

SECTION 28 00 10

GENERAL REQUIREMENTS FOR SECURITY SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section and the Associated Drawings Identify the Requirements, Technical Design, and Specifications for Security Systems for the 2025 Access Control Upgrades, located in Pflugerville ISD, ("Owner").
- B. Functionally complete Security Systems shall be provided in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result shall be provided whether specifically called for or not, at no additional cost to Owner.
- C. The Security Systems include the following:
 - 1. 28 10 00 – Access Control System

1.2 RELATED SECTIONS

- A. The Drawings, Specifications, General Conditions, Supplementary General Conditions, and other requirements of Division 0 and 1 apply to the work specified in Division 28 and shall be complied with in every respect. The Contractor shall examine all the items which make up the Contract Documents and shall coordinate them with the work on the project.

1.3 CONFIDENTIALITY

- A. Limit access to physical and electronic versions of these Division 28 specifications and associated Drawings to individuals directly involved in performing the Work.
- B. Pursuant to Texas Statute 418.182, certain portions of Division 28 specifications and associated drawings relate "to the specifications, operating procedures, or location of security system used to protect public or private property from an act of terrorism or related criminal activity" and as such are confidential.

1.4 ABBREVIATIONS

- A. ADA – Americans with Disabilities Act
- B. AFF – Above Finished Floor
- C. AHJ – Authority Having Jurisdiction
- D. ANSI – American National Standards Institute
- E. AV – Audiovisual
- F. BOM – Bill of Materials

- G. CAT – Category
- H. CD – Construction Document
- I. DAS – Distributed Antenna System
- J. EMI – Electromagnetic Interference
- K. EMT – Electrical Metallic Tubing
- L. ERRCS – Emergency Responder Radio Coverage Systems
- M. FACP – Fire Alarm Control Panel
- N. FCC – Federal Communications Commission
- O. F/UTP – Foiled, Unshielded Twisted Pair
- P. GC – General Contractor
- Q. GMP – Guaranteed Maximum Price
- R. GUI – Graphical User Interface
- S. HVAC – Heating, Ventilation, and Air-Conditioning
- T. IBC – International Building Code
- U. IDF – Intermediate Distribution Frame; a secondary Telecommunications Room/Enclosure in a building
- V. IMC – Intermediate Metal Conduit
- W. ISO – International Organization for Standardization
- X. ISP – Inside Plant
- Y. ISP – Internet Service Provider
- Z. IT – Information Technology
- AA. LAN – Local Area Network
- BB. MDF – Main Distribution Frame; the main Telecommunications Room/Enclosure
- CC. NEC – National Electric Code
- DD. NEMA – National Electrical Manufacturers Association
- EE. NFPA – National Fire Protection Association
- FF. NRTL – Nationally Recognized Testing Laboratory
- GG. OEM – Original Equipment Manufacturer
- HH. OSP – Outside Plant

- II. PoE – Power over Ethernet
- JJ. RF – Radio Frequency
- KK. RFI – Request for Information
- LL. RMC – Rigid Metal Conduit
- MM. RU – Rack Unit
- NN. TIA – Telecommunications Industry Association
- OO. TR – Telecommunications Room
- PP. UL – Underwriters Laboratory
- QQ. UPS – Uninterruptible Power Supply
- RR. USB – Universal Serial Bus
- SS. VLAN – Virtual LAN

1.5 DEFINITIONS

- A. Wherever used in the Division 28 specifications, or Associated Drawings, and printed with initial capital letters; the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. If any of these terms are defined in the General Conditions in Division 1, those definitions shall take precedence.
 - 1. Addenda – written or graphic instruments issued prior to the completion of initial bids, which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 - 2. Bidding Documents – the Bidding Requirements and the proposed Contract Documents (including all Addenda).
 - 3. Bidding Requirements – The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 - 4. Change Order – A document recommended by Consultant which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 - 5. Telecommunication(s) Room – A generic term for a dedicated room for information technology equipment, frequently referred to as Telecommunications Room, Telecom Room, IDF, MDF, IT Room, or Equipment Room.
 - 6. Contract – The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
 - 7. Contract Documents – Those items so designated in the agreement between Owner and Contractor covering the Work. The Contract Documents are complementary; what is required by one is as binding as if required by all.
 - 8. Contractor – The individual or entity with whom Owner has entered into the Agreement.
 - 9. Consultant – the design firm responsible for creation of these Division 28 specifications and associated Drawings – Atlas Consulting.
 - 10. Drawings – The part of the Contract Documents prepared or approved by Consultant which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

11. General Requirements – Sections of Division 1 of the Specifications.
12. Laws and Regulations – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
13. Owner – the individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
14. Project – the total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
15. Samples – physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which established the standards by which such portion of the Work will be judged.
16. Shop Drawings – all drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
17. Site – lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of the Contractor.
18. Specifications – the part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
19. Subcontractor – an individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
20. Substantial Completion – the time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Consultant, the Work is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
21. Supplementary Conditions – the part of the Contract Documents which amends or supplements these General Conditions; Division 0 & Division 1 of these Contract Documents.
22. Supplier – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
23. Work – the entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

