

ADDENDUM ONE

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Commission No.: F23066

Addendum Date: 25 March 2024

Conditions: The following clarifications, amendments, additions, deletions, revisions and modifications are a part of the contract documents and change the original documents only in the manner and to the extent stated.

Copies of the Addendum shall be bound with all contract sets of drawings and specifications.

CLARIFICATIONS:

Contractor Question#1:

I see in Plan page E501 section1 that you have note 3 that the size of wire is 2/0 SER Al + grnd the 2/0 SER + grnd is a fully jacketed wire capable of being run without conduit but you spec section says you have to install a conduit. Clarify which one it is.

Also the 2/0 SER + grnd wire goes to all of the apartment panels with only one feeder leaving the MDP please clarify.

Answer: Modifications addressed via Specification Section 260519 *Low Voltage Electrical Power Conductors and Cables*.

CHANGES TO THE SPECIFICATIONS:

Section 000110 *Table of Contents*, **REPLACE** attached section to volume.

Section 012300 *Alternates*, MODIFY P-1, 1.04, A, Paragraph 2 to state, "... Sheet number A503 and A520 including drawings."

Section 061600.16 *Sheathing*, **ADD** attached section to volume.

Section 084313 *Aluminum-Framed Storefronts*, **ADD** Tubelite as acceptable manufacturer.

Section 072500 *Weather Barrier*, **REMOVE** section from volume.

Section 260519 *Low Voltage Electrical Power Conductors and Cables*, Type SER AL cable does "NOT" have to be installed in conduit.

CHANGES TO DRAWINGS:

Sheet **C902** - SEE ATTACHED SHEET:

- Sheet **ISSUED**.

Sheet **A401** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #2 to state, “R-38 BATT INSULATION”
- 1/A401:
 - Wall cavity insulation extended to the roof deck at the high eave.
 - Wall cavity insulation extended to the roof deck at the low eave.
 - Blown-in attic insulation updated to R-38.
- 2/A401:
 - Wall cavity insulation extended to the roof deck at the high eave.
 - Wall cavity insulation extended to the roof deck at the low eave.
 - Blown-in attic insulation updated to R-38.
- 3/A401:
 - Wall cavity insulation extended to the roof deck at the high eave.
 - Wall cavity insulation extended to the roof deck at the low eave.
 - Blown-in attic insulation updated to R-38.
- 4/A401:
 - Wall cavity insulation extended to the roof deck at the high eave.
 - Wall cavity insulation extended to the roof deck at the low eave.
 - Blown-in attic insulation updated to R-38.
- 5/A401:
 - Wall cavity insulation extended to the roof deck at the high eave.
 - Wall cavity insulation extended to the roof deck at the low eave.
 - Blown-in attic insulation updated to R-38.

Sheet **A402** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #2 to state, “R-38 BATT INSULATION”
- 1/A402:
 - Wall cavity insulation extended to the roof deck at each side rake edge.
 - Blown-in attic insulation updated to R-38.
- 2/A402:
 - Wall cavity insulation extended to the roof deck at each side rake edge.
 - Blown-in attic insulation updated to R-38.

- 3/A402:
 - Wall cavity insulation extended to the roof deck at each side rake edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A410** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #6 to state, “2x6 WOOD FRAMING AT 16” C/C WITH R-19 BATT INSULATION”
 - **UPDATE** Note #22 to state, “2x6 PRESSURE TREATED BOTTOM PLATE WITH MOISTURE INHIBITOR”
 - **UPDATE** Note #26 to state, “MIN. R-38 BLOWN-IN INSULATION”
 - **UPDATE** Note #31 to state, “ZIP SHEATHING (STRUCTURAL 7/16” ORIENTED STRAND BOARD) WITH INTEGRAL WEATHER BARRIER”
- 1/A410:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.
- 2/A410:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.
- 3/A410:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A411** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #4 to state, “ZIP SHEATHING (STRUCTURAL 7/16” ORIENTED STRAND BOARD) WITH INTEGRAL WEATHER BARRIER”
 - **UPDATE** Note #6 to state, “2x6 WOOD FRAMING AT 16” C/C WITH R-19 BATT INSULATION”
 - **UPDATE** Note #22 to state, “2x6 PRESSURE TREATED BOTTOM PLATE WITH MOISTURE INHIBITOR”
 - **UPDATE** Note #26 to state, “MIN. R-38 BLOWN-IN INSULATION”
- 1/A411:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.
- 2/A411:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A412** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #4 to state, “ZIP SHEATHING (STRUCTURAL 7/16” ORIENTED STRAND BOARD) WITH INTEGRAL WEATHER BARRIER”
 - **UPDATE** Note #6 to state, “2x6 WOOD FRAMING AT 16” C/C WITH R-19 BATT INSULATION”
 - **UPDATE** Note #22 to state, “2x6 PRESSURE TREATED BOTTOM PLATE WITH MOISTURE INHIBITOR”
 - **UPDATE** Note #26 to state, “MIN. R-38 BLOWN-IN INSULATION”

