORY 5E, MANUFACTURED BY BERK-TEK. COLOR SHALL BE AS INDICATED.

PART 3 EXECUTION

1. GENERAL: ALL INTERRUPTIONS AND SHUTDOWNS OF EXISTING ELECTRICAL AND TELECOMMUNICATION SYSTEMS AND SERVICES SHALL BE AS SHORT AS POSSIBLE AND AT A TIME AND DURATION APPROVED BY THE OWNER AND ENGINEER. THE CONTRACTOR SHALL INCLUDE ALL PREMIUM TIME ASSOCIATED WITH THE SYSTEM AND SERVICE INTERRUPTIONS AND SHUTDOWNS.

2. WORK AREA DEVICE PLATES, FURNITURE SYSTEM BEZELS, FLOOR BOX DEVICE PLATE, COLORS SHALL BE COORDINATED WITH THE ARCHITECT. ALL MODULAR INSERT OPENINGS SHALL BE ABLE TO ACCEPT THE SMP STYLE MODULAR INSERTS.

3. TERMINATION HARDWARE SHALL BE SIZED TO INCLUDE ALL CABLE TERMINATION PLUS 20% SPARE PORT CAPACITY.

4. HORIZONTAL SERVICE LOOPS SHALL BE PROVIDED AT EACH END OF EVERY CABLE LINK. PROVIDE 10 FEET OF CABLE SLACK AT WORK STATION END, COILED ABOVE CEILING AND 10 FEET OF CABLE SLACK AT PATCH PANEL END, COILED WITHIN LADDER RACK.

5. ALL HORIZONTAL TELEPHONE AND DATA CABLE LINKS SHALL BE TESTED WITH A LEVEL 3 ACCURACY TESTER UPDATED WITH THE MOST RECENT FIRMWARE. TEST SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: WIREMAP, LENGTH, NEXT/FEXT, ATTENUATION, RETURN LOSS, AND RECORD A PASS/FAIL IN ACCORDANCE WITH EIA/TIA 568-B STANDARDS. ALL TESTING PROCEDURES SHALL ALSO INCLUDE TESTING PRACTICES SET FORTH BY THE CABLE/CONNECTIVITY MANUFACTURER REQUIREMENTS. PROVIDE A HARD COPY OF ALL LEVEL 3 TEST RESULTS AS WELL AS ON DISK. HANDWRITTEN TEST RESULTS WILL NOT BE ACCEPTED.

6. ALL CABLES SHALL BE SUPPORTED EVERY 4-5 FEET WITH APPROPRIATELY SIZED CABLE HANGERS/J-HOOKS. CABLE SUPPORTS SHALL BE SIZED TO SUPPORT THE QUANTITY OF CABLES ALLOWED PER THE MANUFACTURER'S RECOMMENDATIONS. CABLE TYES SHALL BE VELCRO STYLE. PLASTIC TYE WRAPS ARE NOT ACCEPTABLE.

7. ALL CABLES SHALL BE INSTALLED NO CLOSER THAN 12 INCHES TO ELECTRICAL FLUORESCENT LIGHT FIXTURES AND 4 FEET FROM MOTORS AND TRANSFORMERS.

8. ALL LABELS MUST BE PERMANENT AND SHALL BE CLEARLY PRINTED ON CLEAR OPAQUE TAPE. HANDWRITTEN LABELS ARE NOT ACCEPTABLE. PROVIDE LABELING FOR ALL PATCH PANELS, WORK AREA OUTLETS, MODULAR INSERTS, AND CABLE ENDS. COORDINATE EXACT LABELING SCHEME WITH OWNER'S REPRESENTATIVE.

TELECOMMUNICATIONS LEGEND

▽	COMBINATION TELEPHONE/DATA OUTLET.

NOTE: REFER TO DETAIL DRAWINGS FOR EXACT QUANTITY OF CABLES REQUIRED AT EACH WORK AREA OUTLET.

GENERAL TELECOMMUNICATIONS NOTES

1. REFER TO ELECTRICAL DRAWINGS FOR PROPOSED PATHWAYS.

2. COORDINATE WITH CONTRACTORS, UTILITIES, TRADES AND ARCHITECT AS REQUIRED.

3. REFER TO TELECOMMUNICATIONS DRAWINGS AND SPECIFICATIONS FOR DETAILS.

4. REFER TO TELECOMMUNICATIONS DRAWINGS AND SPECIFICATIONS FOR QUANTITIES AND CONFIGURATIONS.

5. FIELD VERIFY EXACT LOCATIONS FOR ALL TELECOMMUNICATION DEVICES.

6. ALL VOICE/DATA/VIDEO CABLES TO BE PLENUM RATED AS REQUIRED.

7. VERIFY LABELING STANDARD WITH OWNER. SUBMIT LABELING SCHEME FOR APPROVAL. LABELING SHALL BE IN ACCORDANCE WITH ANSI/EIA/TIA-606A STANDARDS.

8. TELECOMMUNICATIONS CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS, PLATES AND INSERTS TO ACCEPT THE CONNECTIVITY PRODUCTS WITHIN THE ELECTRICAL CONTRACTOR PROVIDED FLOOR BOXES, POKETHRU BOXES AND SURFACE RACEWAY.