B. Terminology

1. The words and terms below are not defined, but when used in Division 28 specifications and related Drawings, have the indicated meaning:
 - a. Intent of Certain Terms and Adjectives:

- 1) The Contract Documents include the terms “as allowed,” “as approved,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Consultant. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Consultant as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Consultant any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the following provisions or any other provision of the Contract Documents.
 - 2) Limitations on Consultant’s Authority and Responsibilities
 - a) Consultant will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Consultant will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.
 - b) Consultant will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
 - b. Day – Day - Typical “Day” is indicative of business hours, Monday-Friday.
 - c. Defective – the word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1) Does not conform to the Contract Documents; or
 - 2) Does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3) Has been damaged prior to Substantial Completion.
 - d. Furnish – the word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - e. Install – the word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - f. Provide – the word “provide” and “perform,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 - g. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied, and those services, materials and equipment shall be furnished and installed.
- C. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contractor Documents in accordance with such recognized meaning.

1.6 REFERENCE STANDARDS

- A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated in the Contract Documents.
2. For referenced standards and guidelines that have not been adopted into code or law, the most recent version / edition of the standard and guideline shall be followed, except for the following:
3. Where the Contract Documents clearly establish size, quantity, and/or quality of services, materials, or equipment and/or the means, methods, techniques, sequences, or procedures of construction; in these instances, Contract Documents requirements shall take precedence.
4. Whenever the Contract Documents details a requirement that violates an adopted code, law, or regulation, submit RFI to Consultant prior to Bid or performing the Work.

B. Codes and Regulations

1. The following codes, laws and regulations are known to have requirements that affect Communications Systems and are listed here for reference. Refer to Part 1 Coordination paragraph in this section for requirements when there are any discrepancies between these codes, laws and regulations and the Contract Documents.
 - a. All codes shall meet the required 2021 City of Austin Adopted Codes.
 - b. 2010 ADA Standards for Accessible Design
 - c. ASCE 07 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures
 - d. FCC Rules and Regulations
 - e. National Electric Safety Code
 - f. NFPA 70 – National Electric Code
 - g. NFPA 72 – National Fire Alarm and Signaling Code
 - h. NFPA 101 – Life Safety Code
 - i. NFPA 1225 – Standard for Emergency Services Communications
 - j. 2012 Texas Accessibility Standards

C. Standards

1. Refer to individual sections for additional requirements.

D. Guidelines

1. Refer to individual sections for additional requirements.

1.7 CODES, STANDARDS, REGULATIONS

- A. All documents listed below are the encompassing Code/Standard, the latest approved Code/Standard shall be applied to each.
- B. American National Standards Institute (ANSI)
- C. American Society for Testing and Materials (ASTM)
 1. ASTM B 1 (2001; R 2007) Standard Specification for Hard-Drawn Copper Wire
 2. ASTM B 8 (2004) Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
 3. ASTM D 1557 (2007) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2700 kN-m/m³)
 4. ASTM D 709 (2001; R 2007) Laminated Thermosetting Materials
- D. Alliance for Telecommunications Industry Solutions (ATIS)

- E. Building Industry Consulting Service International (BICSI)
 - 1. Telecommunications Distribution Methods Manual
 - 2. Outside Plant Design Reference Manual
 - 3. NECA/BICSI 568-2006 – Standard for Installing Commercial Building Telecommunications Cabling
 - 4. NECA/BICSI 607-2011 - Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings
 - 5. ANSI/BICSI N2-2017 – PoE Installation
 - 6. ANSI/BICSI 004-2018 – Healthcare
 - 7. ANSI/BICSI 006-2020 - DAS
- F. Electronics Industry Alliance (EIA)
- G. Federal Communications Commission (FCC)
 - 1. FCC Part 15, Radiated Emissions Limits, revised 1998
 - 2. FCC Part 68, Connection of Terminal Equipment to the Telephone Network, revised 1998
 - 3. FCC Part 76, Cable Television Service, revised 1998
- H. Insulated Cable Engineer's Association (ICEA)
 - 1. ICEA S-87-640 (2006) Fiber Optic Outside Plant Communications Cable
 - 2. ICEA S-98-688 (2006) Broadband Twisted Pair, Telecommunications Cable Aircore, Polyolefin Insulated Copper Conductors
 - 3. ICEA S-99-689 (2006) Broadband Twisted Pair Telecommunications Cable Filled, Polyolefin Insulated Copper Conductors
- I. International Electrotechnical Commission (IEC)
- J. Institute of Electrical and Electronics Engineers, Inc. (IEEE)
 - 1. IEEE Standard 81-1983, IEEE Guide for Measuring Earth Resistance, Ground Impedance, and Earth Surface Potential of a Ground System
 - 2. IEEE Standard 1100-1999, Recommended for practice for Powering and Grounding Sensitive
 - 3. Electronic Equipment in Industrial and Commercial Power Systems (IEEE Emerald Book)
 - 4. IEEE C2 (2007; Errata 2007; INT 2008) National Electrical Safety Code
 - 5. IEEE Std 100 (2000) The Authoritative Dictionary of IEEE Standards Terms
- K. International Organization for Standardization (ISO)
 - 1. International Organization of Standardization/International Electrotechnical Commission (ISO/IEC)
 - 2. ISO/IEC 11801, Information Technology-Generic Cabling for Customer Premises, 1995
 - 3. ISO/IEC 14763-1, Information Technology-Implementation and Operation of Customer Premises Cabling-Administration, 1999
 - 4. ISO/IEC 11801, Information Technology-Generic Cabling for Customer Premises, 1995
 - 5. ISO/IEC 14763-1, Information Technology-Implementation and Operation of Customer Premises Cabling-Administration, 1999
- L. National Cable Television Association (NCTA)
- M. National Electrical Manufacturers Association (NEMA)
 - 1. NEMA C62.61 (1993) Gas Tube Surge Arresters on Wire Line Telephone Circuits
- N. National Fire Protection Association (NFPA)
 - 1. NFPA-70, National Electrical Code
 - 2. NFPA 72 – National Fire Alarm and Signaling Code
 - 3. NFPA-75, Protection of Electronic Computer Data Processing Equipment.
 - 4. NFPA-101, Life Safety Code