- 1/A412:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A430** - SEE ATTACHED SHEET for revisions:

- 1/A430:
 - **REMOVED** unnecessary information from the drawing.

- 2/A430:
 - **REMOVED** unnecessary information from the drawing.

- 3/A430:
 - **REMOVED** unnecessary information from the drawing.

- 4/A430:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

- 5/A430:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A431** - SEE ATTACHED SHEET for revisions:

- 4/A431:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

- 5/A431:
 - Wall cavity insulation extended to the roof deck at roof edge.
 - Blown-in attic insulation updated to R-38.

Sheet **A432** - SEE ATTACHED SHEET for revisions:

- 4/A432:
 - Wall sheathing and integral weather barrier updated.
- 5/A432:
 - Wall sheathing and integral weather barrier updated.

Sheet **A501** - SEE ATTACHED SHEET for revisions:

- 1/A501:
 - Wall sheathing and integral weather barrier updated.
- 2/A501:
 - Wall sheathing and integral weather barrier updated.
- 3/A501:
 - Wall sheathing and integral weather barrier updated.
- 4/A501:
 - Wall sheathing and integral weather barrier updated.
- 5/A501:
 - Wall sheathing and integral weather barrier updated.
- 6/A501:
 - Wall sheathing and integral weather barrier updated.
- 8/A501:
 - Wall sheathing and integral weather barrier updated.
- 10/A501:
 - Wall sheathing and integral weather barrier updated.
- 11/A501:
 - Wall sheathing and integral weather barrier updated.

Sheet **A503** - SEE ATTACHED SHEET for revisions:

- 1/A503: Entire drawing has been **REVISED**.
- 2/A503: Entire drawing has been **REVISED**.
- 3/A503: Entire drawing has been **REVISED**.
- 4/A503: Entire drawing has been **REVISED**.

Sheet **A510** - SEE ATTACHED SHEET for revisions:

- **DOOR HARDWARE SCHEDULE:** Schedule has been **REMOVED**, in entirety.

Sheet **A511** - SEE ATTACHED SHEET for revisions:

- 3/A511:
 - Wall sheathing and integral weather barrier updated.
- 6/A511: Entire drawing has been **REVISED**.

Sheet **A520** - SEE ATTACHED SHEET for revisions:

- 7/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 8/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 9/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 10/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 11/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 12/A520: Entire drawing has been **REVISED**.
- 13/A520: Entire drawing has been **REVISED**.
- 14/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.
- 15/A520:
 - Wall sheathing and integral weather barrier updated.
 - Wall framing callout has been **MODIFIED** to include R-19 batt insulation.

Sheet **R102** - SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES:
 - **UPDATE** Note #10 to state, “PROVIDE NEW 3/4” OSB DECK SHEATHING”
 - **UPDATE** Note #17 to state, “PROVIDE 1/2” OSB SHEATHING”
 - **UPDATE** Note #36 to state, “ZIP SHEATHING (STRUCTURAL 7/16” ORIENTED STRAND BOARD) WITH INTEGRAL WEATHER BARRIER”

- 1/R102:
 - (1) Work Description Note, **REMOVED**.

- 2/R102:
 - (1) Work Description Note, **MODIFIED**.

- 3/R102:
 - (1) Work Description Note, **REMOVED**.

Sheet **E100** - SEE ATTACHED SHEET for revisions:

- 1/E100:
 - Heights provided for power poles at (2) locations.

Sheet **E501** - SEE ATTACHED SHEET for revisions:

- PANEL MDP: Panel distribution **MODIFIED** in entirety.
- PANEL LP2: Panel amperage **UPDATED**.
- PANEL LP3: Panel amperage **UPDATED**.

Sheet **FP101** - SEE ATTACHED SHEET:

- Sheet **ISSUED**.

