

## **BID ADDENDUM NO. 2**

May 12, 2021  
Campbell-Savona Central School District  
2020 Capital Project- Phase I  
2450-035

SED #57-06-03-04-0-003-021 – Elementary School  
SED #57-06-03-04-0-001-024 – Middle/High School  
SED #57-06-03-04-5-006-007 – Bus Garage  
SED #57-06-03-04-2-004-004 – Storage  
SED #57-06-03-04-7-007-002 – Press Box  
SED #57-06-03-04-7-009-002 – Concession Stand

The following Addendum items shall be considered a part of the contract documents prepared by HUNT ENGINEERS, ARCHITECTS, LAND SURVEYORS & LANDSCAPE ARCHITECT, DPC.  
Bid Document date of April 22, 2021.

### **Specification issued by this Addendum:**

27 15 23 – Communications Optical Fiber Cabling

### **Drawings issued by this Addendum:**

AD2-P1 – REVISED EXTEIOR INCOMING GAS PIPING SCHEMATIC

### **Revisions to Project Manual issued by this Addendum:**

#### **ITEM AD2-1 Refer to Section 23 73 33 – Pool Dehumidification Units**

**AMEND** Part 2.1.B to read, “Alternate Manufacturers: Trane Custom, Munters, & Efficient Air Systems.”

#### **ITEM AD2-2 Refer to Section 27 15 23 – Communications Optical Fiber Cabling**

**DELETE** 27 15 23 – Communications Optical Fiber Cabling in its entirety.

**ADD** 27 15 23 – Communications Optical Fiber Cabling per this addendum.

### **Revisions to Drawings issued by this Addendum:**

#### **ITEM AD2-3 Refer to Drawing ES-P1.1 – FIRST FLOOR PLAN – AREAS A & B**

**AMEND** Detail 2, with detail 1 on drawing AD2-P1 – REVISED EXTERIOR INCOMING GAS PIPING SCHEMATIC, issued by this addendum.

- ITEM AD2-4 Refer to Drawing ES-E0.2 – FIRST FLOOR DEMOLITION PLAN – AREA A**  
**ADD** An additional Demolition Note D5, adjacent to the East side of panel LP1. This new Demolition Note D5 shall apply to panel HV1 that is not currently showing on plans.
- ITEM AD2-5 Refer to Drawing ES-E0.3 – FIRST FLOOR DEMOLITION PLAN – AREA B**  
**DELETE** Demolition Notes D5 adjacent to panels LPE-R and LPE-L.
- ITEM AD2-6 Refer to Drawings ES-E1.1 through ES-E1.4 – POWER PLANS**  
**AMEND** Construction Notes-Power, P1, to read the following: “P1. Provide new 120/208V 3PH 4W panelboard and connect to existing main feeder and branch circuitry in this location. Modify / Extend circuitry as needed. Trace & identify all branch circuits upon completion of work. Provide updated and newly-typed labels and panel schedules per specifications. Panel Provisions are as follows: Panel LP1: 225A MLO, 42 Space, 22KAIC, Recessed Mount, Circuit Breakers: (40) 20/1, (1) 30/2. Panel HV1: 100A MCB, 42 Space, 22KAIC, Recessed Mount, Circuit Breakers: (24) 20/1, (3) 20/2, (2) 35/2. All unused circuit breakers shall be installed in the ‘OFF’ position and clearly labeled as ‘SPARE’.”
- ITEM AD2-7 Refer to Drawing ES-E1.2 – FIRST FLOOR POWER PLAN – AREA A**  
**ADD** An additional Construction Note P1 adjacent to the East side of panel LP1. This new Construction Note P1 shall apply to panel HV1 that is not currently showing on plans.
- ITEM AD2-8 Refer to Drawing ES-E1.3 – FIRST FLOOR POWER – AREA B**  
**DELETE** Construction Note P1 adjacent to panels LPE-R and LPE-L.
- ITEM AD2-9 Refer to Drawings ES-E2.1 through ES-E2.6 – LIGHTING & FA PLANS**  
**AMEND** Construction Notes- Lighting & FA, L1, to read the following: “L1. Existing exit light fixture to be replaced. Provide exit light fixture (Dual Lite #SE-R-W-E-I) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit light and verify exit light is connected to emergency / standby power.”
- ITEM AD2-10 Refer to Drawings ES-E2.1 through ES-E2.6 – LIGHTING & FA PLANS**  
**AMEND** Construction Notes-Lighting & FA, L2, to read the following: “L2. Provide exit light fixture in this location. Provide exit light fixture (Dual Lite #SE-R-W-E-I) with emergency battery pack, connected to nearest exit lighting circuit using (3)-#12, 3/4"C. Inspect & verify correct operation of exit light, and also verify exit light is connected to emergency / standby power.”
- ITEM AD2-11 Refer to Drawings ES-E2.1 through ES-E2.6 – LIGHTING & FA PLANS**  
**AMEND** Construction Notes-Lighting & FA, L3, to read the following: “L3. Existing ARA (Area of Rescue Assistance) light fixture to be replaced. Provide ARA light fixture (Dual Lite #SE-R-W-E-I-SW13) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit light and verify exit light is connected to emergency / standby power.”