5. NFPA-297, Guide on Principles and Practices for Telecommunications Systems
 6. NFPA-780, Standard for the Installation of Lightning Protection Systems.
 7. NFPA 1225 – Standard for Emergency Services Communications
- O. National Institute Standards and Technology (NIST)
- P. Occupational Safety and Health Administration (OSHA)
- Q. Telecommunications Industry Association (TIA)
1. ANSI/TIA-568.0-D-1, Generic Telecommunications Cabling for Customer Premises.
 2. ANSI/TIA-568.1-D, Commercial Building Telecommunications Cabling Standard.
 3. ANSI/TIA -568.0-D.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standard.
 4. ANSI/TIA-568.3-D-1, Optical Fiber Cabling Components Standard.
 5. ANSI/TIA-569-E Commercial Building Standard for Telecommunications Pathways and Spaces.
 6. ANSI/TIA-606-C, Administration Standard for the Telecommunications Infrastructure.
 7. ANSI/TIA-607-D, Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
 8. ANSI/TIA-758-D, Customer-Owned Outside Plant Telecommunications Infrastructure Standard.
- R. Texas Education Agency (TEA)
- S. U.S. Department of Agriculture (USDA)
1. RUS 1755 Telecommunications Standards and Specifications for Materials, Equipment and Construction
 2. RUS Bull 1751F-643 (2002) Underground Plant Design
 3. RUS Bull 1751F-815 (1979) Electrical Protection of Outside Plant
 4. RUS Bull 1753F-201 (1997) Acceptance Tests of Telecommunications Plant (PC-4)
 5. RUS Bull 1753F-401 (1995) Splicing Copper and Fiber Optic Cables (PC-2)
 6. RUS Bull 345-65 (1985) Shield Bonding Connectors (PE-65)
 7. RUS Bull 345-72 (1985) Filled Splice Closures (PE-74)
 8. RUS Bull 345-83 (1979; Rev Oct 1982) Gas Tube Surge Arrestors (PE-80)
- T. Underwriters Laboratories, Inc. (UL)
1. UL 510 (2005; Rev thru Aug 2005) Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape
 2. UL 910 (NFPA 262 1990) Applicable Flame Test
- U. Guidelines
1. Refer to individual sections for additional requirements.
- 1.8 QUALITY ASSURANCE
- A. Contractor Qualifications
1. Refer to individual sections for requirements.
- B. Personnel Qualifications
1. At all times during the progress of the Work, Contractor or Subcontractor shall assign a competent Project Manager who shall not be replaced without written notice to Owner and Consultant except under extraordinary circumstances.
 2. Refer to individual sections for additional requirements.

C. Network and Cybersecurity Requirements

1. Network integrity is critical to Owner's operation of the Facility. Refer to Software, Network, and Cybersecurity Requirements paragraph in Part 3 of this Section.

1.9 WARRANTY

A. Contractor's General Warranty and Guarantee

1. If the General Requirements do not establish Contractor's General Warranty and Guarantee, then the following requirements are in effect for Communications Systems Work:
 - a. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Consultant and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
 - b. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1) Abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible
 - 2) Normal wear and tear under normal usage.
 - c. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1) Observations by Consultant.
 - 2) Recommendation by the Consultant or payment by Owner of any progress or final payment.
 - 3) The issuance of a certificate of Substantial Completion by Consultant or any payment related thereto by Owner.
 - 4) Use or occupancy of the Work or any part thereof by Owner.
 - 5) Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Consultant.
 - 6) Any inspection, test, or approval by others
 - 7) Any correction of defective Work by Owner.

1.10 SUBMITTALS

A. General Submittal Requirements:

1. Refer to General Requirements or Division 1 for general submittal requirements.
2. Refer to individual sections in Division 28 for additional requirements.
3. Submittals and Shop Drawings shall not utilize the Consultant's logo, stamp, or the title block from the Construction Drawings; if either of these are submitted, the Submittal(s) will be rejected without review.
4. Inadequate or Incomplete Submittals and/or Shop Drawings will not be reviewed and will be returned to the Contractor.