ATTACHMENTS:

000110 Table of Contents.pdf
012300 Alternates.pdf
061600.16 Sheathing.pdf
084313 Aluminum-Framed Storefronts.pdf
260519 Low Voltage Electrical Power Conductors and Cables.pdf
T101.pdf
C902.pdf
A401.pdf
A402.pdf
A410.pdf
A411.pdf
A412.pdf
A430.pdf
A431.pdf
A432.pdf
A501.pdf
A510.pdf
A511.pdf
A520.pdf
R102.pdf
E100.pdf
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FP101.pdf

END OF ADDENDUM NUMBER ONE

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**SECTION 000110
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- 005200 - Agreement Form
- 007200 - General Conditions
- 007300 - Supplementary Conditions

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- 012300 - Alternates
- 013000 - Administrative Requirements
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- 015000 - Temporary Facilities and Controls
- 015713 - Temporary Erosion and Sediment Control
- 016000 - Product Requirements
- 016116 - Volatile Organic Compound (VOC) Content Restrictions
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- 072600 - Vapor Barrier
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- 074646 - Fiber Cement Siding
- 075400 - Thermoplastic Membrane Roofing
- 076200 - Sheet Metal Flashing and Trim
- 077100 - Roof Specialties
- 078400 - Firestopping
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- 085413 - Fiberglass Windows
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END OF SECTION

**SECTION 012300
ALTERNATES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Description of Alternates.
- B. Procedures for pricing Alternates.

1.02 RELATED REQUIREMENTS

- A. Document 002113 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.
- B. Document 004323 - Alternates Form: List of Alternates as supplement to Bid Form.

1.03 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

- A. Alternate No. 01 - Provide the additive cost to provide Metal Clad Composite Wall Panels in lieu of Fiber Cement Siding:
 - 1. Base Bid Item: Section 07 4646 Fiber Cement Siding and Sheet number A520 including Drawings.
 - 2. Alternate Item: Section 07 4213.23 Metal Composite Material Wall Panels and Sheet number A503 and A520 including Drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 061600.16
SHEATHING**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Combination wall sheathing, water resistive barrier and air barrier.
 - 2. Self-adhering flexible flashing.
 - 3. Liquid-applied flashing membrane.
- B. Related Requirements:
 - 1. Section 061000 "Rough Carpentry" for plywood backing panels.

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. For panels with integral water resistive barrier, include data on air/-moisture-infiltration protection based on testing according to referencing standards.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Capable of demonstrating that all wood procurement operations are conducted in accordance with procedures and policies of the Sustainable Forestry Initiative (SFI) Program.
- B. Code Compliance: Comply with requirements of the following:
 - 1. International Code Council (ICC), ICC-ESR1473.
 - 2. International Code Council (ICC), ICC-ESR1474.
 - 3. International Code Council (ICC), ICC-ESR2227.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Outdoor Storage. Comply with manufacturer's recommendations and as follows:
 - 1. Set panel bundles on supports to keep off ground.
 - 2. Cover panels loosely with waterproof protective material.
 - 3. Anchor covers on top of stack, but keep away from sides and bottom to assure adequate air circulation.
 - 4. When high moisture conditions exist, cut banding on panel stack to prevent edge damage.

1.06 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sheathing system that fail due to manufacturing defects within specified warranty period.
 - 1. Construction Period Warranty: Manufacturer shall warrant the panels and tape for weather exposure for a period of 180 days from installation.
 - 2. System Warranty Period: 30 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.02 WOOD PANEL PRODUCTS

- A. Oriented Strand Board: DOC PS 2-10.

- B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated. Thickness shall satisfy minimum and maximum requirements for referenced performance category.
- C. Factory mark panels to indicate compliance with applicable standard.