TELECOMMUNICATION SYSTEMS SUBMITTAL MATRIX

EQUIPMENT	PRODUCT SUBMITTAL REQUIRED	O&M MANUALS REQUIRED	TEST DATA REQUIRED	DOCUMENTATION/WARRANTY REQUIRED
FACEPLATES	YES			
DATA MODULAR INSERTS	YES			
HORIZONTAL DATA CABLE	YES			
DATA PATCH PANELS	NO			
DATA PATCH CORDS	YES			
TELEPHONE MODULAR INSERTS	YES			
HORIZONTAL TELEPHONE CABLE	YES			
TELEPHONE TERMINATION BLOCKS/PANELS	NO			
TELEPHONE PATCH CORDS	YES			
FLOOR MOUNTED RACKS	NO			
ENCLOSED CABINETS	NO			
CABLETRAY	NO			
J-HOOKS	YES			
FURNITURE SYSTEM MODULAR INSERT	NO			
HORIZONTAL WIRE MANAGEMENT	NO			
VERTICAL WIRE MANAGEMENT	NO			
LABELING SCHEME	YES	YES		
HORIZONTAL UTP LINKS		YES	YES	YES

EXISTING DEVICE LEGEND

XM	EXISTING CABLING AND DEVICE PLATE TO REMAIN
X	EXISTING CABLING AND DEVICE TO BE REMOVED
XR	EXISTING CABLING AND DEVICE TO BE RELOCATED
XN	EXISTING CABLING TO BE REMOVED AND NEW CABLING TO BE INSTALLED IN EXISTING OUTLET
XNL	EXISTING CABLING AND DEVICE TO BE RELOCATED TO THIS LOCATION
XCNE	EXISTING CABLING TO BE USED AND NEW EQUIPMENT TO BE INSTALLED AT THIS LOCATION
XMNE	EXISTING CABLING AND DEVICE PLATE TO BE REMOVED AND NEW CABLING AND DEVICE PLATE TO BE INSTALLED AT THIS LOCATION

GENERAL TELECOMMUNICATIONS ABBREVIATIONS

AC	ALTERNATING CURRENT	HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING	RFQ	REQUEST FOR QUOTE
ADA	AMERICANS WITH DISABILITIES ACT	Hz	HERTZ	RMS	RACK MOUNT SPACE
AFF	ABOVE FINISH FLOOR	IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.	ScTP	SCREENED TWISTED-PAIR
AIA	AMERICAN INSTITUTE OF ARCHITECTS	ISDN	INTEGRATED SERVICES DIGITAL NETWORK	SP	SERVICE PROVIDER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	ISO	INTERNATIONAL STANDARDS ORGANIZATION	STP	SHIELDED TWISTED-PAIR
AWG	AMERICAN WIRE GAUGE	kHz	KILOHERTZ	SWB	SWITCHBOARD
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	kwh	KILOWATT-HOURS	SYS	SYSTEM
BTU	BRITISH THERMAL UNIT	LAN	LOCAL AREA NETWORK	TB	TERMINAL BLOCK
CATV	CABLE TELEVISION	LASER	LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION	TBB	TELECOMMUNICATIONS BONDING BACKBONE
CO	CENTRAL OFFICE	LED	LIGHT-EMMITTING DIODE	TBBC	TELECOMMUNICATIONS BACKBONE BONDING CONDUCTOR
CODEC	CODER DECODER	MC	MAIN CROSS-CONNECT	TBBIBC	TELECOMMUNICATIONS BONDING BACKBONE INTERCONNECTING BONDING CONDUCTOR
CPE	CUSTOMER PREMISES EQUIPMENT	MDF	MAIN DISTRIBUTION FRAME	TC	TELECOMMUNICATIONS CLOSET
CPU	CENTRAL PROCESSING UNIT	MH	MANHOLE	TEL	TELEPHONE
dB	DECIBEL	MODEM	MODULATOR DEMODULATOR	TELCO	TELEPHONE COMPANY
DC	DIRECT CURRENT	MTT	MAIN TELEPHONE TERMINAL	TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
DEMARC	DEMARCATION POINT	NEC	NATIONAL ELECTRICAL CODE	TIA	TELECOMMUNICATIONS INDUSTRIES ASSOCIATION
DTE	DATA TERMINAL EQUIPMENT	NESC	NATIONAL ELECTRICAL SAFETY CODE	TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
EIA	ELECTRONICS INDUSTRIES ASSOCIATION	NEXT	NEAR END CROSSTALK	TO	TELECOMMUNICATIONS OUTLET
EMC	ELECTROMAGNETIC COMPATIBILITY	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	TSB	TELECOMMUNICATIONS SYSTEM BULLETIN
EMI	ELECTROMAGNETIC INTERFERENCE	OSP	OUTSIDE PLANT	TYP	TYPICAL
EMR	ELECTROMAGNETIC RADIATION	PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE	UG	UNDERGROUND
EMT	ELECTRIC METALLIC TUBING	PBX	PRIVATE BRANCH EXCHANGE	UL	UNDERWRITERS LABORATORIES, INC.
FCC	FEDERAL COMMUNICATIONS COMMISSION	POTS	PLAIN OLD TELEPHONE SERVICE	UPS	UNINTERRUPTIBLE POWER SUPPLY
FEXT	FAR END CROSSTALK	PR	PAIR	UTP	UNSHIELDED TWISTED-PAIR
GEC	GROUNDING ELECTRODE CONDUCTOR	PVC	POLYVINYL CHLORIDE	WA	WORK AREA
GND	GROUND	RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER	WP	WATERPROOF OUTLET
HC	HORIZONTAL CROSS-CONNECT	REF	REFERENCE	X	CROSS-CONNECT
HF	HIGH FREQUENCY	RFI	RADIO FREQUENCY INTERFERENCE		
HH	HANDHOLE				

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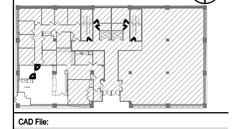

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TELECOMMUNICATIONS LEGEND, NOTES & ABBREVIATIONS

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