B. Pre-Bid

1. Pre-Bid submittals can generally include:
 - a. Clarifying questions.
 - b. Product Substitution requests.
 - c. Contractor and personnel qualification documentation.

2. Refer to individual sections for specific Pre-Bid requirements.

C. Pre-Construction

1. Procedures:

- a. Before submitting Pre-Construction submittals, Contractor shall have:
 - 1) Reviewed and coordinated each Shop Drawing with other Shop Drawings and with the requirements of the Work and the Contract Documents.
 - 2) Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto.
 - 3) Determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 4) Determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- b. With each submittal, Contractor shall give Consultant specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separates from the Shop Drawings or submittal; and, in addition, by a specific notation made on each Shop Drawing submitted to Consultant for review and approval of each such variation.
- c. Consultant's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents.
- d. Contractor shall not order, purchase, or install any equipment until pre-installation submittals have been accepted in writing by the Consultant.
- e. Contractor shall ensure submittals are submitted in a timely manner to ensure all products can be ordered and received on site in order to not cause any delays. If there are any concerns with any products having long lead times, those products shall be clearly identified in writing so the review and approval can be expedited.
- f. All submittals shall be submitted in the same sequence as they are listed in the specifications (i.e., product data in the sequence items are listed in the product data section, manufacturer product certifications for company, manufacturer product certifications for installers, etc.). Submittals not in the proper sequence will be returned unreviewed.
- g. Each submittal shall be sub-divided by the corresponding specification section. Provide a line-by-line compliance statement for each section, identify the following per article and sub-section:
 - 1) Compliant – Following the specification.
 - 2) Non-Compliant – Not following the specification with an explanation. If there is a deviation from the specs, prior approval shall have been submitted and approved.
 - 3) Any Contractor submitting for a given Specification Section shall submit a compliance statement for the following spec sections:
 - a) 28 00 10 – General Requirements for Security Systems
 - b) 28 05 33 – Pathways for Security Systems

2. Bill-of-Materials / Product Index

- a. Provide a typed listed with each product/equipment being provided as part each Section. List shall include the following, in the exact same order as listed in Division 28 specifications:
 - 1) Product/Equipment specification name
 - 2) Manufacturer
 - 3) Model Name
 - 4) Model Number

3. Product Data
 - a. Provide product data sheet for each material, equipment, device, etc. listed in Part 2 of these specifications. Data sheet shall include manufacturer name, product name, part number and relevant product specifications in an 8.5"x11" PDF format.
 - b. For product data sheets containing more than one (1) part number or product, the Contractor shall clearly identify the specific part number or product being submitted. Product data sheets without the part number clearly identified may not be approved.
 - c. Any Contractor submitting for a given Specification Section shall submit a product data submittal for the following spec section:
 - a) 28 05 33 – Pathways for Security Systems
 4. Shop Drawings
 - a. Shop Drawings shall include the following:
 - 1) Contractor or Subcontractor's Title Block; drawing size shall match Construction Drawings (i.e., 30" x 42"). Title Block shall include:
 - a) Project name and address
 - b) Contractor/Subcontractor company name and contact information.
 - c) Name and contact information of Contractor/Subcontractor's Project Manager.
 - 2) Legend page with all symbols defined.
 - 3) Floors plans (minimum scale of 1/8" = 1'-0") for all areas with Division 28 Work. Floor plans shall include north arrow, key plan, and indicate device/equipment locations, and associated pathway routing and size.
 - 4) All required sleeves and penetrations shall be shown in shop drawings for coordination with Division 26.
 - 5) Enlarged plans (minimum scale of 1/4" = 1'-0") and rack and wall elevations for Telecommunications Room/Enclosure, Equipment Rooms, etc., indicating exact location where equipment is intended to be installed. Enlarged plans shall include north arrow.
 - 6) Riser diagrams, details, coordination views, etc. to indicate Contractor has a full understanding of required Work and is coordinated with other trades.
 - b. Where installation location is critical – such as in Telecommunications Room/Enclosure and Equipment Rooms, as well as outlet/device location height above finished floor – indicate figured dimension on Shop Drawings.
- D. For any returned submittals, Contractor shall acknowledge and reply to the Description of Concern on the Consultant's Submittal Review Documentation.

1.11 PROJECT CLOSEOUT

- A. Bill-of-Materials / Product Index – Update Bill-of-Materials that was included in the Pre-Construction Submittal with actual equipment installed. Include columns populated with the following information:
 1. Product Name (from Specifications)
 2. Manufacturer
 3. Model Number
 4. Quantity
 5. Manufacturer Warranty Period
- B. Product Data (Cutsheets)
 1. Shall be in the same order as listed in the Specifications and Bill-of-Materials.
- C. Operation and Maintenance Data
 1. Shall be in the same order as listed in the Specifications and Bill-of-Materials.