2.03 COMBINATION WALL SHEATHING, AIR AND WATER-RESISTIVE BARRIER

- A. Oriented-Strand-Board Wall Sheathing: With integral water-resistive barrier, Exposure 1 sheathing.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Huber Engineered Woods LLC; ZIP System® Wall Sheathing or a comparable product by one of the following:
 - a.
 - 2. Span Rating, Panel Grade and Performance Category: Not less than 24/16; Structural 1, 7/16 Performance Category.
 - 3. Edge Profile: Square edge.
 - 4. Provide fastening guide on top panel surface with pre-spaced fastening symbols for 16-inches (406 mm) and 24-inches (610 mm) on centers spacing.
 - 5. Performance Standard: DOC PS2-10 and ICC-ES ESR-1474.
 - 6. Factory laminated integral water-resistive barrier facer.
 - 7. Perm Rating of Integral Water-Resistive Barrier: 12-16 perms.
 - 8. Assembly maximum air leakage of 0.0072 cfm/sq. ft. (0.037 L/s x sq. m) infiltration and 0.0023 cfm/ sq. ft. (0.012 L/s x sq. m) exfiltration at a pressure differential of 1.57 (psf 75 Pa).
 - 9. Exposure Time: Designed to resist weather exposure for 180 days.

2.04 FASTENERS

- A. General: Provide fasteners of size and type that comply with requirements specified in this article by the authority having jurisdiction, International Building Code, International Residential Code, Wood Frame Construction manual, and National Design Specification.

2.05 MISCELLANEOUS MATERIALS

- A. Self-Adhering Seam and Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, proprietary seam tape consisting of polyolefin film with acrylic adhesive.
 - 1. Basis-of-Design Product: Subject to compliance with requirements provide Huber Engineered Woods; ZIP System® Seam and Flashing Tape.
 - 2. Thickness: 0.012 inch (0.3 mm).
 - 3. Width: [3.75 inch (95.3 mm)] [6 inch (152.4 mm)].
 - 4. Code Compliance: Comply with requirements of authorities having jurisdiction and ICC Evaluation Service, Inc. "AC148 - Acceptance Criteria for Flexible Flashing Materials."
 - 5. International Code Council (ICC), ICC-ES ESR2227.
 - 6. American Architectural Manufacturer's Association; AAMA 711.
- B. Liquid-Applied Flashing Membrane: Gun-grade, cold-applied, silyl-terminated polyether (STPE) liquid flashing membrane compatible with sheathing/weather barrier and self-adhering seam and flashing tape, and tested as part of an assembly meeting performance requirements. Follow manufacturer's recommendation for integration with self-adhering seam and flashing tape.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Huber Engineered Woods; ZIP System® Liquid Flash or a comparable product.
 - 2. Hardness, Shore A, ASTM C 661: 40 to 45.
 - 3. Total Solids: 99 percent.
 - 4. Tensile Strength, ASTM D 412: 75 psi (517 kPa).
- C. Self-Adhering Flexible Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, flexible flashing tape consisting of a flexible acrylic foam backing with acrylic adhesive.
 - 1. Basis-of-Design Product: Subject to compliance with requirements provide Huber Engineered Woods; ZIP System® Stretch Tape.

2. Thickness: 0.042 inch (1.067 mm).
3. Width: [6 inch (150 mm)] [10 inch (254 mm)].
4. Code Compliance: Comply with requirements of authorities having jurisdiction and ICC Evaluation Service, Inc. "AC148 - Acceptance Criteria for Flexible Flashing Materials."
5. International Association of Plumbing and Mechanical Officials (IAPMO), IAPMO ER365.
6. American Architectural Manufacturer's Association; AAMA 711.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Chapter 23 in the ICC's International Building Code.
 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
 3. ICC-ES evaluation report for fastener.
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate [wall] [parapet] [and] [roof] sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Only mechanically attached and drainable EIFS and exterior insulation should be used with ZIP System wall sheathing.

3.02 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 1. Wall and Roof Sheathing:
 - a. Nail or staple to wood framing.
 - b. Screw to cold-formed metal framing.
 - c. Space panels 1/8 inch (3 mm) apart at edges and ends.
 - d. Install fasteners 3/8 inch (9.5 mm) to 1/2 inch (12.7 mm) from panel edges.
 - e. Space fasteners in compliance with requirements of authority having jurisdiction.

3.03 SHEATHING JOINT TREATMENT

- A. Seal sheathing joints according to sheathing manufacturer's written instructions.
 1. Apply seam tape to joints between sheathing panels.
 2. Utilize tape gun or hard rubber roller provided by manufacturer to ensure tape is completely adhered to substrates.
 3. When using liquid-applied flashing to seal sheathing joints follow manufacturer's recommendations for sealing panel seams.

3.04 FLEXIBLE OR LIQUID-APPLIED FLASHING INSTALLATION

- A. Apply tape flexible flashing or membrane where indicated to comply with manufacturer's written instructions.
 1. After flexible flashing tape has been applied, roll surfaces with a hard rubber to ensure that flashing is completely adhered to substrates.