**ITEM AD2-12 Refer to Drawings BG-E2.1 through BG-E2.2 – LIGHTING & FA PLANS**

**AMEND** Construction Notes- Lighting & FA, L1, to read the following: “L1. Provide exit/emergency light fixture in this location. Provide exit/emergency light (Dual Lite #EVC-U-R-W-D-I) with emergency battery pack, connected to nearest exit/emergency lighting circuit using (3)-#12, 3/4”C. Inspect & verify correct operation of exit/emergency light.”

**ITEM AD2-13 Refer to Drawings BG-E2.1 through BG-E2.2 – LIGHTING & FA PLANS**

**AMEND** Construction Notes-Lighting & FA, L2, to read the following: “L2. Existing exit/emergency light fixture to be replaced. Provide exit/emergency light fixture (Dual Lite #EVC-U-R-W-D-I) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit/emergency light.”

**ITEM AD2-14 Refer to Drawing SB-E2.1 – LIGHTING & FA PLANS**

**AMEND** Construction Notes – Lighting & FA, L1, to read the following: “L1. Provide weatherproof LED light fixtures (Columbia #LXEM4-40VL-RFA-EDU-XEHC) with emergency battery packs and dimming controls with built-in dual-technology occupancy/vacancy sensing, connected to panel W using (3)-#12, 3/4”C.”

**ITEM AD2-15 Refer to Drawing SB-E2.1 – LIGHTING & FA PLANS**

**AMEND** Construction Notes – Lighting & FA, L2, to read the following: “L2. Provide weatherproof exit/emergency light fixture (Dual Lite #DYNC-R-W-6) with emergency battery pack, connected to panel W using (3)-#12, 3/4”C. Inspect & verify correct operation of exit/emergency light.”

**ITEM AD2-16 Refer to Drawing SB-E2.1 – LIGHTING & FA PLANS**

**AMEND** Construction Notes- Lighting & FA, L3, to read the following: “L3. Provide weatherproof exterior light fixture (Hubbell #LNC3-24L-4K-075-3-U-BLT-PCU-E) with emergency battery pack, connected to panel W using (3)-#12, 3/4”C. Provide photo-eye & timer controls for exterior light fixtures.”

**ITEM AD2-17 Refer to Drawing PB-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes- Lighting & FA, L1, to read the following: “L1. Existing exit light fixture to be replaced. Provide new weatherproof exit/emergency light fixture (Dual Lite #DYNC-R-W-6) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit/emergency light.”

**ITEM AD2-18 Refer to Drawing PB-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes – Lighting & FA, L2, to read the following: “L2. Provide weatherproof exterior light fixture (Hubbell #LNC3-24L-4K-075-3-U-BLT-PCU-E) with emergency battery pack, connected to panel PB using (3)-#12, 3/4”C. Provide photo-eye controls for exterior light fixtures.”