D. Warranty Documentation

1. Include PDF copy of any Warranty documentation and/or certifications that came with the installed products or required by these Specifications.
2. Shall be in the same order as listed in the Specifications and Bill-of-Materials.

E. Test Results

1. Include PDF copy of Functional Test Reports for each section.
2. Refer to individual sections for testing requirements.

F. Spare Parts and Tools

1. At time of Owner Training, furnish any and all spare parts and tools to the Owner that are required by the Contract Documents.
2. In the Project Closeout Submittal, include PDF copy of delivery receipt, indicating items and quantities that were furnished to the Owner, as well as the date, time, and Owner Representative that took possession of the items.
3. Refer to individual sections for additional requirements.

G. Record Drawings ("As Built")

1. Maintain a copy of approved Submittals, Shop Drawings, and Change Orders on the Site (or the Project's Construction Administration website), and update with changes during construction. Any minor changes to the Drawings shall be updated on a weekly basis. These drawings shall be made available for inspection at any point during construction when requested by the Consultant.
2. At the conclusion of the project, utilize AutoCAD or BIM software (such as Revit or Navisworks) to incorporate the changes to the Shop Drawings.
3. PDF markups will not be acceptable.
4. As-Built drawings shall be produced in AutoCAD/Revit in the most current or compatible version and provided electronically in .dwg and/or .pdf format.
5. Refer to individual sections for additional requirements.

H. Special Requirements – Refer to individual sections for additional requirements.

1.12 COORDINATION

- A. Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to the Consultant any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has knowledge of, and shall obtain a written interpretation or clarification from the Consultant before proceeding with any Work affected thereby.
- B. If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to the Consultant in writing. Contractor shall not proceed with the Work affected thereby until an amendment or supplement to the Contract Documents has been issued.
- C. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

- D. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- E. Refer to General Requirements / Division 1 for Schedule requirements. Subcontractors for Division 28 Work shall coordinate with Contractor in establishing schedules and timetables to perform the Work and perform that Work per those established schedules.
- F. The Contractor/Subcontractor for each Division 28 Section shall maintain a Project Manager (per the Quality Assurance paragraph of that Section) that is on the jobsite whenever Work for that Section is being performed. This Project Manager shall coordinate the Work with other trades, such that Division 28 Work is installed per the Schedule, with the required clearances for all Divisions of Work, and meets the required codes and standards.
- G. Division 28 Work shall not impair, hinder, or delay work of other trades.
- H. Before starting Work, examine adjacent Work performed by other divisions (trades) to determine if there are any conditions that would be detrimental or prevent Division 28 Work from being a successful installation. Notify issues to Contractor for remediation prior to starting Work.
- I. Unless otherwise indicated with a figured dimension, Drawings are schematic - indicating approximate location of devices and equipment. Security devices and equipment may be figure-dimensioned on the Architectural Drawings, which take precedence over the approximate locations on the Security Drawings. Where neither Security Drawings include a figured dimension, exact location shall be determined by scaled dimension and coordination with requirements of other trades. Errors that could have been avoided by proper coordination shall be corrected without additional costs to the Owner.
- J. Coordination with other Division(s):
 - 1. Division 21 Fire Suppression
 - a. Ensure no piping is routed overhead through a Telecommunications Room or Equipment Room, except where serving a Fire Suppression Device in the Communications/Equipment Room.
 - 2. Division 22 Plumbing
 - a. Ensure no piping is routed overhead through a Telecommunications Room/Enclosure or Equipment Room.
 - 3. Division 23 Mechanical
 - a. Ensure no piping or ductwork is routed overhead through a Telecommunications Room/Enclosure or Equipment Room, except where serving Mechanical equipment in the Communications/Equipment Room.
 - 4. Division 26 Electrical
 - a. Ensure no conduits are routed overhead through a Telecommunications Room/Enclosure or Equipment Room, except where serving an Electrical panelboard or receptacles in the Communications/Equipment Room.
 - b. Coordinate exact location of receptacles/ hard-wired circuits for Division 28 equipment with Division 26 Contractor prior to rough-in installation.
 - c. Prior to connecting Division 28 devices and equipment to an electrical receptacle, utilize a ground circuit impedance tester to detect any wiring errors and low equipment ground impedances. If any issues are detected, notify Division 26 Contractor for correction prior to connecting Division 28 devices and equipment.
 - 5. Division 27 Communication Systems

1.13 PATENT FEES, ROYALTIES, PERMITS, AND TAXES

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others.
- B. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.
- C. Unless otherwise provided in the Supplementary Conditions, Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

1.14 DELEGATION OF PROFESSIONAL DESIGN SERVICES

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Consultant will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Consultant.
- C. Owner and Consultant shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Consultant have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph, Consultant's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

- A. Materials and equipment incorporated into the Work shall be as specified and of good quality and new, except as otherwise noted in the Contractor Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by these specifications or when requested by the Owner or Consultant, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- B. Equipment and materials shall be consistent throughout the installation. Where multiple units of the same type of equipment and materials are required, these units shall be a standard product with the same manufacturer and model number.
- C. Performance Criteria
 - 1. Regulatory Requirements
 - a. Utilize products listed by a National Recognized Testing Laboratory (such as UL), except where no relevant standard exists. These products shall bear a permanent mark/label of the NRTL.
 - b. All equipment and material used in the installation shall be listed for the environment in which it is being installed. Examples – plenum-rated were installed in a return air plenum; wet or outdoor listed where installed in Wet or Damp Locations.
 - c. Refer to individual sections and products for specific NRTL requirements.
 - 2. Sustainability Characteristics
 - a. Refer to General Requirements / Division 1 for general Project and Product Sustainability requirements.
 - b. Refer to individual Division 28 sections and products for specific Sustainability requirements.
- D. Lead Time Issues
 - 1. Contractor shall review all products specified and required for this project to determine if there are any lead times for any products that may cause any delay. Contractor shall clearly identify any concerns with lead times in writing to the Consultant prior to submitting a Bid for this work. If the Contractor does not identify any concerns with products having long lead times, it will be understood there are no long lead time issues, and the Contractor will have all products on-site when needed to complete the Work as required.
- E. In the event a manufacturer's specified product or part number has changed or is no longer available, Contractor shall substitute the appropriate equivalent manufacturer's part number, at no cost to the Owner.
- F. In the event of a discrepancy between these Specifications and the Drawings, the greater quantity and/or better quality shall be assumed for bidding purposes.

2.2 SUBSTITUTES AND “OR APPROVED EQUALS”

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to the Consultant for review under the circumstances described below.
1. “Or-Equal” Items: If, in the Consultant’s approval, an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Consultant as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. In the exercise of reasonable judgment, the Consultant determines that:
 - 1) It is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics.
 - 2) It will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole.
 - 3) It has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work
 - 1) There will be no increase in cost to the Owner or increase in Contract Times: and
 - 2) It will confirm substantially to the detailed requirements of the item named in the Contract Documents.
 2. Substitute Items:
 - a. Contractor shall submit sufficient information as provided below to allow Consultant to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by the Consultant from anyone other than Contractor.
 - b. Contractor shall make written application to the Consultant for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. Requests for substitution must be submitted ten calendar days prior to the bid date, any request received after that time period will be excluded from consideration. The application:
 - 1) Shall certify that the proposed substitute item will:
 - a) Perform adequately the functions and achieve the results called for by the general design
 - b) Be similar in substance to that specified
 - c) Be suited to the same use as that specified
 - 2) Will state:
 - a) The extent, if any, to which the use of the proposed substitute item will prejudice Contractor’s achievement of Substantial Completion on time
 - b) Whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item

- c) Whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty
 - 3) Will identify:
 - a) All variations of the proposed substitute item from that specified, and
 - b) Available engineering, sales, maintenance, repair, and replacement services;
 - 4) Shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
 - c. If, in the Consultant's approval, an item of material or equipment proposed by Contractor does not qualify as an "Or Approved Equal" item under the Paragraph above, it will be considered a proposed substitute item.
 - d. If an "Or Approved Equal" is found to be acceptable and approved, a Bid Addendum will be released informing all Bidders of the Approved Change. If no such Addendum is issued it will be considered a proposed substitute item.
 - e. Cost Reimbursement: in certain situations, evaluating a proposed substitution will require additional time by the Consultant. These situations will either be described in subsequent Specification sections or conveyed in writing to the Contractor prior to evaluation by the Consultant. Consultant will record Consultant's costs in evaluating the proposed substitution. Whether or not Consultant approves the proposed substitution, Contractor shall reimburse Owner for the reasonable charges of Consultant for evaluating each proposed substitute. Contractor shall also reimburse Owner for the reasonable costs for Consultant, Architect, and Engineer(s) in making changes in the Contract Documents resulting from the acceptance of each proposed substitute.
- B. Proposed equivalent items shall be approved by Consultant prior to purchase or installation. Proposed equivalent items shall meet or exceed these specifications and the specifications of the specified item.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

- A. Verification of Conditions
- 1. Existing Conditions
 - a. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing site conditions at or contiguous to the Site is based on information and data furnished to Owner or Consultant or based on the conditions or coordination at the time the Contract Documents were assembled.
 - 1) Owner and Consultant shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
 - 2) The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a) Reviewing and checking all such information and data.
 - b) Verifying Existing Field Conditions; any variation from the Contract Documents in the field shall be brought to the attention of the Consultant with an RFI. All potential costs shall be lined out in the RFI.
- B. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

- C. No deviations from the Contract Documents shall be made without full consent in writing of the Consultant. The Contractor shall have written approval from the Consultant for any additional work beyond the Contract Documents prior to beginning such work. If the Contractor does not obtain written approval from the Consultant prior to proceeding with the work, the contractor shall not be reimbursed for the work.
- D. Cleaning
 - 1. During the progress of the Work, Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations. Contractor shall dispose of such items on a daily basis and return the site to the original state of cleanliness. The Contractor shall not use Owner's facilities for the disposal of excess or scrap materials.
 - 2. Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- E. Protection
 - 1. The Contractor shall protect Communications Work from damage by other trades and theft.
 - a. Any Division 28 cabling that has more than 2-inches of paint on the jacket shall be replaced without additional cost to the Owner.

3.2 PRE-CONSTRUCTION REQUIREMENTS

- A. Contractor shall notify the Consultant a minimum of (2) weeks prior to beginning work and will participate in a pre-construction meeting with the Consultant to perform a walkthrough, review the scope of work, schedule, and escalation procedures.
- B. System Programming
 - 1. All systems requiring any networking information from Owner to Contractor shall require an IP Spreadsheet. This Spreadsheet will contain the following, at a minimum:
 - a. Device Name/Type
 - b. MAC Address
 - c. Closet Termination Location
 - d. Cable ID
 - 2. Systems shall not commence programming until the Spreadsheet is signed off on by the Consultant/Owner for each system.

3.3 CONSTRUCTION PROCEDURE

- A. Contractor shall maintain a set of working Specifications, Design Drawings, and Record Drawings to be kept on site at all times and shall update the record drawings with any changes on a weekly basis. Record drawings shall be made available for inspection at the request of the Consultant.
- B. The Contractor shall be responsible for coordination with other trades to ensure any conflicts or potential conflicts are resolved prior to any work beginning on the project.

- C. The Contractor shall obtain written permission from the Consultant before proceeding with any work that would necessitate cutting into or through any part of the building structure such as, but not limited to girders, beams, floors, walls, roofs, or ceilings.

3.4 MATERIALS

- A. The Contractor shall install the materials in accordance with these specifications and the manufacturer's installation guidelines.
- B. Equipment and materials installed by the Contractor shall be free of defects and damage.
- C. Contractor shall test all cables prior to installation. By failing to perform this testing operation, the Contractor shall accept the cable as compliant and assume all liability for the replacement of the cable at no cost to the Owner should it be found defective at a later date.
- D. Equipment and materials shall be delivered and stored in accordance with the manufacturer's guidelines at the Contractor's expense.
- E. Contractor shall make all stored equipment and materials available for inspection at the request of the Consultant.
- F. All equipment and material used in the installation shall be approved by the manufacturer for the environment in which it is being installed.
- G. Where Owner-Furnished or Provided Equipment is installed prior to Substantial Completion, access to that room or area shall be restricted/locked whenever unoccupied.

3.5 REPAIR / RESTORATION

- A. Contractor shall be responsible for the repair of any damage caused by the Contractor or Subcontractors during the installation.
- B. Selective demolition may be necessary to facilitate installation of Communications Systems equipment and pathways. The Contractor shall obtain written permission from the Consultant before proceeding with any work that would necessitate cutting into or through any part of the building structure such as, but not limited to girders, beams, floors, walls, roofs, or ceilings. After installation, Contractor shall restore floors, walls, roofs, and ceilings to their original condition.
 - 1. Avoid penetrations or installation of equipment onto or through waterproof assemblies such as roofs, exterior walls, and slab-on-grade floors. If installation cannot be avoided, install before waterproofing; protect installation area from weather/elements until sealing and waterproofing is complete.
 - a. Conduit and backboxes concealed or embedded in walls or floors may remain. Provide stainless steel cover over backbox openings that are not reused.
 - 2. Properly dispose of equipment and associated cabling, conduit, pathways and supports in compliance with local, state, and federal laws.
 - 3. The Contractor shall protect Communications Work from damage by other trades and theft.
 - a. Any Division 28 cabling that has more than 2-inches of paint on the jacket shall be replaced without additional cost to the Owner.

3.6 FUNCTIONAL AND PERFORMANCE TESTING

- A. After components have been installed, perform functional tests to ensure system components are installed and configured correctly in conformance with manufacturer's instruction and the Contract Documents. Correct any issues and retest. Include Test Report documentation in Preliminary and Final Project Closeout Submittals.
- B. Third-party testing or manufacturer onsite services may be necessary for certain Division 28 systems or sub-systems; refer to individual sections for exact requirements.
- C. Refer to individual sections for additional testing requirements.

3.7 FIELD OBSERVATIONS

- A. A minimum of two weeks in advance, notify Consultant and Owner as to the readiness for a Field Observation for the following:
 - 1. Rough-In Observation – after conduits have been installed, but before walls have been installed.
 - 2. Above Ceiling Observation – after cabling has been installed, but before ceilings have been installed.
 - 3. Final Site Observation – a minimum of two weeks before Substantial Completion, to occur after Preliminary Project Closeout Submittal has been submitted.
- B. Non-Conforming Work
 - 1. After receipt of written notice of defective Work, Contractor shall correct all defective Work, or, if the Work has been rejected by the Consultant, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages arising out of or relating to such correction or removal.

3.8 DEMONSTRATION, TRAINING, AND ADJUSTMENTS

- A. Conduct training sessions to Owner's personnel to demonstrate system operation and preventative maintenance procedures.
 - 1. Refer to individual sections for additional training requirements.
- B. After Owner has taken occupancy, Communications Systems equipment and components may require minor adjustments to be performed by the Contractor/Subcontractor to align with Owner's actual use of the systems. Refer to individual sections for specific adjustment requirements.

3.9 SOFTWARE, NETWORK, AND CYBERSECURITY REQUIREMENTS

- A. Software Requirements
 - 1. All firmware found in products furnished or provided by the Contractor shall be the latest and most up to date provided by the manufacturer.
 - 2. All equipment requiring users to log on using a password shall be configured with user/site-specific password(s). No system/product default passwords shall be allowed. Coordinate user logins and passwords with Owner prior to system setup.
 - 3. Refer to individual sections for additional software requirements.
- B. Network and Cybersecurity Requirements

1. For all Communications Systems that have Contractor-provided equipment with an Ethernet/LAN port, Contractor shall coordinate with Owner's IT staff regarding Owner's network and cyber security requirements.
2. As a part of the pre-installation meetings, the Contractor (and/or Subcontractors for each Communications System) shall request an IT Coordination Kickoff Meeting with Owner's IT staff to ascertain and document Owner's requirements. Contractor shall document this meeting and send meeting minutes to all parties in attendance as well as Consultant.
3. At a minimum, coordinate the following network requirements for Contractor-provided equipment with the Owner's IT staff:
 - a. IP address quantities and assignments for each equipment type and location, including subnets and subnet masks.
 - b. PoE quantities and power requirements (PoE, PoE+, high powered PoE, etc.) for each equipment type and location.
 - c. Bandwidth requirements, including any prioritization or unicast/multicast requirements.
 - d. VLAN use and assignment.
 - e. Encryption requirements
 - f. WAN connection requirements
 - g. Tunnel requests for access through an Owner's network
 - h. Planned approach for software upgrades and security patching.
 - i. Follow additional network requirements and procedures as directed by the Owner's IT staff.
4. The Contractor shall take positive measures to prevent the introduction of cybersecurity threats to the Owner's technology infrastructure and network. These measures shall include but are not limited to:
 - a. The Contractor shall scan Contractor-Provided or Furnished Equipment for cyber threats such as viruses, malware, ransomware, etc., prior to connecting the equipment to the Owner's network.
 - b. Coordinate with the Manufacturer to ensure newly procured equipment does not have any cybersecurity notices, bulletins, or alerts.
 - 1) Provide a letter to the Consultant with the submittal documents for that Specification section confirming there are no active or known cyber threats.
 - c. Ensure all system programmers installing or configuring equipment are trained on the prevention of introduction of cyber threats to electronics.
 - d. The Contractor shall assess whether there are any cyber threats / vulnerabilities associated with the specified equipment, prior to procurement/installation. If cyberthreats are discovered, notify the Consultant within one Day. Provide the make and model of the associated equipment and the vulnerability.
5. Refer to individual sections for additional Networking and Cybersecurity Requirements.

3.10 MAINTENANCE

A. Warranty Service

1. Pursuant to Contractor's General Warranty and Guarantee, Owner may request Warranty Service for a period of 1 year after Substantial Completion for Communications Systems components due to faulty material or installation.
2. Upon written notice from Owner, promptly perform remedial / corrective Work to bring the associated system(s) to compliance with the Contract Documents and satisfaction of the Owner.
 - a. In this context, "promptly" means within 7 Days, unless a quicker response and remediation time is specified in the associated Division 28 specification section.
3. Refer to individual sections for additional Warranty Service requirements.

B. One Year Warranty Check

1. Fifty weeks after Substantial Completion, Contractor or Subcontractor for each Division 28 section shall conduct a site visit with Owner's facility personnel to ensure systems and components are still operating as intended / required by the Contract Documents. Promptly perform corrective Work while on site or within 7 Days.
 - a. Pursuant to Contractor's General Warranty and Guarantee, corrective Work is not required if system / component is deficient due to:
 - 1) Abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2) Normal wear and tear under normal usage.
 - C. On-Going Maintenance and Support
 1. For each individual spec section and coordinating system installed, the supplying contractor shall provide a scope of work, including planning and costs, for supporting the installed systems.
 - a. Response time shall include the following:
 - 1) Initial response time to acknowledge Owner's request is four hours.
 - 2) Expected time to be on site to support the Owner's request is eight hours.
 - b. For any non-passive system provide a maintenance:
 - 1) An annual maintenance plan to service the equipment per the manufacturer's recommended operation.
 - 2) An annual test of the system to ensure the efficient operation, including coordination and report based on the Owner's request.
- 3.11 DRAWINGS AND SPECIFICATIONS AFTER SUBSTANTIAL COMPLETION
- A. Contractor and any Subcontractor or Supplier shall not:
 1. Have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by Atlas Consulting, including electronic media editions; or
 2. Reuse any such Drawings, Specifications, other documents, or copies thereof on any other project without written consent of Atlas Consulting.
 - B. The prohibitions in the paragraph above survive final payment, or termination of Contract. Nothing herein shall preclude Contractor or Owner from retaining copies of the Contract Documents for record purposes.
 - C. Physical paper copies of Drawings and Specifications shall be properly destroyed (shredded) when no longer needed to perform the Work.

END OF SECTION 28 00 10