2. Width for flexible flashing: 6 inch (154.4 mm).
 3. Apply liquid-applied flashing membrane at penetrations, gaps, and cracks to form continuous weathertight surface. Apply liquid membrane according to manufacturer's written instructions. Follow manufacturer's recommendation for integration with seam and flashing tape.
- B. Apply liquid applied flashing membrane where indicated to comply with manufacturer's written instructions.
1. After liquid applied flashing membrane has been applied, tool wet product with a plastic spreader, putty knife, or similar tool to ensure that flashing is opaque and substrate is no longer visible.
 2. Minimum Thickness for Liquid Flashing: 12 mils (0.3 mm).
 3. Apply liquid flashing membrane according to manufacturer's written instructions. Follow manufacturer's recommendations for integration with seam and flashing tape or flexible flashing tape.
- C. Apply flexible flashing tape where indicated to comply with manufacturer's written instructions.
1. After flexible flashing tape has been applied, roll surfaces with a hard rubber to ensure that flashing is completely adhered to substrates.
 2. Width of flexible flashing: 6 inches (154.4 mm) or 10 inches (254 mm).

END OF SECTION

**SECTION 084313
ALUMINUM-FRAMED STOREFRONTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum-framed storefront including perimeter trim, stools, accessories, shims, and anchors.
- B. Infill panels of glass.
- C. Aluminum doors and frames.
- D. Weatherstripping.

1.02 RELATED REQUIREMENTS

- A. Section 079200 - Joint Sealants: Sealing joints between frames and adjacent construction.
- B. Section 085113 - Aluminum Windows: Operable sash within glazing system.
- C. Section 087100 - Door Hardware: Hardware items other than specified in this section.
- D. Section 088000 - Glazing: Glass and glazing accessories.
- E. Section 122113 - Horizontal Louver Blinds: Attachments to framing members.

1.03 REFERENCE STANDARDS

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.
- B. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2014.
- C. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.
- D. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.
- E. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- F. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- H. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
- I. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.
- J. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).
- K. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2023).
- L. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).
- M. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015 (Reapproved 2023).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of other components that comprise the exterior enclosure.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.

- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
 - 1. Include design engineer's stamp or seal on shop drawings for attachments and anchors.
- D. Samples for Verification: For aluminum-framed storefront system and components required.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of aluminum-framed storefront.
- F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- G. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- H. Manufacturer's Qualification Statement.
- I. Installer's Qualification Statement.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
- C. Source Limitations: Obtain aluminum-framed storefront system through one source from a single manufacturer.

1.07 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C). Maintain this minimum temperature during and 48 hours after installation.

1.08 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
 - 1. Warranty Period: Two (2) years from Date of Substantial Completion of the project, provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Kawneer Company, Inc.; www.kawneer.com/#sle.
 - 1. Product: EnCORE Thermal Storefront System
- B. Other Acceptable - Aluminum-Framed Storefronts Manufacturers:
 - 1. Manko Window Systems, Inc: www.mankowindows.com/#sle.
 - 2. Oldcastle BuildingEnvelope: www.oldcastlebe.com/#sle.
 - 3. Tubelite, Inc: www.tubeliteinc.com/#sle.
 - 4. Trulite Glass & Aluminum Solutions, LLC: www.trulite.com/#sle.
 - 5. Substitutions: See Section 016000 - Product Requirements.

2.02 ALUMINUM-FRAMED STOREFRONT

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
 - 1. Glazing Position: Front-set.
 - 2. Finish: Superior performing organic coatings.
 - a. Factory finish all surfaces that will be exposed in completed assemblies.
 - b. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.
 - 3. Finish Color: As selected by Architect from manufacturer's standard line.

4. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
 5. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
 6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
 7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F (95 degrees C) over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
 8. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
 9. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- B. Performance Requirements
1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - a. Design Wind Loads: Comply with requirements of ASCE 7.
 - b. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
 2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf (390 Pa).
 3. Air Leakage: 0.06 cfm/sq ft (0.3 L/sec sq m) maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf (75 Pa) pressure difference.
 4. Air Leakage: 0.06 cfm/sq ft (0.3 L/sec sq m) maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf (75 Pa) pressure difference.