**ITEM AD2-19 Refer to Drawing PB-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes – Lighting & FA, L3, to read the following: “L3. Provide LED light fixtures (Columbia #CFP14-3440) and controls with built-in dual-technology occupancy/vacancy sensing. Connect to existing circuitry. Modify / Extend circuitry as needed.”

**ITEM AD2-20 Refer to Drawing CS-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes- Lighting & FA, L1, to read the following: “L1. Existing exit light fixture to be replaced. Provide new weatherproof exit/emergency light fixture (Dual Lite #DYNC-R-W-6) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit/emergency light.”

**ITEM AD2-21 Refer to Drawing CS-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes -Lighting & FA, L2, to read the following: “L2. Provide LED light fixtures (Columbia #CFP14-3440) with emergency battery packs and controls with built-in dual-technology occupancy/vacancy sensing. Connect to existing circuitry. Modify / Extend circuitry as needed.”

**ITEM AD2-22 Refer to Drawing CS-E1.1 – ELECTRICAL PLANS**

**AMEND** Construction Notes-Lighting & FA, L3, to read the following: “L3. Existing exterior light fixture to be replaced. Provide weatherproof exterior light fixture (Hubbell #LNC3-24L-4K-075-3-U-BLT-PCU-E) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Provide photo-eye controls for exterior light fixtures.”

**ITEM AD2-23 Refer to Drawings HS-E2.1 through HS-E2.11 – LIGHTING & FA PLANS**

**AMEND** Construction Notes – Lighting & FA, L1, to read the following: “L1. Existing exit light fixture to be replaced. Provide exit light fixture (Dual Lite #SE-R-W-E-I) with emergency battery pack, connected to existing circuitry. Modify / Extend circuitry as needed. Inspect & verify correct operation of exit light, and verify exit light is connected to emergency / standby power.”

**ITEM AD2-24 Refer to Drawings HS-E2.1 through HS-E2.11 – LIGHTING & FA PLANS**

**AMEND** Construction Notes – Lighting & FA, L2, to read the following: “L2. Add exit light fixture in this location. Provide exit light fixture (Dual Lite #SE-R-W-E-I) with emergency battery pack, connected to nearest exit lighting circuit using (3)-#12, 3/4"C. Inspect & verify correct operation of exit light, and verify exit light is connected to emergency / standby power.”

**ITEM AD2-25 Refer to Drawings HS-E2.1 through HS-E2.11 – LIGHTING & FA PLANS**

**AMEND** Construction Notes- Lighting & FA, L3, to read the following: “L3. Existing canopy light fixture to be replaced. Provide canopy light fixture (Prescolite #LTR-6RD-H-ML30L-DM1EM-LTR-6RD-T-ML40K8MD-BCEMAM) with emergency battery pack, connected to existing circuitry. Inspect & verify correct operation of canopy light, and also verify canopy light is connected to emergency / standby power.”

End of Addendum #2

SECTION 27 15 23  
COMMUNICATIONS OPTICAL FIBER CABLING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. System Design
- B. Local Area Network Fiber Optic Backbone Cabling
- C. Campus Fiber Optic Backbone Cabling
- D. Rack Mounted Housings
- E. Pig Tail Cassettes
- F. Fiber Optic Patch Cables

1.2 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping.
- B. Section 27 05 26 - Grounding and Bonding For Communications Systems.
- C. Section 27 05 53 - Identification For Communications Systems.
- D. Section 27 15 55 - Communications Cable Testing.

1.3 REFERENCE STANDARDS

- A. EIA/ECA-310 - Cabinets, Racks, Panels, and Associated Equipment; Revision E, 2005.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. TIA/EIA-568 - Commercial Building Telecommunications Cabling Standard. (consists of 3 Parts, listed below); Rev C, 2012, and latest addenda.
- D. TIA-455-21 - FOTP-21 - Mating Durability of Fiber Optic Interconnecting Devices; 1988a (Reaffirmed 2012).
- E. TIA-492AAAB-A - Detail Specification for 50-um Core Diameter/125-um Cladding Diameter Class Ia Graded-Index Multimode Optical Fibers; 2009a.
- F. TIA-492CAAA - Detail Specification for Class IVa Dispersion-Unshifted Single-Mode Optical Fibers; 1998 (Reaffirmed 2002).
- G. TIA-526-14 - Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant; 2015c.
- H. TIA-526-7 - Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant; 2015a.
- I. TIA-568.1 - Commercial Building Telecommunications Infrastructure Standard; 2015d.
- J. TIA-568.3 - Optical Fiber Cabling and Components Standard; 2016d.
- K. TIA-569 - Telecommunications Pathways and Spaces; 2019e.
- L. TIA-606 - Administration Standard for Telecommunications Infrastructure; 2017c.

- M. TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises; 2019d.
- N. UL 1863 - Communications-Circuit Accessories; Current Edition, Including All Revisions.
- O. UL 444 - Communications Cables; Current Edition, Including All Revisions.

#### 1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Coordinate requirements for service entrance and entrance facilities with Communications Service Provider.
  - 2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces dedicated for communications equipment.
  - 3. Coordinate arrangement of communications equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Preinstallation Meeting: Convene one week prior to commencing work of this section to review service requirements and details with Communications Service Provider representative.

#### 1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used. The exact part numbers, colors and counts that are intended to be used shall be marked clearly on the submittal or it will be marked Revise and Re-Submit.
- C. Installer certification from the cable manufacturer MUST be submitted as part of the bid de-scoping process. The Certified Installer certificate cannot be site specific to this project and must be pre-existing for 12 months prior to the bid due date.
- D. Test Plan: Complete and detailed plan, with list of test equipment, procedures for inspection and testing, and intended test date; submit at least 60 days prior to intended test date.
- E. Shop Drawings: Show compliance with requirements on isometric schematic diagram of network layout, showing cable routings, telecommunication closets, rack and enclosure layouts and locations, service entrance, and grounding, prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).
- F. Field Test Reports must be submitted bi-weekly to the construction manager that updates the status of each fiber optic cable installation, termination, testing and warranty.
- G. Project Record Documents shall be submitted at the conclusion of the project with the following information..
  - 1. Record actual locations of cable routing, IDF locations, enclosures and panels.
  - 2. Show as-installed color coding, pair assignment, polarization, and cross-connect layout.
  - 3. Fiber Test Results
  - 4. Warranty Information
  - 5. Operations & Maintenance Data
- H. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of project record documents.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: At least 3 years experience manufacturing products of the type specified.

- B. Installer Qualifications: A company having at least 3 years experience in the installation and testing of the type of system specified, and:
  - 1. Supervisors and installers factory certified by manufacturers of products to be installed.
  - 2. Employing experienced technicians for all work; show at least 3 years experience in the installation of the type of system specified, with evidence from at least 2 projects that have been in use for at least 18 months; submit project name, address, and written certification by user.
  - 3. Note: All networks shall be installed per applicable standards and manufacturer's requirements.
  - 4. Manufacturer accepted installer qualifications based on the following:
    - a. Corning
      - 1) NPI - Network of Preferred Installers
    - b. Panduit Corp.
      - 1) Panduit Certified Installer (PCI)
      - 2) Panduit Certified Technician (PCT)
- C. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- D. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.
- E. All work shall be provided in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents, shall be provided in accordance with industry standards and shall be subject to the control and approval of the Owners representative.
  - 1. Any violations of applicable standards or codes committed by the Contractor shall be remedied at the Contractor's expense.
- F. Equipment and materials shall be of the quality and manufactures indicated. The equipment specified is based on the acceptable manufacturers listed. Where "approved equal" is stated, equipment shall be equivalent in every way to that of the equipment specified, and subject to the approval of the Engineer.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Keep stored products clean and dry.

#### 1.8 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a 2 year period after Date of Substantial Completion.
- C. System Warranty
  - 1. A Certification / System Warranty shall provide a complete system warranty to guarantee end-to-end high performance cabling systems that meet application requirements. The guarantee shall include all fiber optic connectivity components. The system shall be warranted for a period of a minimum of 20 years.

## PART 2 PRODUCTS

### 2.1 SYSTEM DESIGN

- A. Provide a complete permanent fiber optic communication cabling system including cables, connectors, housings and support structures. The basis of design is 10GBase-T for all fiber optic links with additional 40GBase-T & 100GBase-T requirements for Single-Mode Fiber Optic LAN applications.
  - 1. LAN Backbone Cabling - Interconnection between MDF & Multiple IDFs throughout the building using OS2 fiber optic cabling.
- B. Main Distribution Frame (MDF): Centrally located support structure for terminating backbone cables, functioning as point of presence to external service provider.
  - 1. For the entire campus there is one main Network Operations Center (NOC) and for each building there is a main distribution frame (MDF) that functions as the central frame for that building. Locate main distribution frame as indicated on the drawings.
  - 2. Capacity: As required to terminate all cables required by design criteria plus minimum 25 percent spare space.
- C. Intermediate Distribution Frames (IDF): Support structures for terminating horizontal cables that extend to telecommunications outlets. Locate intermediate distribution frames as indicated on the drawings.
- D. Backbone Cabling: Cabling, pathways, and terminal hardware connecting intermediate distribution frames (IDF's) with main distribution frame (MDF), wired in star topology with main distribution frame at center hub of star.



- E. Fiber optic cabling not to exceed the max distance listed below to support 10 Gigabit transmission (including all patch cables).

Fiber Optic Type	Max Distance (Feet)	Max Distance (Meters)
OM3 Multimode	984	300
OM4 Multimode	1,312	400
OS2 Singlemode	32,808	10,000

2.2 LAN BACKBONE CABLING (INDOOR ONLY)

- A. Description: Armored Fiber Optic Cabling (Nonmetallic, Plenum Rated), OM3/4 and OS2 shall be installed between the MDF and each IDF identified on the drawings.
- B. Nonmetallic Armored Products:
  - 1. Manufacturer: Corning:
    - a. MIC DX Armored OS2 24-Strand Model: 024E88-33131-D3
- C. Metallic Armored Products (Requires bonding at IDF):
  - 1. Manufacturer: General
    - a. OS2 24-Strand Model: AP0241PNU-ILPA

2.3 CAMPUS BACKBONE SINGLE MODE COMMUNICATIONS CABLING (INDOOR/OUTDOOR)

- A. Description: Fiber Optic (nonmetallic, Plenum Rated, flame-retardant, UV-resistant, 900 µm buffered fibers) indoor/outdoor single mode cable designed for aerial, duct and direct-buried applications with no need for a transition splice when entering the building. Shall be installed between the MDF's of the buildings identified on the drawings.
- B. Indoor Outdoor Plenum Fiber Products:
  - 1. Manufacturer: Corning
    - a. Corning FREEDM One OS2 12-Strand Model: 012E8P-311131-29
  - 2. Manufacturer: General
    - a. OS2 12-Strand Model: AP0121ANU.BK

2.4 RACK MOUNTED CONNECTOR HOUSING

- A. Description: Housings designed for rack mounting in 19 inch racks (1.75 -in EIA hole spacing). Rack space options of 1U (two panels, cassettes or modules), 2U (four panels, cassettes or modules), 3U (six panels, cassettes or modules) and 4U (12 panels, cassettes or modules). The 1U, 2U and 3U options feature a slide out tray and see through, removable top covers. The CCH -04U features a clear door, removable front and rear enclosures and a platinum colored interior for maximum visibility and access.
- B. Fiber Housing Products:
  - 1. Manufacturer: Corning
    - a. 1U Model: CCH-01U
    - b. 4U Model: CCH-04U
  - 2. Manufacturer: Panduit
    - a. 1U Model: FCE1U
    - b. 4U Model: FCE4U

## 2.5 PIGTAIL CASSETTES

- A. Description: The Pigtailed Splice Cassettes are pre-loaded and pre-routed for quick fusion splicing of fiber pigtails, utilizing the same space-saving platform as the standard Splice Cassette. They are loaded with a pigtail assembly and a Connector Panel. The pigtails have 900 µm protection at the connector panel for added durability, routed into the splice tray layer for ease of splicing. The Pigtailed Cassette allows the elimination of individual splice trays or separate splice housings, as well as allowing splicing to be done away from the rack housing in a suitable workspace as needed.
- B. Pigtail Cassette Products:
1. Manufacturer: Corning
    - a. OS2 12 fiber LC UPC Model: CCH-CS12-A9-P00RE
    - b. OS2 24 fiber LC UPC Model: CCH-CS24-A9-P00RE
  2. Manufacturer: Panduit
    - a. OS2 12 fiber LC UPC Model: FCS9N-12-10P

## 2.6 FIBER OPTIC PATCH CABLES

- A. Description: Simplex cable assemblies. Connector options include LC, SC. RoHS compliant cables with plenum-rated jackets are available in 3.0 mm, 2.0 mm, 1.6 mm and 900 µm.
- B. Fiber Patch Cord Products:
1. Manufacturer: Corning
    - a. LC Duplex to LC Duplex
      - 1) Corning LC to LC OS2 Model: 040402G61LD\*\*\*M
    - b. LC Simplex to LC Simplex
      - 1) OS2 Model: 020201R2831\*\*\*M

(a) \*\*\* = Length in meters
  2. Manufacturer: Panduit
    - a. LC Duplex to LC Duplex
      - 1) Panduit LC to LC OS2 Model: F92ERLNLNSNM002

## 2.7 SUBSTITUTIONS

- A. Section 01 60 00 - Product Requirements.
- B. This is a performance-based solution. Substitutions must follow the same rigid standards for quality and termination style as those described above.
- C. ANY CONTRACTOR WISHING TO OFFER FIBER OPTIC CABLING PRODUCTS OTHER THAN THOSE SPECIFIED HEREIN SHALL SUBMIT A REQUEST FOR PRODUCT SUBSTITUTION IN WRITING NO LESS THAN ONE WEEK IN ADVANCE OF BID. WRITTEN REQUESTS FOR SUBSTITUTION SHALL BE ACCOMPANIED BY ALL DRAWINGS, SPECIFICATION SHEETS AND ENGINEERING DOCUMENTS, AS WELL AS THIRD PARTY LABORATORY PERFORMANCE TEST RESULTS PROVING EQUIVALENCY IN PERFORMANCE AND MANUFACTURING STYLE.
- D. This written documentation shall be accompanied by samples of the substitution product offered for evaluation. Equal product acceptance must be received in writing.
- E. Contractor shall be responsible and assume all costs for removal and replacement of any substituted product installed without prior written approval. Such costs shall include, but not be limited to labor, materials as well as any penalties, fees or costs incurred for late completion.

## PART 3 EXECUTION

### 3.1 INSTALLATION - GENERAL

- A. Comply with latest editions and addenda of TIA/EIA-568, TIA/EIA-569, ANSI/J-STD-607, NFPA 70, and SYSTEM DESIGN as specified in PART 2.
- B. Comply with TIA-570, latest edition.
- C. Provide fixed cables and pathways that comply with NFPA 70 and ANSI/J-STD-607 and are UL listed or third party independent testing laboratory certified.
- D. Provide connection devices that are rated for operation under conditions of 32 to 140 degrees F at relative humidity of 0 to 95 percent, noncondensing.
- E. Cabling terminations to follow industry standard color code as follows:
  - 1. Blue
  - 2. Orange
  - 3. Green
  - 4. Brown
  - 5. Slate
  - 6. White
  - 7. Red
  - 8. Black
  - 9. Yellow
  - 10. Violet
  - 11. Rose
  - 12. Aqua
  - 13. Fiber 13 to 24: Repeated, but with a black tracer added (except for black, which has a white tracer).

### 3.2 PATHWAYS

- A. Install with the following minimum clearances:
  - 1. 48 inches from motors, generators, frequency converters, transformers, x-ray equipment, and uninterruptible power systems.
  - 2. 12 inches from power conduits and cables and panelboards.
  - 3. 5 inches from fluorescent and high frequency lighting fixtures.
  - 4. 6 inches from flues, hot water pipes, and steam pipes.
- B. Conduit:
  - 1. Do not install more than 2 (two) 90 degree bends in a single horizontal cable run.
  - 2. Leave pull cords in place where cables are not initially installed.
  - 3. Conceal conduit under floor slabs and within finished walls, ceilings, and floors except where specifically indicated to be exposed.
    - a. Conduit may remain exposed to view in mechanical rooms, electrical rooms, and telecommunications rooms.
    - b. Treat conduit in crawl spaces and under floor slabs as if exposed to view.
    - c. Where exposed to view, install parallel with or at right angles to ceilings, walls, and structural members.
    - d. Under floor slabs, locate conduit at 12 inches, minimum, below vapor retarder; seal penetrations of vapor retarder around conduit.
- C. Grounding and Bonding: Perform in accordance with ANSI/J-STD-607 and NFPA 70.

1. Conform to requirements as specified in 27 05 26 - Grounding and Bonding For Communications Systems.
  2. Where metallicly shielded cables are used, grounding and bonding shall be accomplished by methods prescribed by the Engineer.
- D. Firestopping: Seal openings around pathway penetrations through fire-rated walls, partitions, floors, and ceilings in accordance with Section 07 84 00.

### 3.3 INSTALLATION OF CABLING

- A. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:
1. At Distribution Frames: 120 inches.
- B. Fiber Optic Cabling:
1. Prepare for pulling by cutting outer jacket for 10 inches from end, leaving strength members exposed. Twist strength members together and attach to pulling eye.
  2. Support vertical cable at intervals as recommended by manufacturer.
  3. Cable shall have no physical defects such as cuts, tears or bulges in the outer jacket. Cables with defects shall be replaced.
  4. The Contractor shall be responsible for replacing all cables that do not pass required bandwidth and throughput tests.
  - 5.
- C. Field-Installed Labels: Comply with TIA/EIA-606 using encoded identifiers.
1. Comply with requirements of 27 05 53 - Identification For Communications Systems.
  2. Cables: Install color coded labels on both ends.
  3. Patch Panels: Label each jack as to its type and function, with a unique numerical identifier.
  4. Patch Cords: Label with jack identifier corresponding to initial installation.

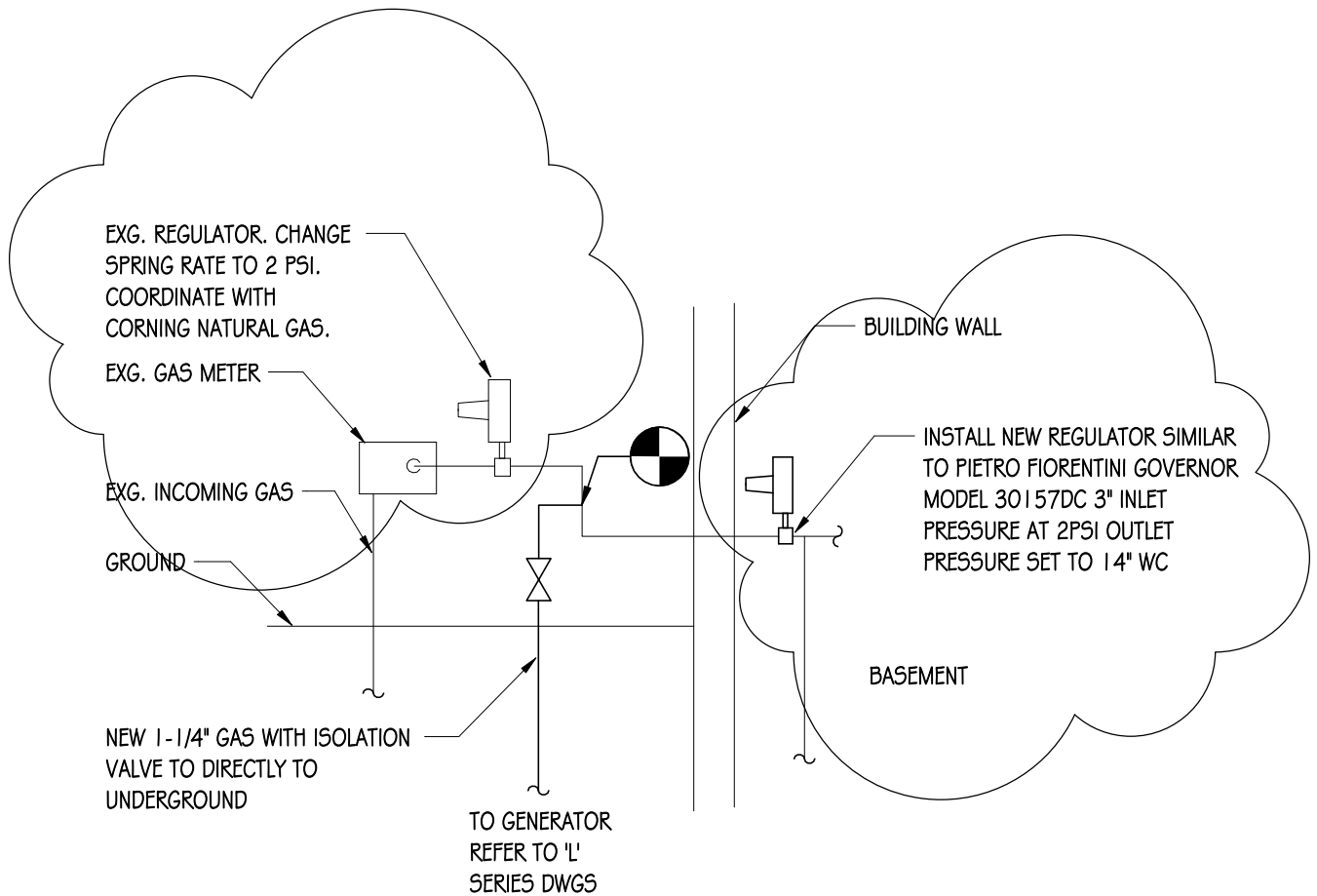
### 3.4 FIELD QUALITY CONTROL

- A. Comply with inspection and testing requirements as specified in Section 27 15 55.
- B. Visual Inspection:
1. Inspect cable jackets for certification markings.
  2. Inspect cable terminations for color coded labels of proper type.
  3. Inspect outlet plates and patch panels for complete labels.
  4. Inspect patch cords for complete labels.
- C. Final Testing: After all work is complete, including installation of telecommunications outlets, and telephone dial tone service is active, test each voice jack for dial tone.

### 3.5 CLOSEOUT ACTIVITIES

- A. See Section 01 70 00 - Execution and Closeout Requirements, for closeout procedures.
- B. Project Record Documents: Record actual locations and sizes of pathways, outlets, and jacks.
1. Field Test Reports, one hard copy, one PDF copy and one software based copy (ex.: .FLW).

END OF SECTION



**1 REVISED EXTERIOR INCOMING GAS PIPING SCHEMATIC**  
**N.T.S.**

**REVISED EXTERIOR INCOMING GAS PIPING SCHEMATIC**  
**2020 CAPITAL PROJECT- PHASE I**  
**CAMPBELL SAVONA CENTRAL SCHOOL DISTRICT**  
 8455 COUNTY ROUTE 125, CAMPBELL, NY 14821

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**AD2-P1**

DATE:  
05/10/21

PROJECT NO:  
2450.035