2.03 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
 1. Framing members for interior applications need not be thermally broken.
 2. Glazing Stops: Flush.
- B. Glazing: See Section 088000.
- C. Swing Doors: Glazed aluminum.
 1. Thickness: 1-3/4 inches (43 mm).
 2. Top Rail: 5 inches (____ mm) wide.
 3. Vertical Stiles: 5 inches (____ mm) wide.
 4. Bottom Rail: 10 inches (254 mm) wide.
 5. Glazing Stops: Square.
 6. Finish: Same as storefront.

2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209/B209M.
- C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.
- D. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, compatible with flashing material.
- E. Sealant for Setting Thresholds: Non-curing butyl type.

- F. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.05 FINISHES

- A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A44 Electrolytically deposited colored anodic coating not less than 0.7 mils (0.018 mm) thick.
- B. Color: As selected by Architect from manufacturer's standard range.

2.06 HARDWARE

- A. Other Door Hardware: See Section 087100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that storefront wall openings and adjoining water-resistive and/or air barrier seal materials are ready to receive work of this section.

3.02 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Install glass and infill panels using glazing method required to achieve performance criteria; see Section 088000.
- J. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet (1.5 mm per m) non-cumulative or 0.06 inch per 10 feet (1.5 mm per 3 m), whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch (0.8 mm).

3.04 FIELD QUALITY CONTROL

- A. Provide field testing of installed storefront system by independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
 - 1. Perform a minimum of two tests in each designated area as indicated on drawings.
 - 2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
 - 3. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf (200 Pa).
 - a. Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce (14 gram) that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.
 - 4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf (75 Pa).

- B. Repair or replace storefront components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

- A. Adjust operating hardware and sash for smooth operation.

3.06 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

3.07 PROTECTION

- A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single conductor building wire.
- B. Nonmetallic-sheathed cable.
- C. Service entrance cable.
- D. Wiring connectors.
- E. Electrical tape.
- F. Oxide inhibiting compound.
- G. Wire pulling lubricant.
- H. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping.
- B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
- C. Section 284600 - Fire Detection and Alarm: Fire alarm system conductors and cables.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2017.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- G. NECA 104 - Standard for Installing Aluminum Building Wire and Cable; 2012.
- H. NECA 121 - Standard for Installing Nonmetallic-Sheathed Cable (Type NM-B) and Underground Feeder and Branch-Circuit Cable (Type UF); 2007.
- I. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.
- J. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems; 2021.
- K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- L. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- M. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- N. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.
- O. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- P. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- Q. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

- R. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- S. UL 719 - Nonmetallic-Sheathed Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required. Use SER cable for panel feeders. SER cable does not need to be in raceway.
- C. Nonmetallic-sheathed cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. For branch circuit wiring in dry locations within multifamily dwellings permitted to be of Types III, IV, and V construction.
- D. Service entrance cable is permitted only as follows:
 - 1. In addition to other applicable restrictions, may not be used:
 - a. Where exposed to damage.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.

- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductor Material:
 - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 - 3. Tinned Copper Conductors: Comply with ASTM B33.
- H. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - 3. Color Code:
 - a. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.

2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
 - 1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.

2.04 NONMETALLIC-SHEATHED CABLE

- A. Description: NFPA 70, Type NM multiple-conductor cable listed and labeled as complying with UL 719, Type NM-B.
- B. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.

2.05 SERVICE ENTRANCE CABLE

- A. Conductor Stranding: Stranded.
- B. Insulation Voltage Rating: 600 V.

2.06 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Wiring Connectors for Terminations:
 - 1. Aluminum Conductors: Use compression connectors for all connections.
 - 2. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.

- C. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- D. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- E. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- F. Compression Connectors: Provide circumferential type or hex type crimp configuration.
- G. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.07 ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
- B. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
- C. Wire Pulling Lubricant:
 - 1. Listed and labeled as complying with UL 267.
 - 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
 - 3. Suitable for use at installation temperature.
- D. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 - 2. When circuit destination is indicated without specific routing, determine exact routing required.
 - 3. Arrange circuiting to minimize splices.
 - 4. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.

- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install aluminum conductors in accordance with NECA 104.
- E. Install nonmetallic-sheathed cable (Type NM-B) in accordance with NECA 121.
- F. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- G. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- H. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
- I. Terminate cables using suitable fittings.
- J. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.
- K. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- L. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- M. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- N. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- O. Insulate ends of spare conductors using vinyl insulating electrical tape.
- P. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.
- Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
- D. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION