DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 2 TO PROJECT NO. 47634

CONSTRUCTION, HVAC, PLUMBING AND ELECTRICAL WORK
PROVIDE FFA BUILDING
NEW YORK STATE FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, N.Y.

September 5, 2025

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

GENERAL REQUIREMENTS – COMMON DOCUMENTS

1. Page 013113-4, Paragraph 3.4: Change Heading to read:

   "3.4 BASELINE PROJECT SCHEDULE – (30 DAYS AFTER AWARD)"

2. Page 013119-1, Paragraph 1.2 C: Change "monthly project update reporting periods" to "bi-weekly project update reporting periods".

3. Page 013119-1, Paragraph 1.3: Change Heading to read: "WEEKLY JOB MEETINGS".

4. Page 013119-1, Paragraph 1.3 A.1: Change "job meetings will be held bi weekly," to "job meetings will be held weekly".

CONSTRUCTION WORK SPECIFICATIONS

5. SECTION 061600 – SHEATHING, Add the following Article:

   "2.8 WALL SHEATHING ACCESSORIES

   A. Waterproofing Strip: Self-adhered waterproof membrane which meets or exceeds requirements of ANSI A118.10.
      a. Basis of Design Product: Schluter-Kerdi-Band"

6. Page 074773.16 – 11, Paragraph 2.2 C. 6: Change Paragraph to read:

   "6. Panel Length: Continuous up to 45 feet with no end laps. Runs over 45 feet may have one end lap."

7. Page 074213.13 – 10, Paragraph 2.5 C: Change Paragraph to read:

"C. Aluminum Panels and Accessories:

1. Manufacturer's standard fluoropolymer finish

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil."

8. Page 074773.16 – 11, Paragraph 2.2 C. 6: Change Paragraph to read:

"6. Panel Length: Continuous up to 45 feet with no end laps. Runs over 45 feet may have one end lap."

9. SECTION 077100 – ROOF SPECIALTIES, Add the following Article:

"2.5 WEATHERVANE

A. Basis of Design Manufacturer: AB MARTIN: 82 Garden Spot Road, Ephrata, PA 17522, tel:717-445-6885.
B. Model: 30" Tractor Weathervane (Model Number: CUP36WVTRA) with flat base for mounting to cupola
a. Final model selection to be approved by Director's Representative."

10. SECTION 096519 – RESILIENT TILE FLOORING: Add the accompanying Section (pages 096519 – 1 thru 096519 – 5) to the Project Manual.

11. SECTION 097200 – WALL COVERINGS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 097200 – 1 thru 097200 – 6) noted "Revised 8/27/2025".

12. SECTION 323113 – CHAIN LINK FENCES AND GATES: Add the accompanying Section (pages 323113 – 1 thru 323113 – 8) to the Project Manual.

HVAC WORK SPECIFICATIONS

13. SECTION 238126 – SPLIT-SYSTEM AIR-CONDITIONERS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 238126 – 1 thru 238126 – 7) noted "Revised 8/27/2025".

14. SECTION 260221 – MOTORS AND MOTOR CONTROLLERS: Add the accompanying Section (pages 260221 – 1 thru 260221 – 6) to the Project Manual.

PLUMBING WORK SPECIFICATIONS

15. SECTION 033000 – CAST-IN-PLACE CONCRETE: Add the accompanying Section (pages 033000 – 1 thru 033000 – 23) to the Project Manual.

16. SECTION 220533 HEAT TRACING FOR PLUMBING PIPING: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 220533 – 1 through 220533 – 5) noted "Revised 8/29/2025".

ELECTRICAL WORK SPECIFICATIONS

17. SECTION 099123 – INTERIOR PAINTING: Add the accompanying Section (pages 099123 – 1 thru 099123 – 8) to the Project Manual.

18. SECTION 271005 – STRUCTURED CABLING FOR VOICE AND DATA: Add the accompanying Section (pages 271005 – 1 thru 271005 – 10) to the Project Manual.

19. SECTION 271301 – TELECOMMUNICATION CABLING AND ACCESSORIES: Discard the Section bound in the Project Manual in its entirety.

20. SECTION 271525 – OPTIC FIBER CABLES: Add the accompanying Section (pages 271525 – 1 thru 271525 – 6) to the Project Manual.

CONSTRUCTION WORK DRAWINGS

21. Revised Drawings:
    a. Drawing Nos. C-121, A-101, A-610 and A-701, noted "REVISED DRAWING 8/27/2025", accompany this Addendum and supersede the same numbered originally issued drawings.

    b. Drawing Nos. A-102, A-200, and A-600 noted "REVISED DRAWING 8/29/2025" accompany this Addendum and supersede the same numbered originally issued drawings.

HVAC WORK DRAWINGS

22. Revised Drawings:
    a. Drawing Nos. M-001, M-101 and M-50, noted "REVISED DRAWING 8/27/2025", accompany this Addendum and supersede the same numbered originally issued drawings.

PLUMBING WORK DRAWINGS

23. Revised Drawings:
    a. Drawing Nos. P-001, P-201 and P-501 noted "REVISED DRAWING 8/27/2025", accompany this Addendum and supersede the same numbered originally issued drawings.

ELECTRIC WORK DRAWINGS

24. Revised Drawings:
    a. Drawing Nos. E-001, E-002, E-101, E-102, E-502 and E-602, noted "REVISED DRAWING 8/27/2025", accompany this Addendum and supersede the same numbered originally issued drawings.

25. Drawing No. E-501:
    a. Mechanical Equipment Schedule: Change “RH-1” to read “RH”.

26. Drawing No. E-601:
    a. DETAIL 6, Existing Panel 2-7B Schedule: Remove “UTILIZE PANEL SPACE, PROVIDE 225A, 3P CIRCUIT BREAKER IN DISTRIBUTION PANEL FOR PANEL ‘MDP’ FEED. MATCH BREAKER TYPE, AIC RATING, ETC.”

    b. Detail 6, Existing Panel 2-7B Schedule: Add note “UTILIZE 225A, 3P SPARE CURCUIT BREAKER WITHIN DISTRIBUTION PANEL, PROVIDED UNDER PROJECT 47304, FOR PANEL MDP FEED” to circuit breaker ckt no. 8-12.

27. Drawing No. E-701:
    a. Key Note 1: Change “UTILIZE PANEL SPACE, PROVIDE 225A, 3P CIRCUIT BREAKER IN DISTRIBUTION PANEL FOR PANEL ‘MDP’ FEED. MATCH BREAKER TYPE, AIC RATING, ETC.” to read “UTILIZE 225A, 3P SPARE CURCUIT BREAKER WITHIN DISTRIBUTION PANEL, PROVIDED UNDER PROJECT 47304, FOR PANEL MDP FEED.”

END OF ADDENDUM

Brady M. Sherlock, P.E.
Director, Division of Design
Design & Construction

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Luxury vinyl floor tile.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer's installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: For each type of product.

E. Shop Drawings: For each type of resilient floor tile.

   1. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
   2. Show details of special patterns.

F. Samples: Full-size units of each color, texture, and pattern of floor tile required.

G. Samples for Initial Selection: For each type of floor tile indicated.

H. Samples for Verification: Full-size units of each color and pattern of floor tile required.

I. Product Schedule: For floor tile, use same designations indicated on Drawings.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Coordinate mockups in this Section with mockups specified in other Sections.

a. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Director's Representative.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director's Representative specifically approves such deviations in writing.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F Store floor tiles on flat surfaces.

1.8 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 50 deg F or more than 95 deg F in spaces to receive floor tile during the following periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F more than 95 deg F.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Slip Resistance

1. ASTM D2047: ADA Compliant

2.2 LUXURY VINYL FLOOR TILE (LVT-1)

A. Basis of Design Product: Subject to compliance with requirements, provide Patcraft wood + weald 1781V Commercial Luxury Vinyl Plank Flooring.

B. Description: A layered construction consisting of a tough, clear, vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a UV-cured polyurethane finish, the wear surface is to be embossed with different textures to enhance each of the printed visuals. Colors are to be insoluble in water and resistant to cleaning agents and light.

1. Luxury Solid Vinyl Tile shall comply to the requirements of ASTM F 1700, Standard Specification for Solid Vinyl Tile, Class III, Type B – Embossed Surface
2. Thickness: .098”
3. Size: 8 by 51 inches
4. Colors and Patterns: 00105 Spruce. Architect to review all color selections
5. Install Pattern: Stagger

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

1. Lay tiles square with room axis.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

1. Lay tiles in pattern of colors and sizes indicated.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

H. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.

B. Perform the following operations immediately after completing floor tile installation:

1. Remove adhesive and other blemishes from surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 097200 - WALL COVERINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. High-Impact Rigid Plastic Wall Covering.

2. Resilient Plastic Corner Guards

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: For each type of product.

1. Include data on physical characteristics, durability, fade resistance, and fire-test-response characteristics.

E. Sustainable Design Submittals:

F. Shop Drawings: Show location and extent of each wall-covering type. Indicate pattern placement seams and termination points.

G. Samples: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 36 inches long in size.

1. Wall-Covering Sample: From same production run to be used for the Work, with specified treatments applied.

    a. Show complete pattern repeat.

H. Samples for Initial Selection: For each type of wall covering.

I. Samples for Verification: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 36 inches long in size.

1. Wall-Covering Sample: From same production run to be used for the Work, with specified treatments applied.

    a. Show complete pattern repeat.

J. Product Schedule: For wall coverings. Use same designations indicated on Drawings.

K. Product Test Reports: For each wall covering, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For wall coverings to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wall-Covering Materials: For each type, color, texture, and finish, full width by length to equal to 5 percent of amount installed.

1.7 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for installation.

1. Build mockups for each type of wall covering on each substrate required. Comply with requirements in ASTM F1141 for appearance shading characteristics.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and HVAC system is operating and maintaining ambient temperature and humidity conditions at levels intended for occupants after Project completion during the remainder of the construction period.

B. Lighting: Do not install wall covering until lighting that matches conditions intended for occupants after Project completion is provided on the surfaces to receive wall covering.

C. Ventilation: Provide continuous ventilation during installation and for not less than the time recommended by wall-covering manufacturer for full drying or curing.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates in accordance with test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Flame-Spread Index: 25 or less.
b. Smoke-Developed Index: 450 or less.

2. Fire-Growth Contribution: No flashover and heat and smoke release when tested in accordance with NFPA 265.

2.2 HIGH-IMPACT RIGID PLASTIC WALL COVERING “WP-1, WP-2”

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Basis of Design Product: Korogard Sheets by Koroseal

B. Plastic Sheet Wallcovering Material: Textured, chemical-and stain-resistant, high-impact, acrylic modified vinyl plastic sheets, thickness as indicated. Comply with specified requirements of ASTM D 256 for impact resistance and ASTM E 84 for flame spread and smoke developed characteristics.

C. Height: As indicated on drawings.

D. Sheet Thickness: 0.060 inch

E. Mounting: Adhesive

F. Colors, Textures, and Patterns:

1. WP-1: As selected by the architect from manufacturer's full range of standard colors and textures.
2. WP-2: As selected by the architect from manufacturer's full range of standard colors and textures.

G. Plastic Materials: Chemical- and stain-resistant, high-impact-resistant plastic with integral color throughout; extruded and sheet material as required, thickness as indicated.

H. Adhesive: As recommended by protection product manufacturer.

2.3 CORNER GUARDS

1. Resilient Plastic Corner Guards: Surface mounted guards consisting of continuous retainer with snap-on cover. Color matched end caps to be provided for partial height applications. Attachment hardware shall be appropriate for wall construction; with 90- or 135-degree turn to match wall condition.
2. Basis of Design Product: G-100 series Corner Guard by Koroseal
3. Material: Rigid, impact resistant plastic. Extruded material should be high-impact with nominal .078" thickness. Chemical and stain resistance should be per ASTMD543 standards as established by the manufacturer.

    a. Finish: To be selected by Architect from manufacturer's full range.
    b. Wing Size: Nominal 2 by 2 inches.
    c. Corner radius: 1/4 inch.
    d. Mounting: Manufacturer recommended fasteners.

4. Aluminum: Extruded aluminum retainers should be 6063-T6 allow, nominal .062" thickness. Minimum strength and durability properties as specified in ASTM B221.
5. Fasteners: All fasteners to be non-corrosive and compatible with aluminum retainers. All necessary fasteners to be supplied by the manufacturer.

2.4 ACCESSORIES

A. Adhesive: Mildew-resistant, nonstaining adhesive, for use with specific wall covering and substrate application indicated and as recommended in writing by wall-covering manufacturer.

B. Primer/Sealer: Mildew resistant, complying with requirements in Section 099123 "Interior Painting" and recommended in writing by primer/sealer and wall-covering manufacturers for intended substrate.

C. Seam Tape: As recommended in writing by wall-covering manufacturer.

2.5 FINISHES

1. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
2. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation surfaces being true in plane and vertical and horizontal alignment, maximum moisture content, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Comply with manufacturer's written instructions for surface preparation.

B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, and mildew.

C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.

1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
2. Gypsum Board: Apply primer/sealer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
3. Painted Surfaces:

    a. Check for pigment bleeding. Apply primer/sealer to areas susceptible to pigment bleeding as recommended in writing by primer/sealer manufacturer.
    b. Sand gloss, semigloss, and eggshell finishes with fine sandpaper.

D. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

E. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.3 INSTALLATION OF WALL COVERING

A. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.

B. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.

C. Install wall covering without lifted or curling edges and without visible shrinkage.

D. Install seams vertical and plumb at least 6 inches from outside corners and 3 inches from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.

E. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.

F. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.

3.4 CLEANING

A. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.

B. Use cleaning methods recommended in writing by wall-covering manufacturer.

C. Replace strips that cannot be cleaned.

D. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

3.5 PROTECTION

A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION 097200

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Chain-link fences.
2. Manually operated swing gates.
3. Privacy slats

1.2 REFERENCES

A. Comply with ASTM A53 for requirements of Schedule 40 piping.

1.3 DEFINITIONS

A. Height of Fence: Distance measured from the top of concrete footing to the top of fabric. Fences with buried fabric measured from finished grade to the top of fabric.

B. Company Field Advisor: An employee of the company which markets the security coils under their name and who is certified in writing by the Company to be technically qualified in design and installation of security coils or an employee of an organization certified by the foregoing company to be technically qualified in design and installation of security coils.

1.4 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer's installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

E. Shop Drawings: Complete detailed drawings for each height and style of fence and gate required. Include separate schedule for each listing all materials required and technical data such as size, weight, and finish, to ensure conformance to specifications.

F. Product Data: Manufacturer's catalog cuts, specifications, and installation instructions for each item specified.

G. Submit an Environmental Product Declaration (EPD) from the manufacturer for steel framework and steel fabric within this specification section, if available. A statement of the contractor's good faith effort to obtain the EPD shall be provided if not available.

1. Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

H. Samples:

1. Fence Fabric: Minimum one square foot.
2. Fence and Gate Posts: Two each, one foot long, if requested.
3. Miscellaneous Materials and Accessories: One each, if requested.

I. Quality Control Submittals:
1. Certificates: Affidavit required under Quality Assurance Article.

1.5 QUALITY ASSURANCE

A. Comply with standards of the Chain Link Fence Manufacturer's Institute.

B. Provide steel fence and related gates as a complete compatible system including necessary erection accessories, fittings, and fastenings.

C. Posts and rails shall be continuous without splices.

D. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.

E. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.6 DELIVERY

A. Coordinate delivery of anchors and other accessories to be built into other Work, to avoid delay. Furnish instructions and templates as required for accurate location.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Class B Steel Tubing:

1. SS-40 Fence Pipe by Allied Tube & Conduit Corp., 16100 S. Lathrop Ave., Harvey, IL, 60426, (800) 882-5543.
2. AP-40 Fence Framework by American Tube and Pipe Co., Inc., 2525 N. 27th Ave., Phoenix, AZ 85009, (800) 669-8823.

2.2 STEEL FRAMEWORK

A. End Posts, Corner Posts and Pull Posts:

1. Pipe: 2.375 inches OD, 3.65 pounds per linear foot (Schedule 40).
2. Square Tubing: 2 inches OD, 3.60 pounds per linear foot.
3. Class B Steel Tubing: 2.375 inches OD, 3.11 pounds per linear foot.
4. Roll Formed C-Section: ASTM A 570 Grade 45, 3.5 inches by 3.5 inch by 0.128-inch thick, with minimum bending strength of 486 pounds under a 6 foot cantilever load.

B. Line Posts:

1. Pipe: 1.9 inches OD, 2.72 pounds per linear foot (Schedule 40).
2. Class B Steel Tubing: 1.90 inches OD, 2.28 pounds per linear foot.
3. H-Section: 1.875 inches x 1.625 inches x 0.113 inch, 2.70 pounds per linear foot.
4. Roll Formed C-Section: ASTM A 570 Grade 45, 1.875 inches by 1.625 inches by 0.121-inch thick with minimum bending strength of 247 pounds under a 6-foot cantilever load.

2.3 STEEL FABRIC

A. One-piece widths for fence heights up to 12’-0”.

B. Chain link, 2-inch mesh, No. 9 gauge; 3/8-inch mesh

C. Selvages: Top edge and bottom edge knuckled.

2.4 SWING GATE POSTS

A. Single width of gate up to 6’-0” wide and less than 10’-0” high:

1. Pipe: 2.875 inches OD, 5.79 pounds per linear foot (Schedule 40).
2. Square Tubing: 2.50 inches OD, 5.70 pounds per linear foot.
3. Class B Steel Tubing: 2.875 inches OD, 4.64 pounds per linear foot.
4. Roll Formed C-Section: ASTM A 570 Grade 45, 3.5 inches 3.5 inches by 0.128-inch thick, with minimum bending strength of 486 pounds under a 6-foot cantilever load.

2.5 SWING GATE FRAMES

A. Up to 6’-0” high, and leaf width 8’-0” or less.

1. Pipe: 1.660 inches OD, 2.27 pounds per linear foot (Schedule 40).
2. Square Tubing: 1.50 inches OD, 1.90 pounds per linear foot.
3. Class B Steel Tubing: 1.660 inches OD, 1.84 pounds per linear foot.

B. Assemble gate frames by welding or with special steel fittings and rivets for rigid connections. Install mid-height horizontal rails on gates over 10 feet high. When either horizontal or vertical bracing is not required, provide truss rods as cross bracing to prevent sag or twist.

2.6 SWING GATE HARDWARE

A. Hinges, Type “C” Gates: Pressed Steel 180-degree gate hinge item no. 014005 or appropriate for use by Hearne Steel Company, Inc.

B. Latch: Forked type for single gates 10 feet wide or less. Drop bar type with keeper for double gates and single gates over 10 feet wide complete with flush plate set in concrete. Drop bar length shall be 2/3 the height of the gate. Padlock eye shall be an integral part of latch construction.

C. Locks:
1. Type “C” Gate: Drop bar type complete with flush plate set in concrete. Padlock eye shall be an integral part of latch construction.

2.7 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Rails and Post Braces:

1. Pipe: 1.660 inches OD, 2.27 pounds per linear foot (Schedule 40).
2. Class B Steel Tubing: 1.660 inches OD, 1.84 pounds per linear foot.
3. Roll formed C-Section: 1.625 inches by 1.25 inches by 0.0747-inch thick with minimum bending strength of 192 pounds on a 10-foot span.

B. Fittings and Post Tops: Steel, wrought iron, or malleable iron.

1. Fasteners: Tamper-resistant cadmium plated steel screws.

C. Stretcher Bars: One piece equal to full height of fabric, minimum cross-section 3/16 inch by 3/4 inch.

D. Metal Bands (for securing stretcher bars): Steel, wrought iron, or malleable iron.

E. Wire Ties: Conform to American Steel Wire gauges.

1. For tying fabric to line posts, rails and braces: 9 gauge (.1483 inch) steel wire.
2. For tying tension wire to fabric: 11 gauge (.1205 inch) steel hog rings.
3. For tying security coils to fence fabric, barbed wire, or adjacent coils: 16 gauge (.0625 inch) 300 Series stainless steel wire.

4. For splicing adjoining sections of security coils: 16 gauge (.0625 inch) 300 Series stainless steel wire, or 11 gauge (.1205 inch) 300 Series stainless steel hog rings.

F. Truss Rods: 3/8-inch diameter.

G. Concrete: Portland Cement concrete having a minimum compressive strength of 4,000 psi at 28 days.

H. Spiral Paper Tubes:

1. Sonotube by Sonoco Products Co., North Second St., Hartsville, SC 29550, (800) 377-2692.
2. Quik-Tube by Quikrete Companies, 5 Concourse Parkway, Suite 1900, Atlanta, GA 30328, (800) 282-5828.
3. Approved equivalent.

I. Cold Galvanizing Compound: Single component compound giving 93 percent pure zinc in the dried film, and meeting the requirements of DOD-P-21035A (NAVY).

J. Tension Wire: 7 gauge coiled spring steel wire.

K. Angle Beams, I Beams, and Steel Shapes: ASTM A 36.

L. Bolts and Nuts: ASTM A 307, Grade A.

M. Expansion Anchors: ¾ inch diameter with a minimum 4-3/4" embedment depth, Stainless Steel KWIK Bolt 3 (KB3) by Hilti, Inc. www.us.hilti.com ; 1-800-879-8000.

N. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

O. Aluminum Slats:

1. Size: 1-7/8 inches wide and 1-3/4 inches wide by .009 inch to .0105 inch thick.
2. Aluminum Alloy: 5052 H19 or 6011 T81.
3. Finish: Baked enamel, color as indicated or directed.

2.8 SOURCE QUALITY CONTROL

A. Test Procedure - Barbed Tape Security Coils: The company producing the security coils shall have test facilities available which can demonstrate that the security coils meet the following requirements.

1. Sampling; before delivery to job site: Samples for quality conformance inspections shall be selected in accordance with MIL-STD-105, sampling level S-1, AQL 2.5. A unit of product for sampling shall be one complete unit no less than ten feet in length.
2. Test Equipment: The test equipment for applying and measuring force shall be capable of measuring a minimum force of 200 pounds and shall be calibrated prior to each test with standards traceable to the National Bureau of Standards.

3. Test: Two ends of one of the test segments, prepared per above, shall be joined and rigidly attached to a structure so that the retaining structure, with said attachment, will survive a minimum tensile load of 200 pounds without deflection or slippage. The 2 ends of the opposite segment shall be joined and attached to the test apparatus so that said attachment will survive a minimum tensile load of 200 pounds, without any slippage. The test equipment above shall then be used to apply up to a 200-pound minimum force (through the adjacent coil loop segment attachment point) away from the rigid retaining structure. After reaching a minimum 200-pound force, as measured by the test equipment, this force shall be maintained continuously for a least 30 seconds.
4. Test Results: At the completion of the 30 second pull test, the test specimen shall be removed from the attachments to the rigid retaining structure and to the test equipment. The back-up blocks shall be removed from the test specimen and each segment of the barbed tape shall be examined for breaks, cracks, or separation around their mutual attachment point. The test specimen shall have failed this test if any of the above have occurred or a 200-pound minimum pull cannot be applied continuously for 30 seconds.

2.9 FINISHES

A. Steel Framework:

1. Pipe: Galvanized in accordance with ASTM A 53, 1.8 ounces zinc per square foot.
2. Square Tubing: Galvanized in accordance with ASTM A 123, 2.0 ounces zinc per square foot.
3. Class B Steel Tubing: Exterior; 1.0 ounces zinc per square foot plus chromate conversion coating and clear polyurethane. Interior; zinc rich organic coating.
4. H-Section: Galvanized in accordance with ASTM A 123, 2.0 ounces zinc per square foot.
5. Roll Formed C-Section: Galvanized in accordance with ASTM A 123, 2.0 ounces zinc per square foot.
6. Polyvinyl Chloride (PVC): Black plastic finish, fusion bonded to galvanized metal, minimum thickness 10 mils.

B. Fabric; one of the following:

1. Galvanized Finish: ASTM A 392 class II zinc coated after weaving, with 2.0 ounces per square foot.
2. Aluminized Finish: ASTM A 491 aluminum coated with 0.40 ounces per square foot.
3. Polyvinyl Chloride (PVC) Finish: Black plastic, fusion bonded to galvanized wire, breaking strength, 850 pounds, minimum thickness 7 mils.

C. Fence and Gate Hardware, Miscellaneous Materials, Accessories:

1. Wire Ties: Galvanized Finish, ASTM A 90 1.6 ounces zinc per square foot, or aluminized finish, ASTM A 809 0.40 ounces per square foot.
2. Hardware and Miscellaneous Items: Galvanized Finish, ASTM A 153 (Table 1).
3. Extension Arms: Hot-dip galvanized after fabrication, ASTM 123, 2.0 ounces zinc per square foot.
4. Angle Beams, I Beams, and Steel Shapes: Galvanized in accordance with ASTM A 123, 2.0 ounces zinc per square foot.
5. PVC coated, per manufacturer’s standards.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clear and grub along fence line as required to eliminate growth interfering with alignment. Remove debris from State property.

B. Do not begin installation of fence in areas to be cut until finished grading has been completed.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.2 INSTALLATION

A. Space posts equidistant in the fence line with a maximum of 10 feet on center.

B. Setting Posts in Earth: Drill holes for post footings. If existing grade at the time of installation is below finished grade, provide spiral paper tubes to contain concrete to finish grade elevation. Set posts in center of hole and fill hole with -concrete. Plumb and align posts. Vibrate or tamp concrete for consolidation. Finish concrete in a dome shape above finish grade elevation to shed water. Do not attach fabric to posts until concrete has cured a minimum of 7 days.

C. Setting Posts in Rock: Drill holes into solid rock one inch wider than post diameter, 18 inches deep for end, pull, corner, and gate posts, and 12 inches deep for line posts. Set posts into holes and fill annular space with shrink-resistant grout.

D. Locate corner posts at corners and at changes in direction. Use pull posts at all abrupt changes in grade and at intervals no greater than 500 feet.

E. Install top rail continuously through post tops or extension arms, bending to radius for curved runs. Install expansion couplings as recommended by fencing manufacturers.

F. Install bottom and intermediate rails in one piece between posts and flush with post on fabric side using special offset fittings where necessary.

G. Brace corner posts, pull posts, end posts, and gate posts to adjacent line posts with horizontal rails.

H. Diagonally brace corner posts, pull posts, end posts, and gate posts to adjacent line posts with truss rods and turnbuckles.

I. Attach fabric to security side of fence. Maintain a 2-inch clearance above finished grade except when indicated otherwise. Thread stretcher bars through fabric using one bar for each gate and end post and 2 for each corner and pull post. Pull fabric tight so that the maximum deflection of fabric is 2 inches when a 30-pound pull is exerted perpendicular to the center of a panel. Maintain tension by securing stretcher bars to posts with metal bands spaced 15 inches oc. Fasten fabric

to steel framework with wire ties spaced 12 inches of for line posts and 24 inches oc for rails and braces. Bend back wire ends to prevent injury. Tighten stretcher bar bands, wire ties, and other fasteners securely.

J. Position bolts for securing metal bands and hardware so nuts are located opposite the fabric side of fence. Tighten nuts and cut off excess threads so no more than 1/8 inch is exposed. Peen ends to prevent loosening or removal of nuts.

1. Secure post tops with tamper-resistant screws.

K. Install gates plumb and level and adjust for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary.

L. Tension Wire: Where tension wire is indicated or required, weave tension wire through fabric or fasten with hog rings spaced 24 inches oc. Tie tension wire to posts with 9-gauge wire ties.

M. Aluminum Slats: Install where indicated aluminum slats in every diagonal run of links in both directions for the full height of the fence. Crimp and staple with monel staples at the top and bottom of fabric. Overlap and staple spliced slats.

N. Wire brush and repair welded and abraded areas of galvanized surfaces with one coat of cold galvanizing compound.

O. Restore disturbed ground areas to original condition. Topsoil and seed to match adjacent areas.

3.3 DEMONSTRATION

A. Fence contractor to train Facility's maintenance personnel to adjust, operate and maintain chain-link fences and gates.

END OF SECTION 323113

SECTION 238126 - SPLIT-SYSTEM AIR-CONDITIONERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes split-system air-conditioning and heat-pump units consisting of separate evaporator-fan and compressor-condenser components.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.

E. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

F. Samples for Initial Selection: For units with factory-applied color finishes.

G. Field quality-control reports.

H. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: **One** set(s) for each air-handling unit.
2. Gaskets: **One** set(s) for each access door.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASHRAE Compliance:

1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - " Procedures," and Section 7 - "Construction and System Start-up."

C. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1.

1.7 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork are specified in Section 033000 "Cast-in-Place Concrete."

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. For Compressor: **One** year(s) from date of Substantial Completion.
b. For Parts: **One** year(s) from date of Substantial Completion.
c. For Labor: **One** year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Carrier Global Corporation.
2. Coleman Company Inc. (The).
3. Friedrich Air Conditioning Company.
4. Lennox Industries, Inc.; Lennox International.
5. Mitsubishi Electric & Electronics USA, Inc.
6. Samsung HVAC.
7. SANYO North America Corporation.
8. Trane.
9. YORK; brand of Johnson Controls International plc, Building Solutions North America.
10. Daikin Industries, LTD.
11. Approved equivalent.

2.2 INDOOR UNITS (5 TONS OR LESS)

A. Concealed Evaporator-Fan Components:

1. Chassis: Galvanized steel with flanged edges, removable panels for servicing, and insulation on back of panel.
2. Insulation: Faced, glass-fiber duct liner.
3. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 206/110.
4. Water Coil: Copper tube, with mechanically bonded aluminum fins spaced no closer than 0.1 inch; leak tested to 300 psig underwater; with a two-position control valve.
5. Electric Coil: Helical, nickel-chrome, resistance-wire heating elements; with refractory ceramic support bushings, automatic-reset thermal cutout, built-in magnetic contactors, manual-reset thermal cutout, airflow proving device, and one-time fuses in terminal box for overcurrent protection.
6. Fan: Forward-curved, double-width wheel of galvanized steel; directly connected to motor.
7. Fan Motors:

    a. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
    b. Multitapped, multispeed with internal thermal protection and permanent lubrication.
    c. Wiring Terminations: Connect motor to chassis wiring with plug connection.

8. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
9. Filters: Permanent, cleanable.
10. Condensate Drain Pans:

a. Fabricated with **one** percent slope in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and humidifiers, and to direct water toward drain connection.

1) Length: Extend drain pan downstream from leaving face **to comply with ASHRAE 62.1**.
2) Depth: A minimum of **2 inches** deep.

b. Single-wall, **galvanized**-steel sheet.
c. Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.

1) Minimum Connection Size: **NPS 1**.

d. Pan-Top Surface Coating: Asphaltic waterproofing compound.
e. Units with stacked coils shall have an intermediate drain pan to collect condensate from top coil.

2.3 OUTDOOR UNITS (5 TONS OR LESS)

A. Air-Cooled, Compressor-Condenser Components:

1. Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
2. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation device. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.

a. Compressor Type: Scroll.
b. Two-speed compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.
c. Refrigerant: **R-410A**.
d. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 206/110.

3. Heat-Pump Components: Reversing valve and low-temperature-air cutoff thermostat.
4. Fan: Aluminum-propeller type, directly connected to motor.
5. Motor: Permanently lubricated, with integral thermal-overload protection.
6. Low Ambient Kit: Permits operation down to 45 deg F.
7. Mounting Base: Polyethylene.

2.4 ACCESSORIES

A. Thermostat: Low voltage with subbase to control compressor and evaporator fan.

1. Single Twisted Shielded Instrumentation Cable 24 V and Less:

a. Wire size shall be a minimum **No. 18** AWG.
b. Conductors shall be a twisted, 7/24 soft annealed copper stranding with a 2- to 2.5-inch lay.
c. Conductor insulation shall have a nominal 15-mil thickness, constructed from flame-retardant PVC.
d. Shielding shall be 100 percent type, 1.35-mil aluminum/polymer tape, helically applied with 25 percent overlap, and aluminum side in with tinned copper drain wire.
e. Outer jacket insulation shall have a 300-V, 105-deg C rating and shall be Type PLTC cable.
f. For twisted pair, conductor colors shall be black and white. For twisted triad, conductor colors shall be black, red and white.
g. Furnish wire on spools.

2. Raceways: Comply with requirements in Section 260533 "Raceways and Boxes for Electrical Systems" for electrical power raceways and boxes. Where conduit is routed exposed, provide with 3/4" EMT conduit and provide with bridal rings spaced every 4’-0”.

B. Thermostat: Wireless infrared functioning to remotely control compressor and evaporator fan, with the following features:

1. Compressor time delay.
2. 24-hour time control of system stop and start.
3. Liquid-crystal display indicating temperature, set-point temperature, time setting, operating mode, and fan speed.
4. Fan-speed selection including auto setting.

C. Automatic-reset timer to prevent rapid cycling of compressor.

D. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.

E. Drain Hose: For condensate.

F. Monitoring:

1. Monitor constant and variable motor loads.
2. Monitor variable-frequency-drive operation.
3. Monitor economizer cycle.
4. Monitor cooling load.
5. Monitor air distribution static pressure and ventilation air volumes.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units level and plumb.

B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.

C. Equipment Mounting:

1. Install ground-mounted, compressor-condenser components on cast-in-place concrete equipment base(s). Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
2. Install ground-mounted, compressor-condenser components on polyethylene mounting base.

D. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where piping is installed adjacent to unit, allow space for service and maintenance of unit.

C. Duct Connections: Duct installation requirements are specified in Section 233113 "Metal Ducts." Drawings indicate the general arrangement of ducts. Connect supply **and return** ducts to split-system air-conditioning units with flexible duct connectors. Flexible duct connectors are specified in Section 233300 "Air Duct Accessories."

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a Company Service Advisor to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a Company Service Advisor to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.4 STARTUP SERVICE

A. [Engage a Company Field Advisor per OGS Spec Section 014216to perform] [Perform] startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.5 DEMONSTRATION

A. **Engage a Company Field Advisor for two visits at four hours each per OGS Spec Section 014216 to train** Director’s Representative's Facility’s maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 238126

SECTION 260221- MOTORS AND MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 PRODUCTS FURNISHED BUT NOT INSTALLED

A. Deliver the following items to the Electrical Work Contractor for installation and connection to power wiring:

1. Motor controllers including 2 copies of approved wiring diagrams.

1.2 REFERENCES

A. NEMA MG-1 - Motors and Generators.

B. NEMA ICS - General Standards for Industrial Control and Systems.

C. UL508 - Electric Industrial Control Equipment.

1.3 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittal Package: Submit the product data, and quality control submittals specified below at the same time as a package.

C. Product Data:

1. Motor Controllers: Catalog sheets, specifications, and installation instructions. Submit product data for motor controllers simultaneously with product data required for motors.

a. Identify each controller for use with corresponding motor.
b. Describe overload devices being supplied with each motor controller (include equipment manufacturer's recommendations).
c. Enumerate and describe all accessories being supplied with each motor controller.

D. Contract Closeout Submittals:

1. System acceptance test report.
2. Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.
3. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

PART 2 - PRODUCTS

2.1 MOTORS

A. Classification:

1. Classification According to Application: Comply with NEMA standards for general-purpose alternating-current squirrel-cage induction motors, except:

a. Furnish NEMA definite-purpose or special-purpose motors when required to suit the application.
b. Furnish NEMA type other than squirrel-cage construction when required to suit the application.

2. Classification According to Environmental Protection and Methods of Cooling: Comply with NEMA requirements for a dripproof machine unless otherwise specified or indicated on the drawings, or required to suit the application.

B. Efficiency: Motors shall be stamped with a NEMA nominal efficiency rating in accordance with NEMA testing and marking standards MG1-12.54 and 12.55.

1. Nominal full-load three phase motor efficiency:

OPEN MOTORS			
RPM	**1200**	**1800**	**3600**
HP			
1.0	80.0	82.5	
1.5	84.0	84.0	82.5
2.0	86.5	84.0	84.0
3.0	86.5	86.5	84.0
5.0	88.5	87.5	85.5
7.5	89.5	88.5	87.5
10	90.2	89.5	88.5
15	91.0	90.2	89.5
20	90.2	91.0	90.2
25	91.7	92.4	91.0
30	92.4	93.0	92.4
40	93.0	93.0	92.4
50	92.4	94.1	92.4
60	93.0	93.6	93.0
75	93.6	94.1	93.6
100	93.6	94.1	93.6
125	94.1	94.1	93.6
150	94.5	94.5	94.5
200	94.5	95.0	95.4

CLOSED MOTORS			
RPM	**1200**	**1800**	**3600**
HP			
1.0	81.5	84.0	
1.5	85.5	85.0	84.0
2.0	86.5	84.0	85.5
3.0	88.5	88.5	86.5
5.0	88.5	88.5	87.5
7.5	89.5	91.0	88.5
10	89.5	91.0	89.5
15	90.2	91.0	89.5
20	91.0	91.7	90.2
25	91.7	92.4	90.2
30	92.4	93.6	91.0
40	93.0	93.0	91.0
50	93.6	93.6	92.4
60	93.6	94.1	94.1
75	94.1	94.5	94.1
100	94.1	95.0	94.1
125	94.1	95.0	94.1
150	95.0	95.0	94.1
200	95.0	95.8	95.01

2. Furnish motors having an efficiency higher than that indicated above where specified to comply with utility company energy efficiency rebate program requirements.

C. Motor (Nameplate) Voltage:

1. Nominal 120/240 V, Single Phase, 3W, Premises Wiring System:

   a. Motors Less Than 1/2 hp: NEMA standard motor voltage 115 V, single phase, 60 Hz.
   b. Motors 1/2 hp and Larger: NEMA standard motor voltage 230 V, single phase, 60 Hz.

2. 120/208 V, Three Phase, 4W, Premises Wiring Systems:

   a. Motors Less Than 1 hp: NEMA standard motor voltage 115 V, single phase, 60 Hz.
   b. Motors 1 hp and Larger: NEMA standard motor voltage 200 V, three phase, 60 Hz. 208 V, 208-230 V, 220 V, or 230 V motors are not acceptable.

3. 277/480 V, Three Phase, 4W, Premises Wiring Systems:

   a. Motors Less Than 1/2 hp: NEMA standard motor voltage 115 V, single phase, 60 Hz.
   b. Motors 1/2 hp and Larger: NEMA standard motor voltage 460 V, three phase, 60 Hz. 440 V motors are not acceptable.

D. Horsepower Capacity:

1. Each motor shall not be overloaded by the apparatus it operates under every condition of operation.
2. The horsepower capacity shall be the continuous rating based on the nameplate horsepower rating. (The motor may not be overloaded up to the horsepower obtained by multiplying the rated horsepower by the service factor shown on the nameplate).
3. Where a minimum horsepower capacity is listed, furnish a motor larger than the minimum, if required in a particular case.
4. Pay additional cost due to necessary increase in feeder sizes, circuit breaker sizes, etc., provided under the Electric Contract.

E. Bearings: Equip motors 1/2 hp and larger with ball bearings unless otherwise specified or indicated on the drawings.

F. Speed: As required and approved to meet the requirements of the service for which motors are intended.

G. Space Heaters: Where indicated, equip motors with space heaters and accessories to prevent condensation in the motor windings when motor is not operating.

H. Motor Winding Protection: Where indicated, equip motors with imbedded temperature measuring detectors in the windings (thermocouples or resistance thermometers) with control unit and accessories for direct reading of stator temperatures. Alarm shall sound and motor controller trip at temperature recommended by motor manufacturer.

I. Additional Requirements For Motors Used With Solid State and Adjustable Speed Motor Controllers:

1. Designed specifically for use with type of controller required.
2. Designed for DC injection braking.

J. Brake: Where indicated, equip motors with electro/mechanical brake system.

2.2 MANUAL MOTOR CONTROLLERS

A. Voltage Rating: To suit system voltage.

1. For single phase motor controllers which are not produced to suit the system voltage and phases, furnish properly rated 3 phase motor controllers and utilize required number of poles for the single phase circuit.

B. Enclosures:

1. NEMA Type: Unless otherwise indicated, furnish NEMA 1 enclosures.
2. Material: Steel construction unless otherwise indicated.

C. Local Control Devices:

1. Manual Motor Controllers:

a. Type A1 Controller: In addition to the on/off switch function, furnish where indicated, a hand/auto switch or 3 position hand-off-auto switch mounted in the enclosure cover.

D. Space Heaters: Equip magnetic motor controllers which are installed outdoors, and indoors in unheated locations, with space heaters and humidistat to prevent condensation within the housing.

E. Overload Devices: Equip motor controllers with manual reset melting type (eutectic), or manual reset bi-metallic type standard trip overload devices (NEMA Class 20, trips in 20 seconds or less when carrying a current equal to 600 percent of its current rating). Exceptions:

1. Equip motor controllers with automatic reset overload devices only where indicated.
2. Equip motor controllers with fast trip overload devices when recommended by equipment manufacturer (NEMA Class 10, trips in 10 seconds or less when carrying a current equal to 600 percent of its current rating).
3. Equip motor controllers with slow trip overload devices when recommended by equipment manufacturer (NEMA Class 30, trips in 30 seconds or less when carrying a current equal to 600 percent of its current rating).
4. Equip motor controllers with ambient compensated overload protection where motor and relay are not in the same ambient.
5. Equip motor controllers with solid state overload relays where indicated.

F. Manual Motor Controller Types:

1. Type A (Full Voltage, Non-Magnetic): Allen-Bradley Co.'s Bulletin 609, Cutler-Hammer Products' File A/B300-9115, Furnas Electric Co.'s Class 11, General Electric Co.'s CR-1062, Square D Co.'s Class 2510, Type M, or Westinghouse Electric Corp.'s Type B100.
2. Type A1 (Full Voltage, Non-Magnetic Single Phase): Allen-Bradley Co.'s Bulletin 600, Cutler-Hammer Products' File B200-9101, Furnas Electric Co.'s class 10, General Electric Co.'s CR-101, Square D Co.'s Class 2510, Type F, or Westinghouse Electric Corp.'s Type MS.
3. Type A2 (2 Speed, 2 Winding, Full Voltage, Non-Magnetic): Allen-Bradley Co.'s Bulletin 609TS, Cutler-Hammer Products' File A700, General Electric Co.'s CR-1062, or Square D Co.'s Class 2512, Type M.
4. Type A3 (2 Speed, 2 Winding, Full Voltage, Non-Magnetic, Single Phase): Allen-Bradley Co.'s Bulletin 600, Cutler-Hammer Products' File B200-9106, General Electric Co.'s CR-101, or Square D Co.'s Class 2512, Type F.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install the Work of this Section in accordance with the manufacturer's printed instructions.

B. Nameplates: Identify each remote control station, indicating motor controlled. Identify each interlock switch, indicating purpose of switch:

1. NEMA 1 Enclosures: Rivet or bolt nameplate to the cover.
2. NEMA 12 Enclosures: Rivet or bolt and gasket nameplate to the cover.

3. NEMA 3R, 4, 4X, 7, or 9 Enclosures: Attach nameplates to the cover using adhesive specifically designed for the purpose, or mount nameplate on wall or other conspicuous location adjacent to switch. Do not penetrate enclosure with fasteners.

END OF SECTION 260221

ECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete Subcontractor.
e. Special concrete finish Subcontractor.

2. Review the following:

a. Special inspection and testing and inspecting agency procedures for field quality control.
b. Construction joints, control joints, isolation joints, and joint-filler strips.
c. Semirigid joint fillers.
d. Anchor rod and anchorage device installation tolerances.
e. Cold and hot weather concreting procedures.
f. Concrete finishes and finishing.
g. Curing procedures.
h. Forms and form-removal limitations.
i. Methods for achieving specified floor and slab flatness and levelness.
j. Floor and slab flatness and levelness measurements.
k. Concrete repair procedures.

l. Concrete protection.
m. Initial curing and field curing of field test cylinders (ASTM C31)
n. Protection of field cured field test cylinders.

1.4 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer's installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. General: Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

E. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Silica fume.
5. Aggregates.
6. Admixtures:

    a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.

7. Curing materials.

    a. Include documentation from color pigment manufacturer, indicating that proposed methods of curing are recommended by color pigment manufacturer.

8. Joint fillers.
9. Repair materials.
10. Each type of steel reinforcement
11. Bar supports
12. Exposed surface form-facing material.
13. Concealed surface form-facing material.
14. Form ties.
15. Form-release agent.

F. Submit an Environmental Product Declaration (EPD) from the manufacturer for each concrete mix within this specification section, if available. A statement of the contractor's good faith effort to obtain the EPD shall be provided if not available.

1. Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services*.

G. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Synthetic micro-fiber content.
11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
12. Include manufacturer's certification that permeability-reducing admixture is compatible with mix design.
13. Include certification that dosage rate for permeability-reducing admixture matches dosage rate used in performance compliance test.
14. Intended placement method.
15. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

H. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

    a. Location of construction joints is subject to approval of the Director’s Representative.

2. Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.

I. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

J. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

K. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Fiber reinforcement.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.
8. Vapor retarders.
9. Semirigid joint filler.
10. Joint-filler strips.
11. Repair materials.

L. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:

    a. Permeability-Reducing Admixture: Include independent test reports, indicating compliance with specified requirements, including dosage rate used in test.

M. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.

N. Research Reports:

1. For concrete admixtures in accordance with UNIFORM CODE's Acceptance Criteria AC198.

O. Preconstruction Test Reports: For each mix design.

P. Field quality-control reports.

Q. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork

Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94 requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.

1. Personnel performing laboratory tests shall be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Field Quality Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

1. Personnel conducting field tests shall be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.

1. Include the following information in each test report:

a. Admixture dosage rates.
b. Slump.
c. Air content.
d. Seven-day compressive strength.
e. 28-day compressive strength.
f. Permeability.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94 and ACI 301.

B. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Store reinforcement to avoid contact with earth.

1.8 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150, Type II, gray.
2. Fly Ash: ASTM C618, Class F.
3. Slag Cement: ASTM C989, Grade 100 or 120.
4. Silica Fume: ASTM C1240 amorphous silica.

C. Normal-Weight Aggregates: ASTM C33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

1. Alkali-Silica Reaction: Comply with one of the following:

a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.

2. Maximum Coarse-Aggregate Size: 1 inch nominal.
3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C260.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494, Type A.
2. Plasticizing and Retarding Admixture: ASTM C1017, Type II.

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1) BASF Corporation.
2) Euclid Chemical Company (The); an RPM company.
3) GCP Applied Technologies Inc.
4) Sika Corporation.
5) Approved equivalent.

F. Water and Water Used to Make Ice: ASTM C94, potable.

2.3 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

1. Color:

    a. Ambient Temperature Below 50 deg F: Black.
    b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
    c. Ambient Temperature Above 85 deg F: White.

D. Curing Paper: Eight-feet- wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.

E. Water: Potable or complying with ASTM C1602.

F. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.4 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C1059, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade and class to suit requirements, and as follows:

1. Types I and II, nonload bearing for bonding hardened or freshly mixed concrete to hardened concrete.

2.5 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C150 portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested in accordance with ASTM C109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C150 portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.

2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109.

2.6 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.
2. Slag Cement: 50 percent by mass.
3. Silica Fume: 10 percent by mass.
4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in concrete with a w/cm below 0.50.

2.7 CONCRETE MIXTURES

A. Class B**:** Normal-weight concrete used for interior housekeeping pads.

1. Exposure Class: ACI 318 F0 S0 W0 C0.
2. Minimum Compressive Strength: 4000 psi at 28 days.
3. Maximum w/cm: **0.50.**
4. Minimum Cementitious Materials Content: 520 lb/cu. yd.
5. Slump Limit: 4 inches, plus or minus 1 inch

6. Air Content:

a. Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.

7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94 and ASTM C1116, and furnish batch ticket information.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

2.9 GLOBAL WARMING POTENTIAL LIMITS

A. The Global Warming Potential (GWP) of standard ready-mix concrete mixes shall meet the maximum limits outlined in in the table below. GWP of each mix will be verified through the submission of an EPD.

Maximum Global Warming Potential (GWP) Limits

for Low Embodied Carbon Concrete

Specified compressive strength (f'c in PSI)	Maximum Global Warming Potential Limits for Low Embodied Carbon Concrete (kilograms of carbon dioxide equivalent per cubic yard - CO_2e kg/y^3)
0 - 2500	275
2501 - 3000	302
3001 - 4000	360
4001 - 5000	434
5001 - 6000	458
6001 - 8000	541
8000+	N/A

B. The maximum GWP limits are not applicable to quick cure concrete, concrete designed to cure to its design strength quicker than the standard 28 days.

2.10 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM 615, Grade 60, deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Deformed-Steel Welded-Wire Reinforcement: ASTM A1064, flat sheet.

2.11 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A615, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.

1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.

C. Steel Tie Wire: ASTM A1064, annealed steel, not less than 0.0508 inch in diameter. 1. Finish: Plain.

D. Stainless Steel Tie Wire: ASTM A1022, not less than 0.0508 inch in diameter.

2.12 FORM-FACING MATERIAL

A. As-Cast Surface Form-Facing Material:

1. Provide continuous, true, and smooth concrete surfaces.
2. Furnish in largest practicable sizes to minimize number of joints.
3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete, and as follows:

a. Plywood, metal, or other approved panel materials.
b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

1) APA MDO (medium-density overlay); mill-release agent treated and edge sealed.

B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.

1. Provide lumber dressed on at least two edges and one side for tight fit.

2.13 FORM RELATED MATERIALS

A. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

B. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
2. Form release agent for form liners shall be acceptable to form liner manufacturer.

C. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:

1. Daily access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.3 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.4 INSTALLATION OF STEEL REINFORCEMENT

A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement

B. Accurately position, support, and secure reinforcement against displacement.

1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
2. Do not tack weld crossing reinforcing bars.

C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.

D. Provide concrete coverage in accordance with ACI 318.

E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

F. Splices: Lap splices as indicated on Drawings.

1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
2. Stagger splices in accordance with ACI 318.

G. Install welded-wire reinforcement in longest practicable lengths.

1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice." a. For reinforcement less than W4.0 or D4.0, continuous support spacing shall not exceed 12 inches.
2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches for plain wire and 8 inches for deformed wire.
3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
4. Lace overlaps with wire.

3.5 INSTALLATION OF FORMWORK

A. Comply with ACI 301.

B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations.

C. Limit concrete surface irregularities as follows:

1. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.

D. Construct forms tight enough to prevent loss of concrete mortar.

1. Minimize joints. 2. Exposed Concrete: Symmetrically align joints in forms.

E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.

1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
2. Install keyways, reglets, recesses, and other accessories, for easy removal.

F. Do not use rust-stained, steel, form-facing material.

G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.

1. Provide and secure units to support screed strips.
2. Use strike-off templates or compacting-type screeds.

H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.

1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
2. Locate temporary openings in forms at inconspicuous locations.

I. Chamfer interior piers, corners, and edges of permanently exposed concrete.

J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.

K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.

1. Determine sizes and locations from trades providing such items.
2. Obtain written approval of Director's Representative prior to forming openings not indicated on Drawings.

L. Construction and Movement Joints:

1. Construct joints true to line with faces perpendicular to surface plane of concrete.
2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Director's Representative.
3. Place joints perpendicular to main reinforcement.
4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.

M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.

1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.

N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.6 JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.

1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Director’s Representative.
2. Place joints perpendicular to main reinforcement.

a. Continue reinforcement across construction joints unless otherwise indicated.
b. Do not continue reinforcement through sides of strip placements of floors and slabs.

3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

4. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.

D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items, is complete and that required inspections are completed.

B. Notify Director's Representative and testing and inspection agencies 24 hours prior to commencement of concrete placement.

C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Director's Representative in writing, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

E. Conform to the discharge limitations and requirements of ASTM C94 in the operation of truck mixers and agitators.

F. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. If a section cannot be placed continuously, provide construction joints as indicated.
2. Deposit concrete to avoid segregation.
3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
4. Do not allow discharged concrete to freefall more than 4 feet.
5. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

    a. Do not use vibrators to transport concrete inside forms.
    b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
    c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.

d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

G. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Do not place concrete floors and slabs in a checkerboard sequence.
2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Maintain reinforcement in position on chairs during concrete placement.
4. Screed slab surfaces with a straightedge and strike off to correct elevations.
5. Level concrete, cut high areas, and fill low areas.
6. Slope surfaces uniformly to drains where required.
7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
8. Do not further disturb slab surfaces before starting finishing operations.

H. Pumping Concrete

1. When pumping concrete, the lubrication materials within the delivery line shall not be discharged into the forms.
2. The inside diameter of the delivery lines shall be the greater of 5 inches or 3 times the maximum size of the coarse aggregate.

3.8 FINISHING FORMED SURFACES

A. Rubbed Finish: Apply the following to as cast surface finishes where indicated on Drawings:

1. Smooth-Rubbed Finish:

a. Perform no later than one day after form removal.
b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
d. Maintain required patterns or variances as shown on Drawings or to match field sample panels.

3.9 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.

2. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view.
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:

    a. Slabs on Ground:

        1) Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.
        2) Specified overall values of flatness, FF 30; and of levelness, FL 20; with minimum local values of flatness, FF 24; and of levelness, FL 15.

3.10 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings, and extend base not less than 3 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install #4 rebar to connect concrete base to concrete floor. Unless otherwise indicated, install rebar on 24-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices.

    a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
    b. Cast anchor-bolt insert into bases.
    c. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.11 TOLERANCES

A. Conform to ACI 117.

3.12 JOINT FILLING

A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month.
2. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.

3.13 REMOVING AND REUSING FORMS

A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work.

1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
2. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.

1. Align and secure joints to avoid offsets.
2. Do not use patched forms for exposed concrete surfaces unless approved by Director’s Representative.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete:

1. Repair and patch defective areas when approved by Director’s Representative.
2. Remove and replace concrete that cannot be repaired and patched to Director’s Representative's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.

    a. Limit cut depth to 3/4 inch.
    b. Make edges of cuts perpendicular to concrete surface.
    c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    d. Fill and compact with patching mortar before bonding agent has dried.
    e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.

    a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
    b. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Director’s Representative.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.

    a. Correct low and high areas.
    b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.

    a. Finish repaired areas to blend into adjacent concrete.

5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.

    a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

b. Feather edges to match adjacent floor elevations.

6. Correct other low areas scheduled to remain exposed with repair topping.

a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.

a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
d. Place, compact, and finish to blend with adjacent finished concrete.
e. Cure in same manner as adjacent concrete.

8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.

a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
b. Dampen cleaned concrete surfaces and apply bonding agent.
c. Place patching mortar before bonding agent has dried.
d. Compact patching mortar and finish to match adjacent concrete.
e. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Director’s Representative's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Director’s Representative's approval.

3.15 FIELD QUALITY CONTROL

A. Special Inspections: Director’s Representative will engage a special inspector and a qualified testing agency to perform tests and inspections in accordance with the requirements of BDC 406 Summary of Special Inspections and BDC 406.1 Statement of Special Inspections and as directed by the Code Compliance Manager.

B. Inspections:

1. Steel reinforcement placement
2. Steel reinforcement welding
3. Headed bolts and studs
4. Verification of use of required design mixtrure
5. Concrete placement, including conveying and depositing

6. Curing procedures and maintenance of curing temperatures
7. Verification of concrete strength before removal of forms from slabs.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172 shall be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C143:

    a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C231 pressure method, for normal-weight concrete.

    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C1064:

    a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.

5. Unit Weight: ASTM C567 fresh unit weight of structural lightweight concrete.

    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

6. Compression Test Specimens: ASTM C31:

    a. Cast and laboratory cure two sets of two 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.

7. Sampling of Pumped Concrete: Sample and cast separate specimens with concrete obtained both at the truck discharge and at the end of the pump delivery line. The test results obtained from the truck discharge shall govern.
8. Compressive-Strength Tests: ASTM C39.
    a. Test one set of two field-cured specimens at seven days and one set of two specimens at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Director's Representative but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests:

    a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Director's Representative.
    b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42 or by other methods as directed by Director's Representative.

        1) Acceptance criteria for concrete strength shall be in accordance with ACI 301 section 1.6.6.3.

13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of completion of floor finishing and promptly report test results to Director's Representative.

3.16 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.

END OF SECTION 033000

SECTION 220533 - HEAT TRACING FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes plumbing piping heat tracing for freeze prevention, and domestic hot-water-temperature maintenance, and snow and ice melting on roofs and in gutters and downspouts with the following electric heating cables:

1. Plastic insulated, series resistance.
2. Self-regulating, parallel resistance.
3. Constant wattage.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, and furnished specialties and accessories.
2. Schedule heating capacity, length of cable, spacing, and electrical power requirement for each electric heating cable required.

E. Shop Drawings: For electric heating cable.

1. Include plans, elevations, sections, and attachment details.
2. Include diagrams for power, signal, and control wiring.

F. Field quality-control reports.

G. Sample Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For electric heating cables to include in operation and maintenance manuals.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace electric heating cable that fails in materials or workmanship within specified warranty period.

1. Warranty Period: **Three** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SELF-REGULATING, PARALLEL-RESISTANCE HEATING CABLES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Delta-Therm Corporation.
2. Nelson; Emerson Electric Co., Automation Solutions.
3. RAYCHEM; brand of nVent Electrical plc.
4. Or equal.

B. Comply with IEEE 515.1 “Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Trace Heating for Commercial Applications”.

C. Heating Element: Pair of parallel **No. 16** AWG, **nickel-coated**, stranded copper bus wires embedded in crosslinked conductive polymer core, which varies heat output in response to temperature along its length. Terminate with waterproof, factory-assembled, nonheating leads with connectors at one end, and seal the opposite end watertight. Cable shall be capable of crossing over itself once without overheating.

D. Electrical Insulating Jacket: Flame-retardant polyolefin.

E. Cable Cover: Tinned-copper braid and polyolefin outer jacket with ultraviolet inhibitor.

F. Maximum Operating Temperature (Power On): **150 deg F**.

G. Maximum Exposure Temperature (Power Off): **185 deg F**.

H. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 “Standard for Electrical Safety in the Workplace”, by a qualified testing agency, and marked for intended location and application.

I. Capacities and Characteristics:

1. Maximum Heat Output: **10 W/ft.**.

2. Electrical Characteristics for Single-Circuit Connection:

    a. Volts: 120.
    b. Phase: Single.
    c. Hertz: 60.

2.2 CONTROLS

A. Pipe-Mounted Thermostats for Freeze Protection:

1. Remote bulb unit with adjustable temperature range from **30 to 50 deg F**.
2. Snap action; open-on-rise, single-pole switch with minimum current rating adequate for connected cable.
3. Remote bulb on capillary, resistance temperature device, or thermistor for directly sensing pipe-wall temperature.
4. Corrosion-resistant, waterproof control enclosure.

2.3 ACCESSORIES

A. Cable Installation Accessories: Fiberglass tape, heat-conductive putty, cable ties, silicone end seals and splice kits, and installation clips all furnished by manufacturer, or as recommended in writing by manufacturer.

B. Warning Tape: Continuously printed "Electrical Tracing"; vinyl, at least 3 mils thick, and with pressure-sensitive, permanent, waterproof, self-adhesive back.

1. Width for Markers on Pipes with OD, Including Insulation, Less Than 6 inches : 3/4 inch minimum.
2. Width for Markers on Pipes with OD, Including Insulation, 6 inches or Larger: 1-1/2 inches minimum.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and substrates to receive electric heating cables for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Ensure surfaces and pipes in contact with electric heating cables are free of burrs and sharp protrusions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATIONS

A. Install the following types of electric heating cable for the applications described:

1. Temperature Maintenance for Domestic Hot Water: Self-regulating, parallel-resistance heating cable.

3.3 INSTALLATION

A. Install electric heating cable across expansion, construction, and control joints according to manufacturer's written instructions; use cable-protection conduit and slack cable to allow movement without damage to cable.

B. Electric Heating-Cable Installation for Freeze Protection for Piping:

1. Install electric heating cables after piping has been tested and before insulation is installed.
2. Install electric heating cables according to IEEE 515.1 “Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Trace Heating for Commercial Applications”.
3. Install insulation over piping with electric cables according to Section 220719 "Plumbing Piping Insulation."
4. Install warning tape on piping insulation where piping is equipped with electric heating cables.

C. Set field-adjustable switches and circuit-breaker trip ranges.

3.4 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Director’s Representative will engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a Company Field Advisor per OGS Spec Section 014216 factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform the following tests and inspections with the assistance of a Company Field Advisor per OGS Spec Section 014216:

1. Perform tests after cable installation but before application of coverings such as insulation, wall or ceiling construction, or concrete.
2. Test cables for electrical continuity and insulation integrity before energizing.
3. Test cables to verify rating and power input. Energize and measure voltage and current simultaneously.

D. Repeat tests for continuity, insulation resistance, and input power after applying thermal insulation on pipe-mounted cables.

E. Cables will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports.

3.6 PROTECTION

A. Protect installed heating cables, including nonheating leads, from damage during construction.

B. Remove and replace damaged heat-tracing cables.

END OF SECTION 220533

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on fire alarm conduits and raceways, as well as any exposed conduits/raceways within the Exhibition spaces.

B. Work under this Contract shall also include, but not necessarily be limited to:

1. Labor, materials, tools and other equipment, services and supervision required to complete all interior painting and decorating work as indicated on Finish Schedules and to the full extent of the drawings and specifications.
2. Moisture testing of substrates.
3. Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to the limits defined under MPI Architectural Painting Manual preparation requirements.
4. Specific pre-treatments noted herein or specified in the MPI Architectural Painting Manual.
5. Sealing / priming surfaces for painting in accordance with MPI Architectural Painting Manual requirements.
6. Provision of safe and adequate ventilation as required over and above temporary ventilation supplied by others, where toxic and/or volatile / flammable materials are being used.

1.2 REFERENCES

A. Master Painters Institute Inc., MPI Architectural Painting Manual. www.specifypaint.us.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Painting Schedule: Cross-referenced Painting Schedule listing all interior substrates to be painted and specified finish paint type designation; product name and manufacturer, recommended primers and product numbers, and finish paint color designation for each substrate to be painted.

1. Designate interior substrates by building name and number, floor, room name and number, and surface to be painted.

E. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
2. Indicate VOC content.
3. Manufacturer’s standard colors in the form of actual fan decks.

F. Certification of Volatile Organic Compounds: Submit certified list demonstrating compliance requirements in Quality Assurance Article.

1.4 QUALITY ASSURANCE

A. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 205 Architectural Surface Coatings.

1. Certificate of Compliance: List of each paint product to be delivered and installed. List shall include written certification stating that each paint product listed complies with the VOC regulatory requirements in effect at the time of job site delivery and installation.

B. All materials, preparation and workmanship shall conform to the standards contained in the latest edition of the Master Painters Institute (MPI) Architectural Painting Manual (herein referred to as the MPI Manual).

1.5 REGULATORY REQUIREMENTS FOR PAINTING

A. Conform to work place safety regulations for storage, mixing, application and disposal of all paint related materials to requirements of those authorities having jurisdiction.

B. To reduce the amount of contaminants entering waterways, sanitary / storm drain systems or into the ground the following procedures shall be strictly adhered to:

1. Retain cleaning water for water based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
2. Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
3. Return solvent and oil-soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
4. Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
5. Empty paint cans are to be dry prior to disposal or recycling (where available).
6. Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire safe area at moderate temperature.

1.6 DELIVERY, STORAGE, AND HANDLING OF PAINT

A. Deliver painting materials in sealed, original labeled containers bearing manufacturer's name, brand name, type of paint or coating and color designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

C. Where toxic and/or volatile / explosive / flammable materials are being used, provide adequate fireproof storage lockers and take necessary precautions and post adequate warnings (e.g. no smoking) as required.

D. Take necessary precautionary and safety measures to prevent fire hazards and spontaneous combustion and to protect the environment from hazard spills. Materials that constitute a fire hazard (paints, solvents, drop clothes, etc.) to be stored in suitable closed and rated containers or removed from the site on a daily basis.

E. Comply with requirements of authorities having jurisdiction, in regard to the use, handling, storage and disposal of hazardous materials.

1.7 FIELD CONDITIONS FOR PAINTING

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Perform no painting work unless a minimum lighting level of 323 Lux (30-foot candles) is provided on surfaces to be repainted.

D. Apply paint only to dry, clean, and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.

E. The following items are not to be painted unless otherwise specified, noted or directed:

1. Exposed stainless steel, chrome, copper, bronze, brass, and aluminum.
2. Factory prefinished items.
3. Galvanized items not exposed in finished spaces.

PART 2 - PRODUCTS

2.1 PAINT MATERIALS, GENERAL

A. MPI Standards: Provide products complying with MPI standards indicated and listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Electrical Components Colors: Provide paint colors shown on contract drawings or to be selected by the Director from finish paint manufacturers available color selections.

1. Approved finish paint manufacturers to match designated colors of other manufacturers where colors are shown on contract documents.
2. Safety Colors: Industry Standard ANSI Safety Colors.
3. Fire Protection Systems: Paint exposed piping, and handles of valves serving the system as specified below:

a. Sprinkler Systems: Red piping, and green valve handles.
b. Standpipe Systems: Red piping, and red valve handles.
c. Combination Sprinkler/Standpipe Systems: Red piping, and yellow valve handles.

4. Do not paint equipment with factory finish paint.

2.2 PAINT MATERIAL MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Behr Paint
2. Benjamin Moore & Co.
3. Cloverdale Paint.
4. Dunn-Edwards
5. Pratt & Lambert.
6. PPG Architectural.
7. Sherwin-Williams.
8. Or equal.

B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in the Interior Painting Schedule for the paint category indicated.

2.3 PAINT MATERIALS

A. Primers and Sealers:

1. Type IAL-P: Primer Sealer, Latex, Interior MPI #50. Provide one of the following:

a. Benjamin Moore & Co.: Super Hide Zero VOC Latex Primer.
b. PPG Architectural: Speedhide Zero Interior VOC Latex Sealer.
c. Sherwin-Williams: ProMar 200 Zero Interior Latex Primer.
d. Or equal.

B. Water-Based Paints:

1. Type IAL-2: Latex, Interior, (Gloss Level 3) MPI #52. Provide one of the following:

a. Benjamin Moore & Co.: Super Hide Zero VOC Interior Low Eggshell.
b. PPG Architectural: Speedhide Zero Interior Satin.
c. Sherwin-Williams: ProMar 200 Zero VOC Interior Latex Eg-Shel.
d. Or equal.

2.4 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: The Director's Representative reserves the right to invoke the following procedure:

1. The Director's Representative will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. The Director's Representative may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer**.**

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Alarm System Work:

1. Paint the following work where exposed in occupied spaces:
   a. Metal conduit.
   b. Plastic conduit.
   c. Other items as directed by Director's Representative.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Director's Representative, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 SURFACES, GENERAL

A. Surfaces: Unless otherwise specified or shown on the drawings, paint surfaces as follows:

1. Unless otherwise noted, paint interior unremovable and exposed fire alarm raceways and conduits.

   a. Paint as directed by Director's Representative
   b. Paint exposed surfaces when any part of the surface is on or within 8 inches of ceiling or wall surface to be painted.

3.6 INTERIOR PAINTING SCHEDULE

A. Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Related Substrates:

1. Latex System:

   a. Prime Coat: Shop primer specified in Section where substrate is specified.

b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior (MPI Gloss Level 3), MPI #52. Type IAL-2.

END OF SECTION 099123

SECTION 271005 - STRUCTURED CABLING FOR VOICE AND DATA

PART 1 – GENERAL

1.1 REFERENCES

A. Building Industry Consulting Services International (BICSI) - Telecommunications Distribution Methods Manual (TDMM)

B. IEEE Standards

C. ANSI/TIA/EIA - 568-B.1-- Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements.

D. ANSI/TIA/EIA -568-B.2 -- Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components

E. ANSI/TIA/EIA - 569A -- Commercial Building Standard for Telecommunications Pathways and Spaces

F. ANSI/TIA/EIA - 606 (A) -- The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings

G. ANSI/TIA/EIA - 607 (A) -- Commercial Building Grounding and Bonding Requirements for Telecommunications

H. ANSI/TIA/EIA - 526-7 -- Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.

I. ANSI/TIA/EIA - 526-14A -- Measurement of Optical Power Loss of Installed Multimode Fiber Cable Plant.

J. ANSI/TIA/EIA - 758(A) -- Customer-Owned Outside Plant Telecommunications Cabling Standard.

1.2 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittals Package: Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package.

C. Shop Drawings:
1. Composite wiring and/or schematic diagrams of the complete system as proposed to be installed (standard diagrams will not be acceptable).
2. Complete manufacturer's construction details and specifications for the

cables, including physical characteristics of optical fiber, strength members, and jackets.

3. Overall dimension of cable.
4. Termination data, including the following:
   a. List of materials.
   b. Method of terminating cables.
   c. Details of cable preparation.
   d. Method of applying materials (including quantities).
   e. Precautionary measures.
   f. Drawings showing method of termination, complete with dimensions.
   g. Written statement from cable manufacturer that terminations submitted are acceptable.
   h. Written statement from termination manufacturer that terminations submitted are suitable for the proposed application.
5. Cable manufacturer's certified test data (attenuation, bandwidth).
6. Maximum pulling strain allowed for each type cable.
7. Proposed anchoring methods for wall mounted racks.

D. Product Data:
1. Catalog sheets, specifications and installation instructions.
2. Bill of materials.
3. Name, address and telephone number of nearest fully equipped service organization.

E. Quality Control Submittals:
1. Installers' Qualifications Data: Include the following for each person who will be performing the Work:
   a. Name.
   b. Employers name, business address and telephone number.
   c. Name and addresses of the required number of similar projects worked on which meet the experience criteria.
2. Company Field Advisor Data: Include:
   a. Name, business address and telephone number of Company Field Advisor secured for the required services.
   b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
   c. Services and each product for which authorization is given by the Company, listed specifically for this project.

F. Contract Closeout Submittals:
1. System acceptance test report.
2. Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.
3. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative. Include name, address and telephone number of the nearest fully equipped service organization.
4. As-built Documentation: Provide three sets of documentation on

certification results and AutoCad files indicating cable location, labels, and all connections. All testing documentation and trace files shall be submitted in printed and electronic form. Accurately marked drawings indicating installed pathway routings and type(s), type(s) of cabling, locations of terminations and enclosures, racks, cabinets, patch panels, voice and data jacks, and other installed equipment.

1.3 QUALITY ASSURANCE

A. Equipment Qualifications For Products Other Than Those Specified:

1. At the time of submission provide written notice to the Director of the intent to propose an "or equal" for products other than those specified. Make the "or equal" submission in a timely manner to allow the Director sufficient time to review the proposed product, perform inspections and witness test demonstrations.
2. If products other than those specified are proposed for use furnish the name, address, and telephone numbers of at least 5 comparable installations that can prove the proposed products have performed satisfactorily for 3 years. Certify in writing that the owners of the 5 comparable installations will allow inspection of their installation by the Director's Representative and the Company Field Advisor.
    a. Make arrangements with the owners of 2 installations (selected by the Director) for inspection of the installations by the Director's Representative. Also obtain the services of the Company Field Advisor for the proposed products to be present. Notify the Director a minimum of 3 weeks prior to the availability of the installations for the inspection, and provide at least one alternative date for each inspection.
    b. Only references from the actual owner or owner's representative (Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others, who are not the actual owners of the proposed products, are not acceptable.
        1) Verify the accuracy of all references submitted prior to submission and certify in writing that the accuracy of the information has been confirmed.
3. The product manufacturer shall have test facilities available that can demonstrate that the proposed products meet the contract requirements.
    a. Make arrangements with the test facility for the Director's Representative to witness test demonstrations. Also obtain the services of the Company Field Advisor for the proposed product to be present at the test facility. Notify the Director a minimum of 3 weeks prior to the availability of the test facility, and provide at least one alternative date for the testing.
4. Provide written certification from the manufacturer that the proposed products are compatible for use with all other equipment proposed for use for this system and meet all contract requirements.

B. Test Facility: The Company producing the system shall have test facilities

available that can demonstrate that the proposed system meets contract requirements.

C. Installers' Qualifications: The persons installing the Work of this Section, and their supervisor, shall be personally experienced in telecommunications and copper and optical fiber cable systems and shall have been engaged in the installation of such systems for a minimum of 3 years.
   1. Furnish to the Director the names and addresses of 5 similar projects that the foregoing people have worked on during the past 3 years.

D. Company Field Advisor: Secure the services of a Company Field Advisor for a minimum of 12 working hours for the following:
   1. Render advice regarding installation and final adjustment of the system.
   2. Witness final system test and then certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.
   3. Train facility personnel on the operation and maintenance of the system (minimum of two 1 hour sessions).
   4. Explain available service programs to facility supervisory personnel for their consideration.

1.4 MAINTENANCE

A. Service Availability: A fully equipped service organization shall be available to service the completed Work.

1.5 WARRANTY

A. Provide a fifteen (15) year manufacturer's product warranty and a fifteen (15) year performance warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Belden.

B. CommScope.

C. Hitachi.

2.2 SYSTEM DESIGN

A. Provide a complete permanent system of cabling and pathways for voice and data communications, including cables, conduits and wireways, pull wires, support structures, enclosures and cabinets, and outlets. Site shall be cabled for voice over internet protocol (VOIP), with dedicated analog (voice) phone lines in select locations.
   1. Comply with TIA/EIA-568 and TIA/EIA-569, latest editions.
   2. Comply with TIA-570, latest edition.

3. 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.
4. 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.
5. Support gigabit ethernet.
6. Support voice over IP.

B. Cabling to Outlets: Specified horizontal cabling, wired in star topology to distribution frame located at center hub of star; also referred to as "links".

2.3 PATHWAYS

A. Conduit:
1. Provide conduit as specified in 260531, 260532, and 260543.

2.4 COPPER CABLE AND TERMINATIONS

A. Copper Horizontal Cable: TIA/EIA-568 Category 6A solid conductor unshielded twisted pair (UTP), 23 AWG, 100 ohm; 4 individually twisted pairs; covered with gray jacket and complying with all relevant parts of and addenda to latest edition of TIA/EIA-568 and UL 444. Shall support gigabit ethernet and voice over IP.
1. Provide NFPA 70 type CMP plenum-rated cable.

B. Copper Cable Terminations: Insulation displacement connection (IDC) type using appropriate tool; use screw connections only where specifically indicated.

C. Jacks and Connectors: RJ-45 (data), non-keyed, terminated with 110-style insulation displacement connectors; high impact thermoplastic housing; complying with same standard as specified horizontal cable and UL 1863.
1. Performance: 500 mating cycles.
2. Voice and Data Jacks: 4-pair, pre-wired to T568B configuration, with color-coded indications for T568B configuration.

2.5 ENCLOSURES

A. Equipment Racks and Cabinets: 58” Telco Enclosure – American Products #AM58P-2630-30RU, having;
1. 26” x 30” enclosure 58” high with 30RU equipment space.
2. NEMA 3R outdoor enclosure.
3. Set of 19” / 23” adjustable rails.
4. .125” aluminum construction with power coat finish.
5. Aluminum ground bar.
6. Stainless steel hardware.
7. UL 50 / UL 50E listed

B. Outlet Boxes: For surface mounting in; depth as required to accommodate cable

manufacturer's recommended minimum conductor bend radius.

1. Size, Unless Otherwise Indicated: 4 inches square by 2-1/8 inches deep.
2. Wall-Mounted Telephones: 4 inches high by 2 inches wide by 2-1/8 inches deep.
3. Faceplates: High impact thermoplastic, 4 port, almond color, complying with system design standards and UL 514C.
   a. AmpNetconnect: 558088-1.
4. Labels: Comply with TIA/EIA-606 using encoded identifiers; label each jack on the face plate as to its function. Identify wall plates according to New York Court of Appeals standards. Obtain Standards from Director's Representative.

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 latest editions and addenda of TIA-570, ANSI/J-STD-607, NFPA 70, and SYSTEM DESIGN as specified in PART 2.

3.2 PATHWAYS

A. Conceal conduit under floor slabs and within finished walls, ceilings, and floors except where specifically indicated to be exposed.
   1. Conduit may remain exposed to view in mechanical rooms, electrical rooms, and telecommunications closets.
   2. Treat conduit in crawl spaces and under floor slabs as if exposed to view.
      a. Where exposed to view, install parallel with or at right angles to ceilings, walls, and structural members.
      b. Under floor slabs, locate conduit at 12 inches, minimum, below vapor retarder; seal penetrations of vapor retarder around conduit.

B. Install with a minimum of bends and offsets. Bends shall not kink or destroy the interior cross section of the raceway. Factory made bends shall be used for raceways 1" trade size and larger. Bends radius shall be 6 times the internal diameter for conduit sizes up to 2 inches. A conduit greater than 2 inches shall have bend radius at least 10 times the diameter of the conduit.

C. Do not locate riser pull boxes at bends without prior review and approval by Director's Representative. Where possible use instead sweeps for the bend and locate in a straight pull nearby.
   1. Conduits shall be sized to accept 50% future growth, sizing shall account for fire code capacity restrictions.
   2. Runs exceeding 100 feet or 180 degrees total bends shall be broken with suitable sized pull or splice boxes. (LB or similar conduit fittings are not acceptable for runs of riser cables. Verify applicability before installing

such fitting.

3. Plug the ends of each roughed-in raceway with an approved cap or disc to prevent the entrance of foreign materials during construction.
4. Secure within three feet of each outlet box, junction box, cabinet or fitting.
5. Provide a #14 AWG fish wire in all "Spare" or "Empty" conduit runs to facilitate future installation of cables. Secure cable at each end.
6. Identification: Clearly label conduit at exposed ends indicating closet or outlet where conduit terminates and the length of the conduit. Label pull boxes indicating destination of conduits entering and exiting.
7. Arrange neatly to permit access to the raceway, outlet, pull, and junction boxes, and work installed by other trades.
8. Fire stop all pathways.
9. Pull boxes shall be marked with 1" wide reflective tape.
10. Stub out conduits into closets only enough to attach connector and bushings, except conduits shall rise a minimum of 6 inches above the finished floor.
11. Bush all conduit ends.
12. Conduits shall be concealed except in the following areas:
    a. Mechanical Rooms
    b. Electric Rooms
    c. Unfinished basements or crawl spaces
    d. Maintenance areas
13. Do not install raceways adjacent to hot surfaces or in wet areas.
14. Install conduits to edges of access boxes so as to maximize the total number of conduits that can be routed through the pull box.
15. Provide expansion fittings with external grounding straps at building expansion joints.
16. Do not install conduit horizontally in concrete or block partitions.

D. Core drill, sleeve, and fire stop all penetrations through existing floors, stairwell walls, and other rated partitions. Reference Architectural drawings.

1. Support all raceways with malleable iron pipe clamps or other approved method. In exterior or wet locations, provide minimum ¼" air space between raceway and wall. Secure raceway within 3 ft. of each outlet box, junction box, cabinet or fitting.
2. Install junction and pull boxes in readily accessible locations. Equipment, piping, ducts and the like shall not block access to boxes. Provide all necessary junction or pull boxes required due to field conditions and size as required by the National Electrical Code.

E. Sleeves.

1. Support and firestop all sleeves. Size as required to allow installation of conduit sized per drawings.
2. Riser and Plenum Rated Innerduct.
3. Adhere to all manufacturer installation guidelines.
4. Install nylon pull string through all innerducts. Pull string shall be continuous between all pull points. Pull string shall not be bound or wrapped around cables.

5. Support innerduct every 36" on center.

F. Grounding and Bonding: Perform in accordance with ANSI/J-STD-607 and NFPA 70.
   1. Load hangers as recommended by the manufacturer. Provide hangers side by side on a common bracket where cable quantities require.

G. Firestopping: Seal openings around pathway penetrations through fire-rated walls, partitions, floors, and ceilings in accordance with Section 078400.
   1. Do not install cables loose above lock-in type, drywall or plaster ceilings.

3.3 INSTALLATION OF EQUIPMENT AND CABLING

A. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:
   1. At Outlets - Copper: 12 inches.

B. Terminations and Splices:
   1. Terminate cable in accordance with manufacturer's approved installation instructions.

C. UTP Cable.
   1. Install all cables in conduit, except where noted. Install cables concealed in finished spaces in conduit, without exception. All wiring concealed in walls, above gypsum wall board ceilings, or in soffits shall be installed in metal conduits.
      a. Arrange and route conduits in concealed spaces to meet requirements for number of bends and access to junction boxes. Do not bury boxes in inaccessible areas.
      b. Installation of access panels in finished areas will not be permitted. Route conduits to accessible areas.
   2. Install all exposed wiring in metal conduit.
   3. All wiring above suspended ceilings shall be installed in open top cable hangers.
   4. Cable above accessible ceilings shall be supported 3' on center from cable support attached to building structure.
   5. Do not untwist individual cable pairs more than 3/8 in. when terminating.
   6. Do strip cable jacket more than 1 in. when terminating.
   7. The Contractor shall be responsible for replacing all cables that do not pass CATEGORY 6A requirements.
   8. Maximum length shall be 90 meters.
   9. Service loops shall be 10' at TR end and 1' at station end. Service loops shall have no more than 4 wraps / 360 degree loops. Non circular looping shall be implemented.
   10. Cable shall have no physical defects such as cuts, tears, kinks, holes or bulges in the outer jacket. Cables with defects shall be replaced.
   11. Install cable in neat and workmanlike manner. Neatly bundle and tie all cable in closets. Leave sufficient cable for 90° sweeps at all vertical drops.

12. Bend radius of the cable shall be no less than 4 times the diameter of the cable.
13. The Bend radius at the connection point for patch/equipment cords shall be less than 90 degrees of change from the parallel plane of the connector device.
14. Maintain the following clearances from EMI sources.
    a. Power cable - 12 in.
    b. Fluorescent Lights - 12 in.
    c. Transformers - 36 in.
15. Do not install Category 6A cable with more than 30 lbs. pull force, as specified in EIA/TIA and BICSI practices. Utilize appropriate cable lubricant in sufficient quantity to reduce pulling friction to acceptable levels on: long pulls inside conduit, pulls of multiple cables into a single small bore conduit, on conduit runs greater than 100 lineal feet with bends of opposing directions, and in conduit runs that exceed 180 degrees of accumulated bends. Use of tensile rated cords (i.e. fishing line) should be used for difficult or questionable pulls - to judge to go/no-go condition of the conduit and pulling setup. The practice of using one cable to pull multiple cables is not permitted.
16. Cables jackets that are chaffed or burned exposing internal conductor insulation or have any bare copper ("shiners") shall be replaced.
17. Cables shall not be exposed to water in any way.
18. Cable ties shall be Velcro, not plastic tie wraps.
19. No more than 100 cables shall be bundled together.
20. Firestop all openings where cable is installed through a fire barrier.
21. Cable bundles shall be assembled using similar NEC rated (such as CM, for example) components throughout.

D. Inserts and Faceplates
1. All cables shall be terminated with high density modular jacks that snap into a faceplate mounted on a wall outlet box, surface raceways or power pole.
2. Outlet boxes shall be secured to building with mechanical fasteners. Adhesive fasteners are not allowed.
3. All extra openings to be filled with blank inserts.
4. Terminate cable per EIA/TIA 568B standard pin assignments. Verify termination pin assignments with Director's Representative.
5. Locate so that combined length of cables and cords from panel to phone or computer does not exceed 3m.

3.4 TESTING

A. Comply with inspection and testing requirements of specified installation standards.

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. Testing - Copper Cabling and Associated Equipment:
1. Category 6A Links: Perform tests for wire map, length, attenuation, NEXT, and propagation delay.

D. 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 FIELD QUALITY CONTROL

A. Preliminary System Test:
1. Preparation: Have the Company Field Advisor adjust the completed system and then operate it long enough to assure that it is performing properly.
2. Run a preliminary test for the purpose of:
a. Determining whether the system is in a suitable condition to conduct an acceptance test.
b. Checking and adjusting equipment.
c. Training facility personnel.

B. System Acceptance Test:
1. Preparation: Notify the Director's Representative at least three working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
2. Make the following tests:
a. Individually test each telephone.
b. Test system as indicated in section 3.04 above.
3. Supply all equipment necessary for system adjustment and testing.
4. Submit written report of test results signed by Company Field Advisor and the Director's Representative.

END OF SECTION 271005

SECTION 271525 - OPTICAL FIBER CABLES

PART 1 - GENERAL

1.1 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer's installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Submittals Package: Submit the shop drawings, product data, samples, and quality control submittals specified below at the same time as a package.

E. Shop Drawings:

1. Complete manufacturer's construction details and specifications for the cables, including physical characteristics of optical fiber, strength members, and jackets.
2. Overall dimension of cable.
3. Termination data, including the following:

    a. List of materials.
    b. Method of terminating cables.
    c. Details of cable preparation.
    d. Method of applying materials (including quantities).
    e. Precautionary measures.
    f. Drawings showing method of termination, complete with dimensions.
    g. Written statement from cable manufacturer that terminations submitted are acceptable.
    h. Written statement from termination manufacturer that terminations submitted are suitable for the proposed application.

4. Cable manufacturer's certified test data (attenuation, bandwidth).
5. Maximum pulling strain allowed for each type cable.

F. Product Data:

1. Catalog sheets, specifications and installation instructions for all products.
2. Statement from the Company providing the system for which the optical fiber cables are proposed to be used, indicating that the optical characteristics meet the requirements of the Company.
3. Written statement from cable manufacturer indicating recommended pulling compounds.

G. Quality Control Submittals:

1. Installers' Qualifications Data: Include the following for each person who will be performing the Work:

    a. Name.
    b. Employers name, business address and telephone number.
    c. Name and addresses of the required number of similar projects worked on which meet the experience criteria.

2. Company Field Advisor Data: Include:

    a. Name, business address and telephone number of Company Field Advisor secured for the required services.
    b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
    c. Services and each product for which authorization is given by the Company, listed specifically for this project.

3. Cable Terminator's Resume: Name and address of each person who will be performing cable terminations with resume of terminator's experience (include details of types of terminations, types of cable, job locations and number of years performing terminations).

H. Contract Closeout Submittals:

1. After installation test report.

1.2 QUALITY ASSURANCE

A. Equipment Qualifications For Products Other Than Those Specified:

1. At the time of submission provide written notice to the Director of the intent to propose an "or equal" for products other than those specified. Make the "or equal" submission in a timely manner to allow the Director sufficient time to review the proposed product, perform inspections and witness test demonstrations.
2. If products other than those specified are proposed for use furnish the name, address, and telephone numbers of at least 5 comparable installations that can prove the proposed products have performed satisfactorily for 3 years. Certify in writing that the owners of the 5 comparable installations will allow inspection of their installation by the Director's Representative and the Company Field Advisor.

    a. Make arrangements with the owners of 2 installations (selected by the Director) for inspection of the installations by the Director's Representative. Also obtain the services of the Company Field Advisor for the proposed products to be present. Notify the Director a minimum of 3 weeks prior to the availability of the installations for the inspection, and provide at least one alternative date for each inspection.
    b. Only references from the actual owner or owner's representative (Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others, who are not the actual owners of the proposed products, are not acceptable.

1) Verify the accuracy of all references submitted prior to submission and certify in writing that the accuracy of the information has been confirmed.

3. The product manufacturer shall have test facilities available that can demonstrate that the proposed products meet the contract requirements.

   a. Make arrangements with the test facility for the Director's Representative to witness test demonstrations. Also obtain the services of the Company Field Advisor for the proposed product to be present at the test facility. Notify the Director a minimum of 3 weeks prior to the availability of the test facility, and provide at least one alternative date for the testing.

4. Provide written certification from the manufacturer that the proposed products are compatible for use with all other equipment proposed for use for this system and meet all contract requirements.

B. Installers' Qualifications: The persons installing the Work of this Section, and their supervisor, shall be personally experienced in optical fiber cable systems and shall have been engaged in the installation of optical fiber cable systems for a minimum of 3 years.

1. Furnish to the Director the names and addresses of 5 similar projects that the foregoing people have worked on during the past 3 years.

C. Company Field Advisor: Secure the services of the cable manufacturer's Company Field Advisor for a minimum of 40 working hours at the contract site for the following:

1. Render advice regarding method of installing cable.
2. Inspection of equipment for installing cable.
3. Witness representative amount of cable pulling.
4. Witness installation of at least one termination by each cable terminator who will be doing the actual cable termination.

   a. If the terminations are other than the cable manufacturer's, secure the services of the termination manufacturer's Company Field Advisor to concurrently witness installation of the terminations and also certify with an affidavit that the terminations were installed in accordance with the termination manufacturer's recommendations.

5. Witness after installation test.
6. Certify with an affidavit that the aforementioned particulars are satisfactory and the cable is installed in accordance with cable manufacturer's recommendations.

1.3 DELIVERY, STORAGE AND HANDLING

A. Cable Delivery:

1. No cable over one year old when delivered to the site will be accepted.
2. Keep ends of cables sealed at all times, except when making terminations. Use methods approved by cable manufacturer.
3. Include the following data durably marked on each reel:

a. Facility name and address.
b. Contractor's name.
c. Project title and number.
d. Date of manufacture.
e. Manufacturer's name.
f. Linear feet.
g. Location where cable is to be installed (Example: Between manholes No. _____ and _____).

B. Cable Storage: Store where cable will be at temperature recommended by cable manufacturer for optimum workability.

PART 2 - PRODUCTS

2.1 FIBER OPTIC CABLE

1. Provide Corning 24F Freedm SM Gell-Free Micro Distribution Fiber Optic Cable.

    a. 024EUF-T4101D20
    b. Or approved equal

2. Provide with LP-APC SM connectors
3. Coordinate all fiber optic cable requirements with NYS Fair IT group.

2.2 CONNECTORS

A. General: Furnish connectors and components, and use specific tools and methods as recommended by connector manufacturer to form complete connector system:

1. Terminations: To suit requirements of optical fiber video transmitter and receiver.

    a. Body Material: Steel.
    b. Ferrule Material: Stainless steel.

2.3 ACCESSORIES

A. Pulling Compounds: As recommended by cable manufacturer.

B. Tags: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inches high.

1. Phenolic: Two color laminated engraver's stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.

C. Markers:

1. Premarked self-adhesive; W. H. Brady Co.'s, B292, B708; Ideal Industries' Mylar/Cloth wire markers; or Markwick Corp.'s permanent wire markers; Plastic Extruded Parts, Inc.'s Flexible Sleeve or ID Band Markers; or Thomas and Betts Co.'s E-Z Code WSL self-laminating.
2. Other Styles: To suit application by W. H. Brady Co., Ideal Industries, Marwick Corp., Plastic Extruded Parts, Inc., or Thomas and Betts Co.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installing cable, test the cable on the reels to verify that the cables' parameters are in accordance with the manufacturers' certified test data.

3.2 INSTALLATION

A. Installing Cables:

1. Install cables in conduit after conduit system is completed.
2. Keep ends of cables sealed watertight at all times, except when making terminations.
3. No grease, oil, lubricant other than approved pulling compound may be used to facilitate the pulling-in of cables.
4. Use pulling attachment connected to the cable strength member for pulling in cables. Seal pulling attachment watertight.
5. Incorporate into the pull line at the pulling attachment a tension-control swivel containing a shear pin designed to fail if the pre-determined maximum cable strain is applied.
6. Pull cables with a dynamometer or strain gage incorporated into the pulling equipment. Do not pull cables unless the Director's Representative is present to observe readings on the dynamometer or strain gage during the time of actual pulling. Do not exceed cable manufacturer's recommended pulling strain.

B. Terminations and Splices:

1. Terminate cable in accordance with manufacturer's approved installation instructions.
2. No splicing of optical fiber cables will be allowed.

C. Identification of Optical Fiber Cables: Identify cables in manholes, pullboxes and in equipment to which they connect:

1. Install tags on each cable indicating cable number, date installed (month, year), type of cable, and manufacturer. Attach tags to cables with non-ferrous metal wire or brass chain.
2. Use markers to identify each optical fiber in equipment to which they connect.

3.3 FIELD QUALITY CONTROL

A. After Installation Test:

1. Perform test on each active and spare optical fiber after cable has been installed complete with connectors, and prior to placing cable into service.

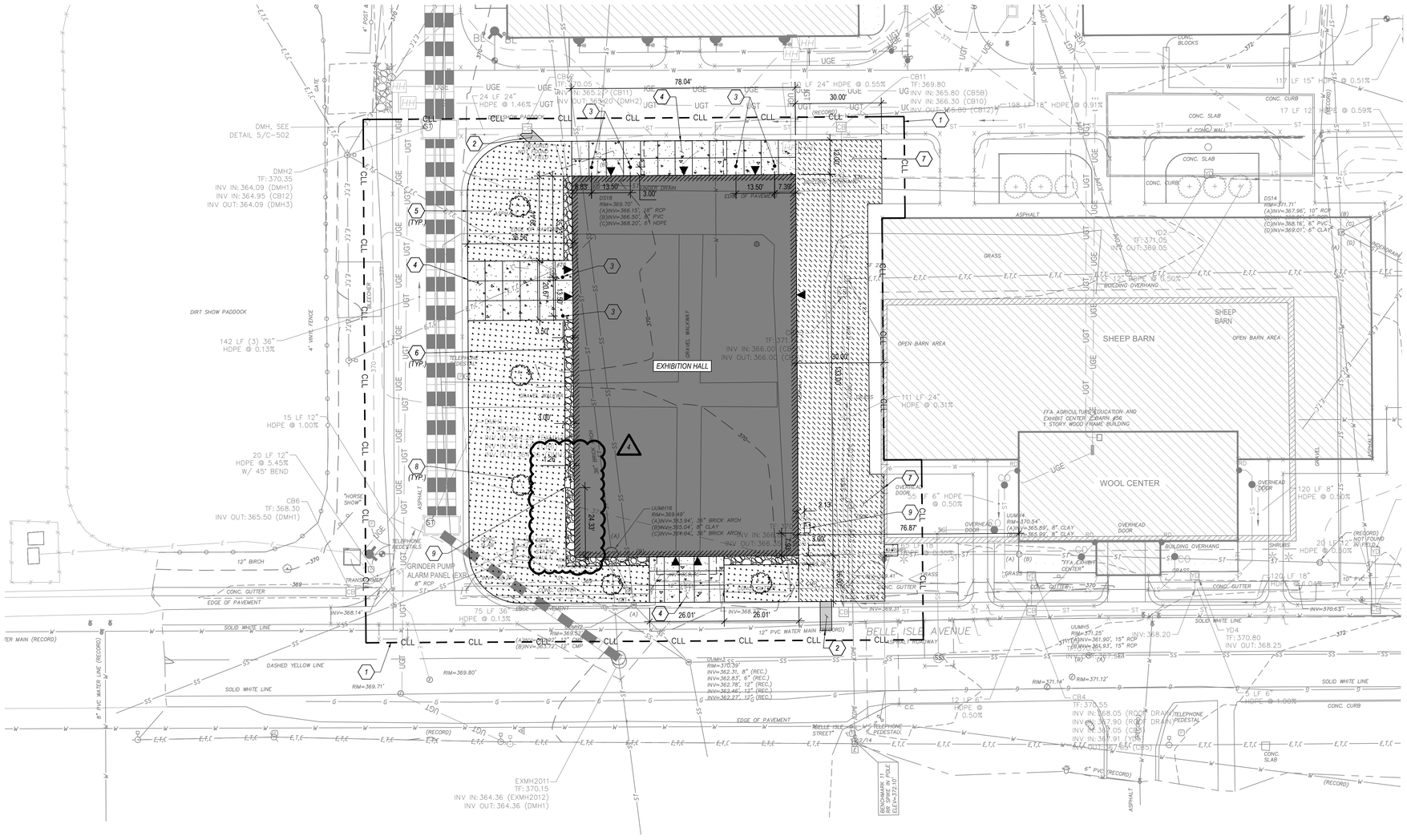
    a. Demonstrate that the amount of power coupled into each optical fiber by its transmitter, the attenuation and connector losses, and the power received at the detector in the receiver is no greater than 75 percent of the parameters required by the transmitter/receiver manufacturer.

2. Perform test in the presence of the Director's Representative.
3. Supply equipment necessary for performing test.

    a. In subparagraph below, change "Fire Command Station" to suit system application.

4. Submit written report of test results signed by Company Field Advisor and Director's Representative. Mount a copy of the final report in a plexiglass enclosed frame assembly adjacent to the Fire Command Station.

END OF SECTION 271525



DRAWING NOTES (X):

1. LIMITS OF DISTURBANCE. CONTINUOUSLY MAINTAIN THE WORK AREA IN A CLEAN AND SAFE CONDITION. TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN PROTECTED ACCESS FOR FACILITY EMPLOYEES AND PUBLIC USING FACILITIES AS WORK PROCEEDS. PROVIDE AND MAINTAIN TEMPORARY BARRICADES, WARNING SIGNS, AND OTHER TEMPORARY PROTECTIVE MEASURES THROUGHOUT THE WORK.
2. ASPHALT PAVEMENT PER DETAIL 8/C-502 AND 10/C-502.
3. BOLLARD PER DETAIL 4/C-502.
4. CONCRETE PAVEMENT PER DETAIL 1/C-502.
5. RESTORE LAWN AREA PER DETAIL 6/C-502. PROVIDE 4" TOPSOIL AND HYDROSEEDED TURF. SPREAD TOPSOIL USING EQUIPMENT HAVING "TURF-TYPE" OR "FLOATATION-TYPE" TIRES TO MINIMIZE SOIL COMPACTION.
6. ROUND LANDSCAPING STONE 3" - 4" Ø PER DETAIL 3/C-502.
7. STONE WALK PER DETAIL 7/C-502.
8. TREE PLANTING PER DETAIL 5/C-502.
9. CONCRETE PAD 2'-0"x3'-8" PER DETAIL 1/C-502.

SEE DRAWING C-001 FOR GENERAL NOTES, SYMBOL KEY AND EROSION & SEDIMENT CONTROL NOTES;
SEE DRAWINGS C-501 TO C-503 FOR TYPICAL DETAILS

SITE LAYOUT PLAN

1" = 20'

PLANT LIST

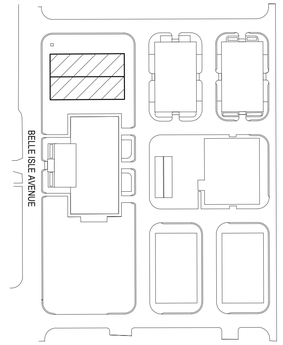
MARK	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
A	FIVE (5)	GINKGO BILOBA	GINKGO TREE	72" - 84" HEIGHT	BB	UNIFORM PLANTING HEIGHT. SPACING AS SHOWN BETWEEN BOLLARDS.

SITE LAYOUT LEGEND

- CONCRETE SIDEWALK
- CONTROL JOINT (E.J.D.)
- EXPANSION JOINT W/ DOWEL
- STANDARD DUTY ASPHALT PAVEMENT
- COMPACTED STONE
- RIVER ROCK LANDSCAPING
- LAWN REPAIR
- TREE PLANTING
- BOLLARDS
- BUILDING ENTRANCE

SCALE IN FEET
0 20 40

ALL UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. BEFORE YOU DIG, DRILL, OR BLAST, RETAIN AN INDEPENDENT UTILITY LOCATOR SERVICE TO FIELD LOCATE AND MARK EXISTING UNDERGROUND UTILITIES.



KEY PLAN
NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: POPLI DESIGN GROUP

CERTIFICATE OF AUTHORIZATION: # 021331

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

POPLI DESIGN GROUP

UNIFORM CODE COMPLIANCE STATEMENT:

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 UNIFORM CODE.

ENERGY CODE COMPLIANCE STATEMENT:

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STATE OF NEW YORK · STEPHEN M. POPLI · 084080 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 02/28/2027

CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE FFA BUILDING

LOCATION:
NEW YORK STATE FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NEW YORK

CLIENT:
NEW YORK STATE DEPT. OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 — C
DESIGNED BY:	SRF
DRAWN BY:	SRF
FIELD CHECK:	KKS
APPROVED:	JMF

SHEET TITLE:
SITE LAYOUT PLAN

DRAWING NUMBER:
C—121

SHEET 11 OF 56

Aug 25,2025 — 10:22am
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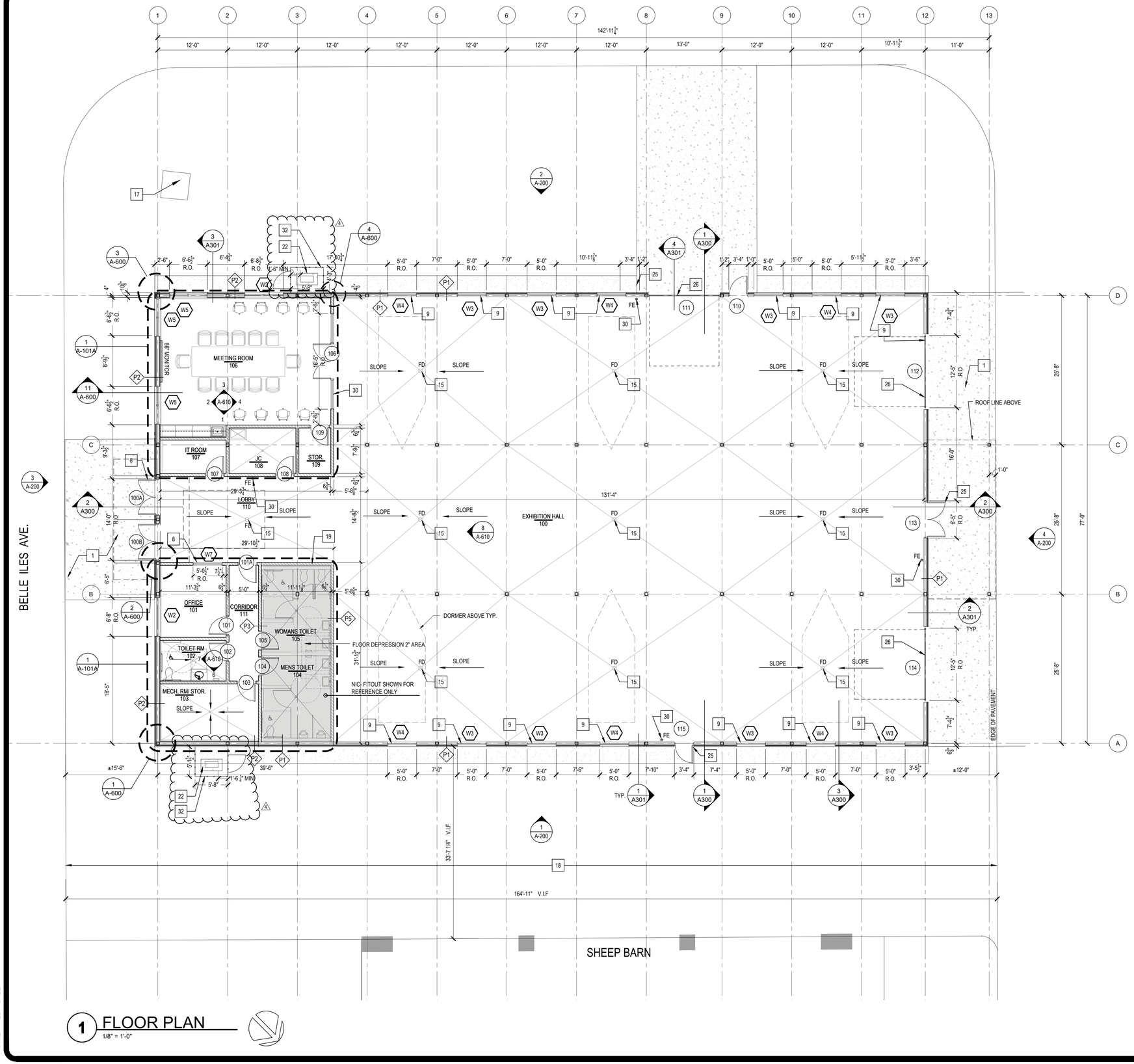
36x24 PLOT SHEET



1 FLOOR PLAN
1/8" = 1'-0"

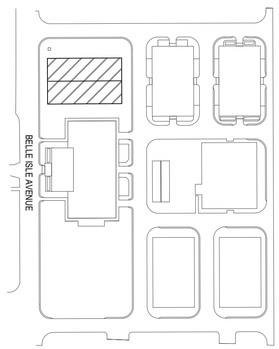
GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD PRIOR TO THE START OF CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF FINISHED WALL UNO.
3. ALL OPENING DIMENSIONS EXCLUDE REQUIRED SPACE FOR SHIMS, UNO.
4. COORDINATE EQUIPMENT, AND FURNITURE INSTALLMENT WITH ALL TRADES AS REQUIRED.
5. PRECISION SHOWN IS TO THE NEAREST $\frac{1}{16}$".
6. ALL STRUCTURAL ELEMENTS ARE TO BE INCLUDED IN THE PRE-ENGINEERED BUILDING PACKAGE INCLUDING BUT NOT LIMITED TO COLUMNS, BEAMS, TRUSSES, ETC. ALL OTHER ITEMS ARE TO BE PROVIDED BY THE CONTRACTOR.
7. REFER TO ENLARGED PLANS, SECTIONS, AND DETAILS, FOR ADDITIONAL INFORMATION.

DRAWING NOTES:

NOT ALL NOTES ARE APPLICABLE TO EACH DRAWING.

1. REINFORCED CONCRETE PAD- REFER TO/ COORD. W/ CIVIL TYP.
2. CONC. GRADE BEAM
3. PRE-ENGINEERED WOOD BUILDING STRUCTURE
4. PREFINISHED STANDING SEAM, METAL PANEL ROOF ASSEMBLY
5. PREFINISHED METAL PANEL SIDING INCLUDING ALL TRIMS, FLASHINGS, AND ACCESSORIES
6. PREFINISHED METAL FASCIA
7. BUILDING SIGNAGE- LOCATION AND SIZE TO BE DETERMINED AND COORD. W/ FACILITY- PROVIDE ADDITIONAL WOOD BLOCKING
8. PREFINISHED THERMALLY BROKEN ALUM. STOREFRONT SYSTEM INCLUDING ENTRANCES, ACCESSORIES, AND HARDWARE
9. PREFINISHED AND THERMALLY BROKEN FIBERGLASS DOUBLE HUNG WINDOW UNIT
10. PREFINISHED AND THERMALLY BROKEN FIBERGLASS FIXED WINDOW UNIT
11. PREFINISHED ALUM. 5" GUTTER SYSTEM W/ 3"x4" DOWNSPOUT. DOWNSPOUTS TO CONNECT TO UNDERGROUND DRAINAGE SYSTEM- REFER TO/COORD. W/ CIVIL.
12. PREFINISHED METAL SOFFIT PANEL
13. METAL ROOF SNOW GUARD
14. PRE FINISHED METAL FLASHING
15. FLOOR DRAIN- REFER TO/COORD. W/ PLUMBING TYP.
16. 24" X 36" FLOOR MOUNTED UTILITY SINK. REFER TO/COORD. W/ PLUMBING
17. EXISTING SEWER LIFT STATION VAULT TO REMAIN
18. GRAVEL STRIP- REFER TO/COORD, W/ CIVIL TYP.
19. WOOD STUD WALL CONSTRUCTION- REFER TO PARTITION TYPES
20. EXTERIOR WALL CONSTRUCTION- REFER TO A-300
21. PROVIDE SOLID SURFACE COUNTER TOP, WOOD BASE CABINETS, WOOD WALL CABINETS, AND STAINLESS STEEL SINK, REFER TO ELEVATIONS
22. CONC. EQUIPMENT PAD- REFER TO/COORD, W/ MECH TYP.
23. WALL MOUNTED LIGHT FIXTURES - REFER TO/COORD. W/ ELEC.
24. EXHAUST GRILL- REFER TO/COORD. W/ MECH
25. PROVIDE INSULATED HM DOOR, FRAME, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.
25A. PROVIDE HM, FRAME, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.
26. PROVIDE MANUALLY OPERATED, 12' X 12', PREFINISHED DECORATIVE INSULATED OVERHEAD DOOR, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.
27. PREFINISHED METAL RIDGE CAP
28. PREFABRICATED METAL CUPOLA WITH LOUVERS, INSECT SCREENS AND METAL. ROOF
29. FURNITURE TO BE PROVIDED BY FACILITY
30. PROVIDE FIRE EXTINGUISHER AND MOUNTING BRACKET
31. ALUM. FRIEZE BOARD- REFER TO 8/A-600
32. CHAIN LINK FENCE AND GATE- COORDINATE WITH EQUIPMENT PAD



KEY PLAN
NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:

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REGISTRATION EXPIRES: 01 / 31 / 2026

CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 — C
DESIGNED BY:	-
DRAWN BY:	-
FIELD CHECK:	-
APPROVED:	

SHEET TITLE:
FIRST FLOOR PLAN

DRAWING NUMBER:
A-101

SHEET 26 OF 56

Aug 22,2025 - 9:10am
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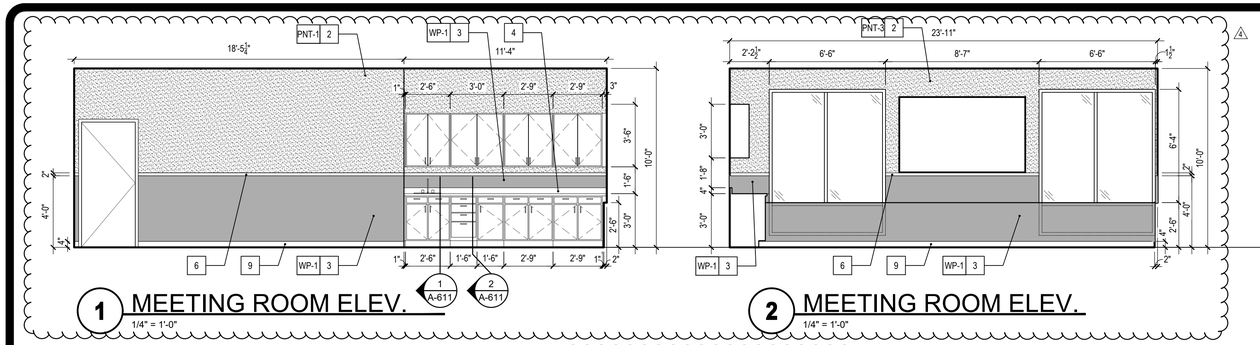
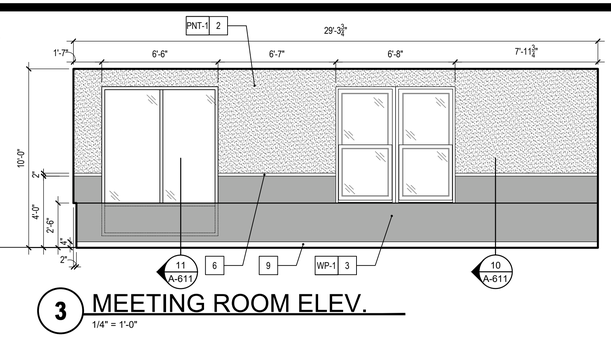
36x24 PLOT SHEET

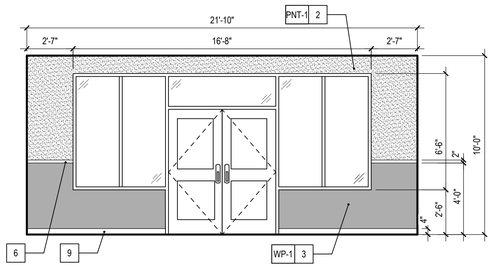


1 MEETING ROOM ELEV.
1/4" = 1'-0"

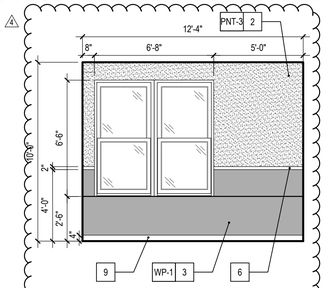
2 MEETING ROOM ELEV.
1/4" = 1'-0"



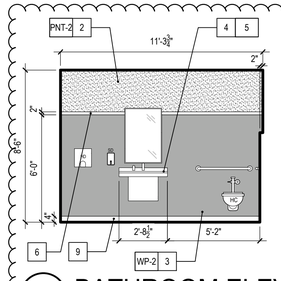
3 MEETING ROOM ELEV.
1/4" = 1'-0"



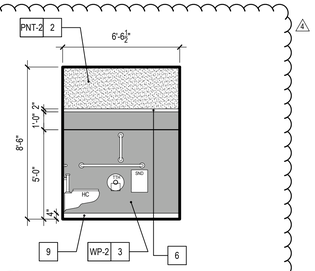
4 MEETING ROOM ELEV.
1/4" = 1'-0"



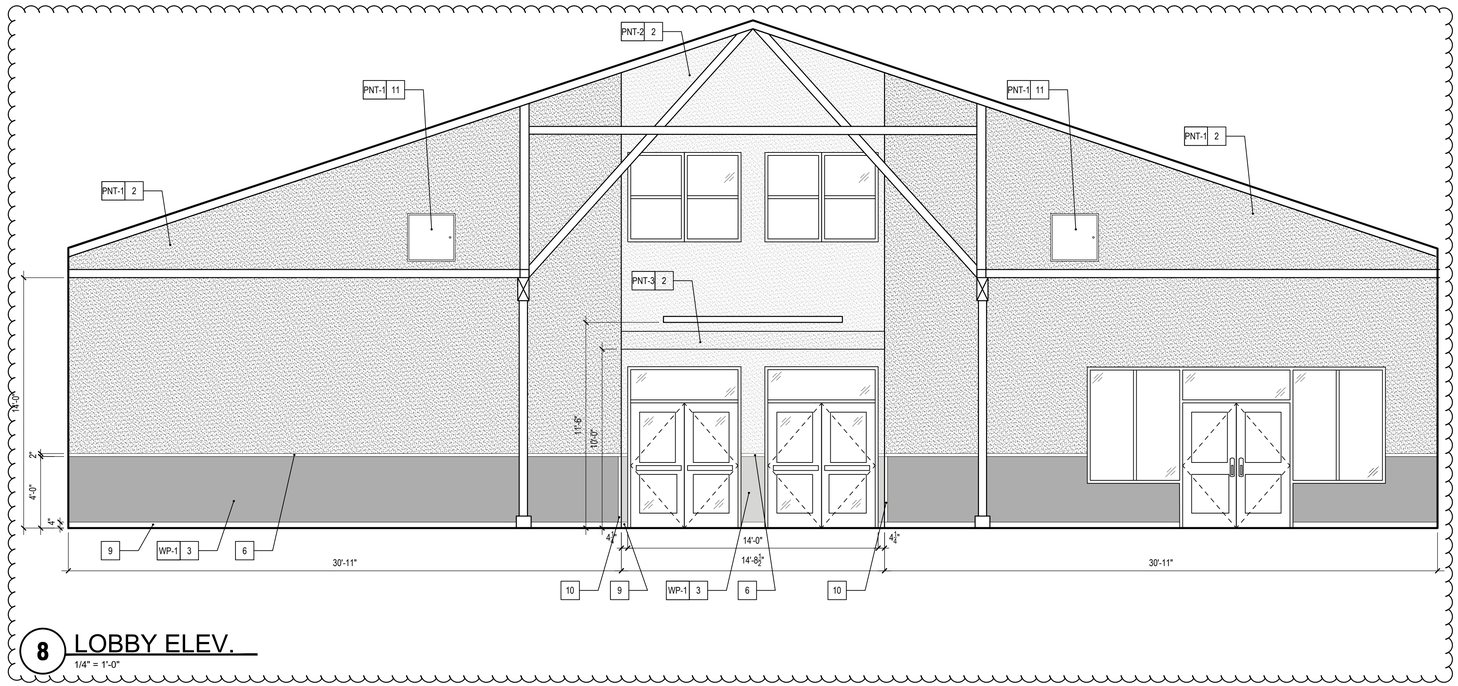
5 OFFICE ELEV.
1/4" = 1'-0"



6 BATHROOM ELEV.
1/4" = 1'-0"



7 BATHROOM ELEV.
1/4" = 1'-0"



8 LOBBY ELEV.
1/4" = 1'-0"

INTERIOR ELEVATION NOTES:

1. GWB AND WOOD STUD SOFFIT- REFER TO RCP FOR DIMENSIONS
2. GWB, PAINTED
3. POLY. PROTECTION BOARD
4. SOLID SURFACE COUNTERTOP W/ BACK AND SIDE SPLASHES.
5. UNDER MOUNT STAINLESS STEEL SINK- REFER TO/COORD. W/ PLUMB.
6. DECORATIVE PVC CHAIR RAIL
7. WALL MOUNTED TOILET- REFER TO/ COORD. W/ PLUMB.
8. CONC. CURB
9. PVC BASE
10. POLY. CORNER GUARD
11. ACCESS DOOR- PAINT TO MATCH WALL

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

REGISTRATION EXPIRES:
01 / 31 / 2026

CONTRACT:
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NEW YORK STATE, FAIRGROUNDS
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4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 — C
DESIGNED BY:	-
DRAWN BY:	-
FIELD CHECK:	-
APPROVED:	

SHEET TITLE:
INTERIOR ELEVATIONS

DRAWING NUMBER:
A-610

SHEET 38 OF 56

Aug 26,2025 - 3:46pm
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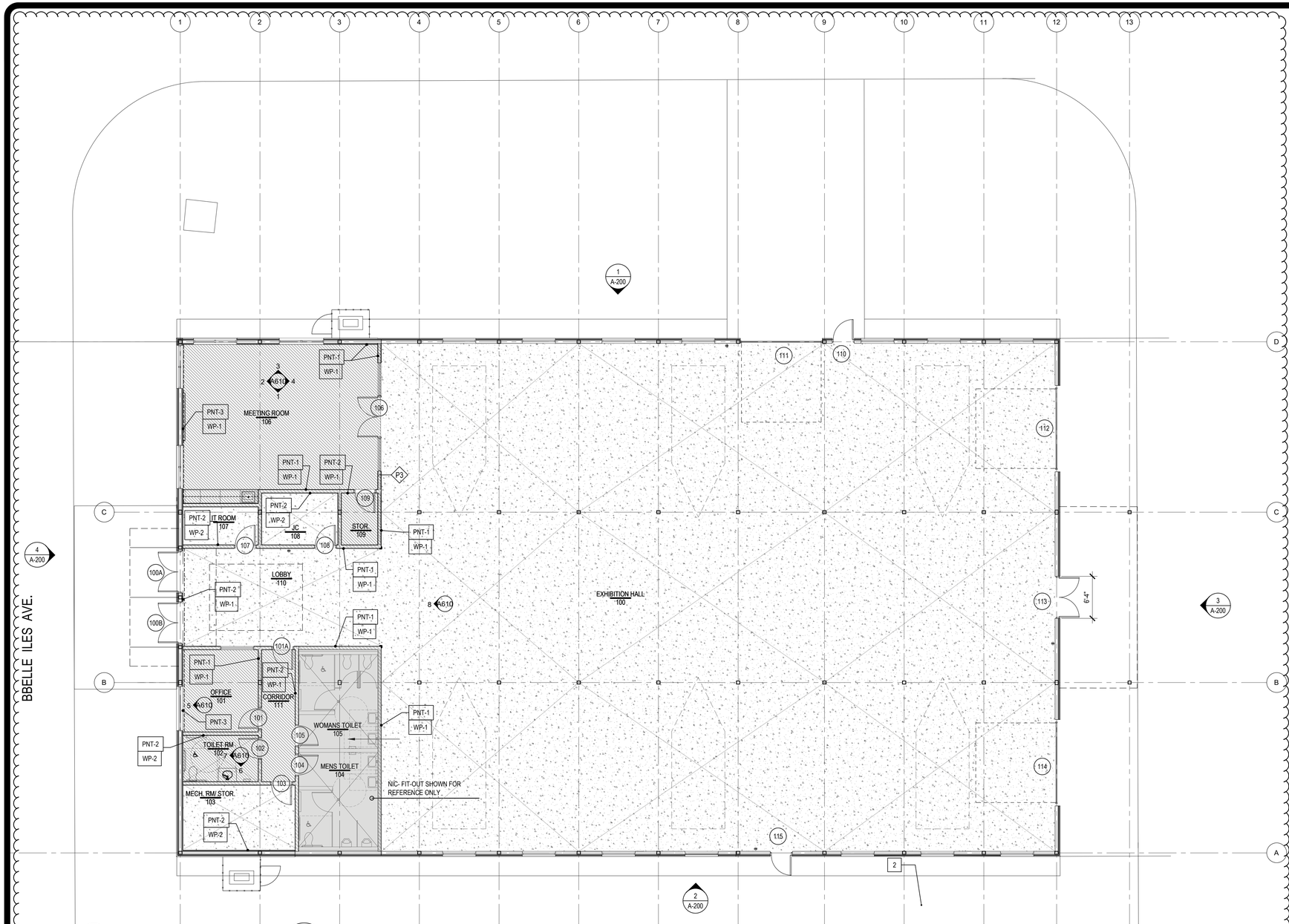
36x24 PLOT SHEET



1 FINISH PLAN
1/8" = 1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	CEILING FINISH	CEILING HEIGHT	BASE FINISH	FLOOR FINISH	WALL FINISH	NOTES
100	EXHIBITION HALL	OPEN	OPEN	PVC, CONC.	CONC.	EXPOSED, PNT-1, WP-1	EXTERIOR WALLS EXPOSED, FINISHED INTERIOR WALLS: PNT-1, WP-1
101	OFFICE	ACT	10'-0"	PVC	LVT-1	PNT-1, PNT-3, WP-1	
102	TOILET RM	ACT	8'-6"	PVC	LVT-1	PNT-2, WP-2	
103	MECH. RM/STOR	ACT	8'-0"	PVC	CONC.	PNT-2, WP-2	
104	MEN'S TOILET						NIC- FOR REFERENCE ONLY
105	WOMEN'S TOILET						NIC- FOR REFERENCE ONLY
106	MEETING ROOM	ACT	10'-0"	PVC	LVT-1	PNT-1, PNT-3, WP-1	
107	IT ROOM	ACT	10'-0"	PVC	CONC.	PNT-2, WP-2	
108	JANITORS CLOSET	ACT	10'-0"	PVC	CONC.	PNT-2, WP-2	
109	STORAGE	ACT	10'-0"	PVC	LVT-1	PNT-2, WP-1	
110	LOBBY	ACT, PNT-3	VARIES	PVC	CONC.	PNT-1, PNT-2, WP-1	SOFFIT TO BE PNT-3
111	CORRIDOR	ACT	10'-0"	PVC	LVT-1	PNT-2, WP-1	

GENERAL NOTES:

1. ALL WP TO BE UP TO 4' AFF UNO

FINISH MATERIAL KEY

ACT- ACOUSTIC CEILING TILE
CONC.- CONCRETE
LVT- LUXURY VINYL TILE
PNT- PAINT
PVC- POLYVINYL CHLORIDE
WP- WALL PANEL

FLOOR FINISH LEGEND

LVT

CONCRETE

NIC

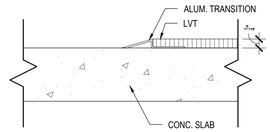
FINISH KEY

ACCENT PAINT LOCATION

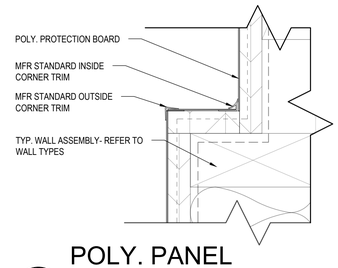
CORNER GUARD LOCATION

GENERAL NOTES:

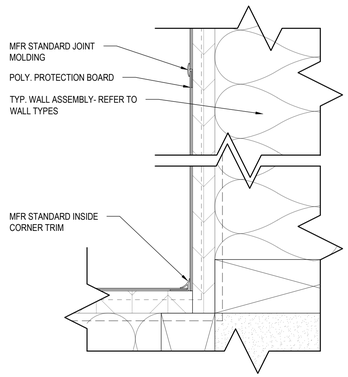
1. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD PRIOR TO THE START OF CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF FINISHED WALL UNO.
3. ALL OPENING DIMENSIONS EXCLUDE REQUIRED SPACE FOR SHIMS, UNO.
4. COORDINATE EQUIPMENT, AND FURNITURE INSTALLMENT WITH ALL TRADES AS REQUIRED.
5. PRECISION SHOWN IS TO THE NEAREST $\frac{1}{8}$".
6. ALL STRUCTURAL ELEMENTS ARE TO BE INCLUDED IN THE PRE-ENGINEERED BUILDING PACKAGE INCLUDING BUT NOT LIMITED TO COLUMNS, BEAMS, TRUSSES, ETC. ALL OTHER ITEMS ARE TO BE PROVIDED BY THE CONTRACTOR.



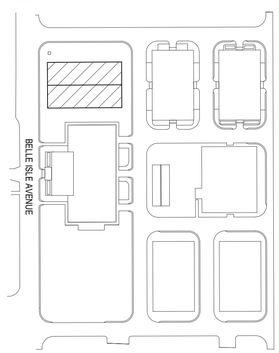
2 TRANSITION- CONC. TO LVT
6" = 1'-0"



3 POLY. PANEL SECTION DETAIL
6" = 1'-0"



4 POLY. PANEL PLAN DETAIL
6" = 1'-0"



KEY PLAN
NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

REGISTRATION EXPIRES: 01 / 31 / 2026

CONTRACT: CONSTRUCTION

TITLE: PROVIDE FFA BUILDING

LOCATION: NEW YORK STATE, FAIRGROUNDS 581 STATE FAIR BOULEVARD SYRACUSE, NY

CLIENT: NEW YORK STATE DEPT. OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

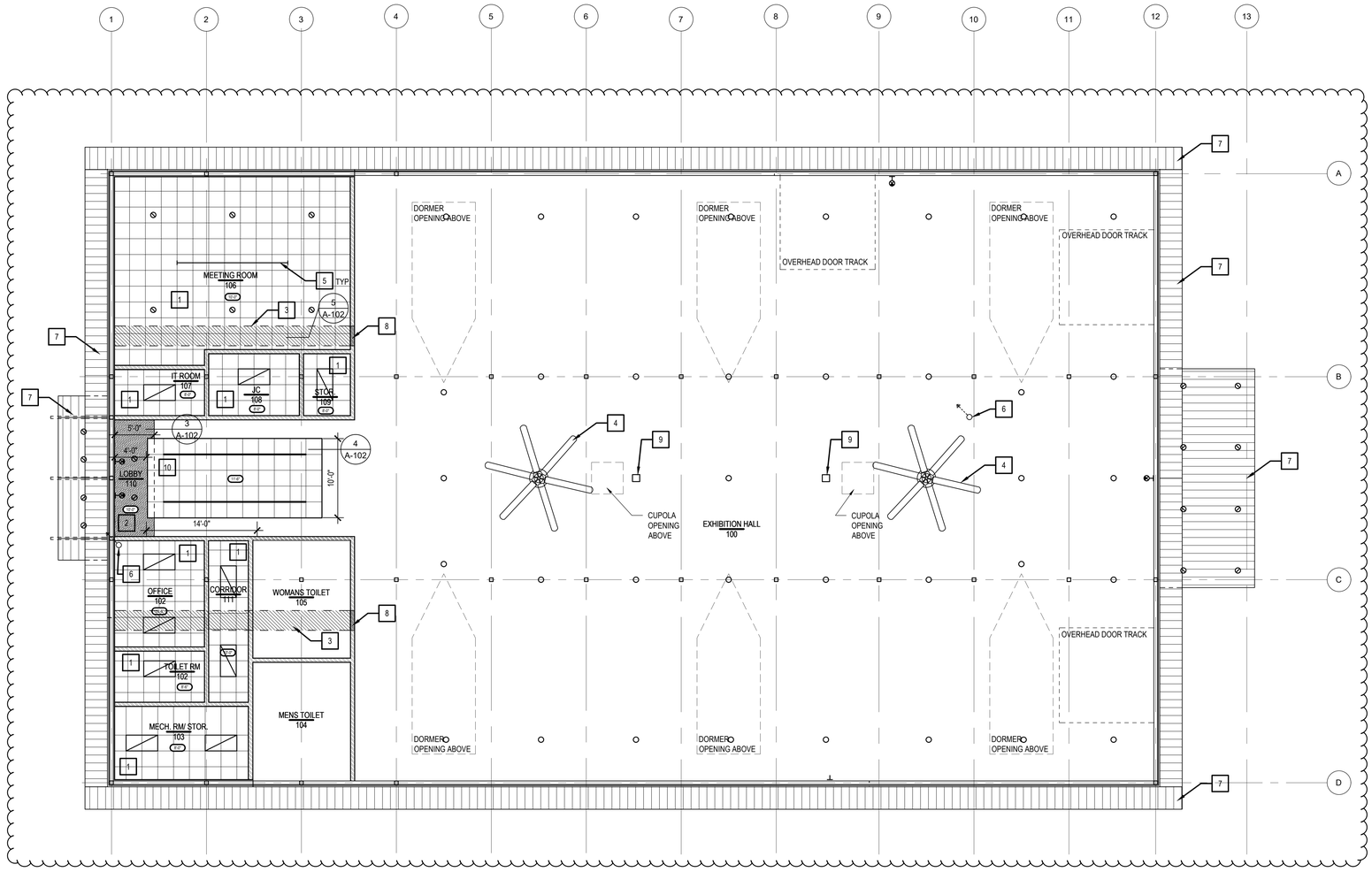
PROJECT NUMBER:	47634 – C
DESIGNED BY:	-
DRAWN BY:	-
FIELD CHECK:	-
APPROVED:	

SHEET TITLE: FINISH FLOOR PLAN

DRAWING NUMBER: A-701

SHEET 40 OF 56

Aug 26,2025 – 3:54pm
C:\Users\Aeterson\AppData\Local\Temp\AcPublish_24976\2007_A701 EXHIBIT HALL FINISH PLAN.dwg
36x24 PLOT SHEET



1 REFLECTED CEILING PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD PRIOR TO THE START OF CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF FINISHED WALL UNO.
3. ALL OPENING DIMENSIONS EXCLUDE REQUIRED SPACE FOR SHIMS, UNO.
4. COORDINATE EQUIPMENT, AND FURNITURE INSTALLMENT WITH ALL TRADES AS REQUIRED.

CEILING PLAN NOTES:

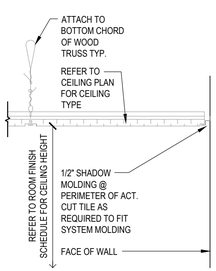
1. ACOUSTIC CEILING TILE SYSTEM
2. GWB AND WOOD STUD SOFFIT
3. PLYWOOD ACCESS PATH, ± 15' AFF. COORD. W/ TRUSSES AND INSUL. TYP. INSTALL CONT. 2" X 12" WOOD FRAMING ABOVE BOTTOM OF TRUSS TO SUPPORT ACCESS PATH
4. EXHAUST FAN, 20' AFF.- REFER TO/COORD. W/ MECH. PROVIDE WD BLKG AS REQ. BETWEEN TRUSSES TO MOUNT FAN.
5. LIGHT FIXTURE- REFER TO/COORD. W/ ELEC TYP.
6. VENT PIPE THROUGH THE ROOF- REFER TO/COORD W/ PLUMB.
7. PREFINISHED VENTED ALUM. SOFFIT PANELS
8. ACCESS DOOR, MIN 30" X 30"- FIELD VERIFY LOCATION
9. MOTORIZED DAMPER- REFER TO/COORD. W/ MECH
10. ACOUSTIC CEILING TILE CLOUD SYSTEM- PROVIDE BRACING AS REQ.

CEILING PLAN LEGEND

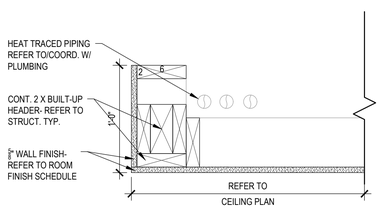
- 24"X24" ACOUSTIC CEILING TILE
- GWB CEILING
- PREFINISHED VENTED ALUM. SOFFIT PANEL
- NIC

CEILING PLAN SYMBOL KEY

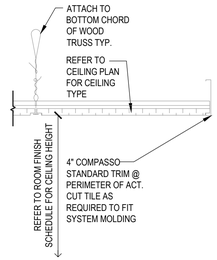
- SUSPENDED CEILING LIGHT REFER TO/COORD. W/ ELEC
- RECESSED CEILING LIGHT REFER TO/COORD. W/ ELEC
- WALL MOUNTED EXIT LIGHT REFER TO/COORD. W/ ELEC
- VENT PIPE THROUGH THE ROOF REFER TO/COORD. W/ PLUMB
- EXHAUST FAN REFER TO/COORD. W/ MECH



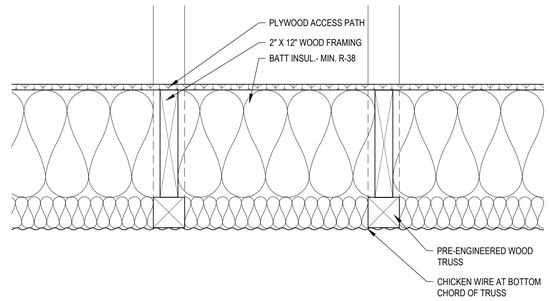
2 TYP. WALL/ACT CEILING DETAIL
1 1/2" = 1'-0"



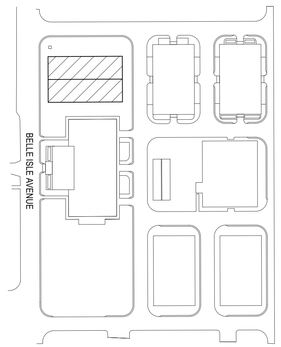
3 SOFFIT DETAIL
1 1/2" = 1'-0"



4 ACT CEILING CLOUD TYP.
1 1/2" = 1'-0"



5 PLYWOOD ACCESS PATH
1 1/2" = 1'-0"



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CERTIFICATE OF AUTHORIZATION: # 018337

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ARCHITECTS / ENGINEERS

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REGISTRATION EXPIRES: 01 / 31 / 2026

CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

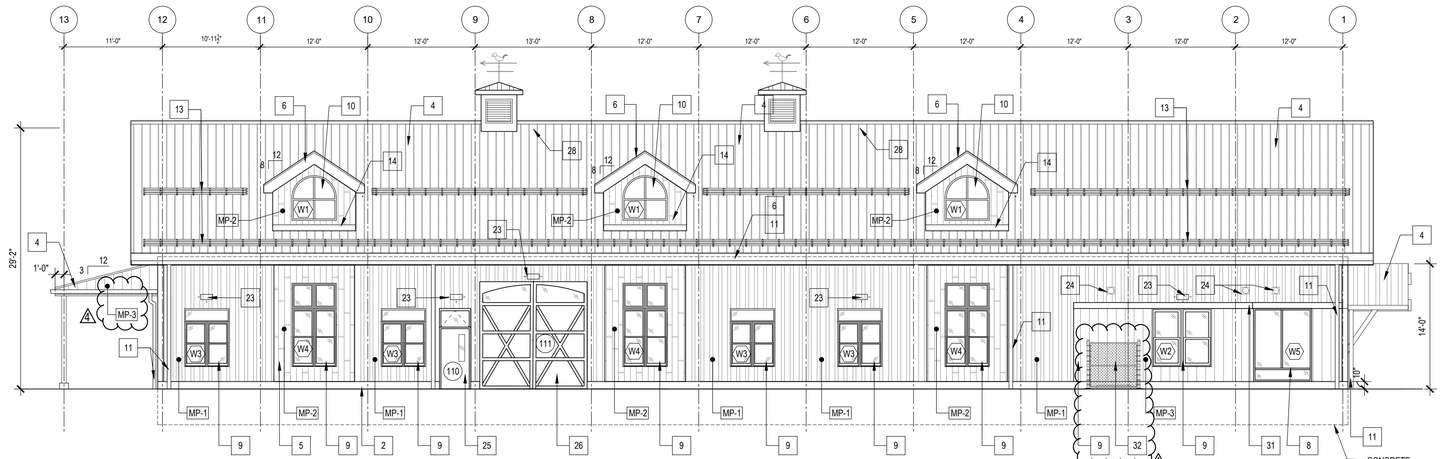
4	08/29/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW
MARK	DATE	DESCRIPTION

PROJECT NUMBER:	- 47634 – C
DESIGNED BY:	-
DRAWN BY:	-
FIELD CHECK:	-
APPROVED:	

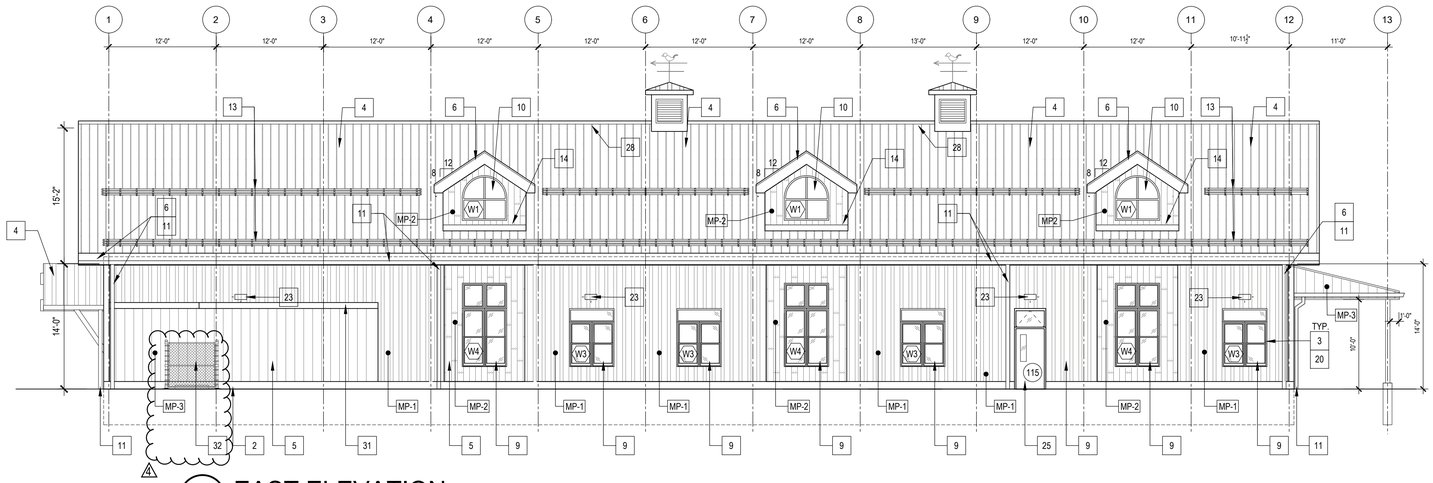
SHEET TITLE:
REFLECTED CEILING PLAN

DRAWING NUMBER:
A-102

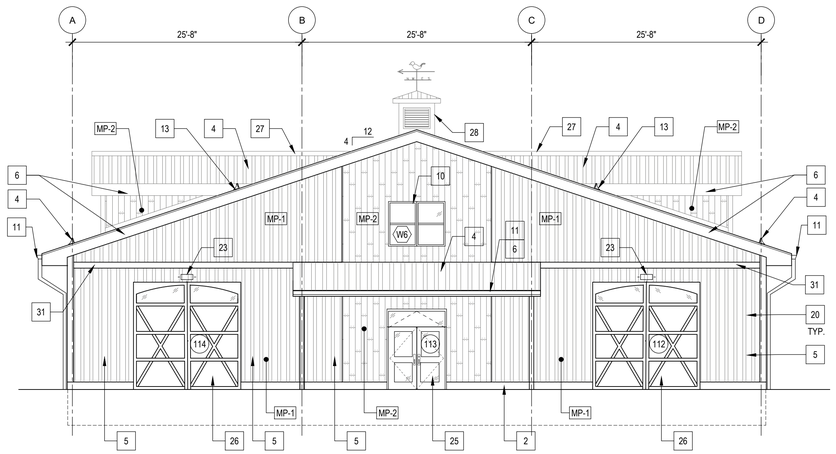
SHEET 28 OF 56



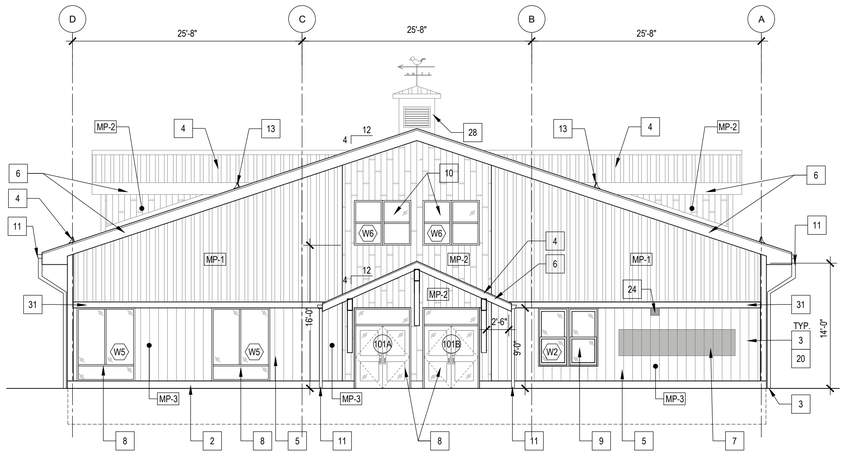
1 WEST ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"



3 NORTH ELEVATION
1/8" = 1'-0"



4 SOUTH ELEVATION
1/8" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD PRIOR TO THE START OF CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FACE OF FINISHED WALL UNO.
3. ALL OPENING DIMENSIONS EXCLUDE REQUIRED SPACE FOR SHIMS, UNO.
4. COORDINATE EQUIPMENT, AND FURNITURE INSTALLMENT WITH ALL TRADES AS REQUIRED.

DRAWING NOTES:

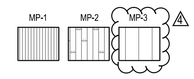
[#] *NOT ALL NOTES ARE APPLICABLE TO EACH DRAWING.*

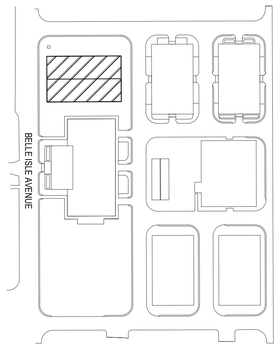
1. REINFORCED CONCRETE PAD- REFER TO/ COORD. W/ CIVIL TYP.
2. CONC. GRADE BEAM
3. PRE-ENGINEERED WOOD BUILDING STRUCTURE
4. PREFINISHED STANDING SEAM, METAL PANEL ROOF ASSEMBLY
5. PREFINISHED METAL PANEL SIDING INCLUDING ALL TRIMS, FLASHINGS, AND ACCESSORIES
6. PREFINISHED METAL FASCIA
7. BUILDING SIGNAGE- LOCATION AND SIZE TO BE DETERMINED AND COORD. W/ FACILITY- PROVIDE ADDITIONAL WOOD BLOCKING
8. PREFINISHED THERMALLY BROKEN ALUM. STOREFRONT SYSTEM INCLUDING ENTRANCES, ACCESSORIES, AND HARDWARE
9. PREFINISHED AND THERMALLY BROKEN FIBERGLASS DOUBLE HUNG WINDOW UNIT
10. PREFINISHED AND THERMALLY BROKEN FIBERGLASS FIXED WINDOW UNIT
11. PREFINISHED ALUM. 5" GUTTER SYSTEM W/ 3"x4" DOWNSPOUT. DOWNSPOUTS TO CONNECT TO UNDERGROUND DRAINAGE SYSTEM- REFER TO/COORD. W/ CIVIL.
12. PREFINISHED METAL SOFFIT PANEL
13. METAL ROOF SNOW GUARD
14. PRE FINISHED METAL FLASHING
15. FLOOR DRAIN- REFER TO/COORD. W/ PLUMBING TYP.
16. 24" X 36" FLOOR MOUNTED UTILITY SINK. REFER TO/COORD. W/ PLUMBING
17. EXISTING SEWER LIFT STATION VAULT TO REMAIN
18. GRAVEL STRIP- REFER TO/COORD. W/ CIVIL TYP.
19. WOOD STUD WALL CONSTRUCTION- REFER TO PARTITION TYPES
20. EXTERIOR WALL CONSTRUCTION- REFER TO A-300
21. PROVIDE SOLID SURFACE COUNTER TOP, WOOD BASE CABINETS, WOOD WALL CABINETS, AND STAINLESS STEEL SINK, REFER TO ELEVATIONS
22. CONC. EQUIPMENT PAD- REFER TO/COORD. W/ MECH TYP.
23. WALL MOUNTED LIGHT FIXTURES - REFER TO/COORD. W/ ELEC.
24. EXHAUST GRILL- REFER TO/COORD. W/ MECH
25. PROVIDE INSULATED HM DOOR, FRAME, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.

25A. PROVIDE HM, FRAME, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.

26. PROVIDE MANUALLY OPERATED, 12' X 12', PREFINISHED DECORATIVE INSULATED OVERHEAD DOOR, ACCESSORIES, AND HARDWARE- REFER TO DOOR SCHEDULE TYP.
27. PREFINISHED METAL RIDGE CAP
28. PREFABRICATED METAL CUPOLA WITH LOUVERS, INSECT SCREENS AND METAL. ROOF
29. FURNITURE TO BE PROVIDED BY FACILITY
30. PROVIDE FIRE EXTINGUISHER AND MOUNTING BRACKET
31. ALUM. FRIEZE BOARD- REFER TO 8/A-600
32. CHAIN LINK FENCE AND GATE- COORDINATE WITH EQUIPMENT PAD.

ELEVATION KEY





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PROJECT NUMBER:	- 47634 – C
DESIGNED BY:	-
DRAWN BY:	-
FIELD CHECK:	-
APPROVED:	

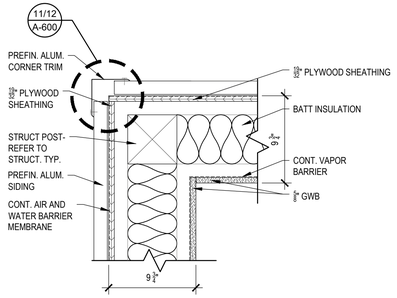
SHEET TITLE:
EXTERIOR ELEVATIONS

DRAWING NUMBER:
A-200

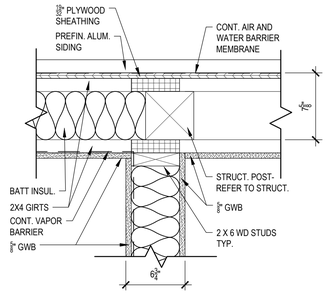
SHEET 30 OF 56

Aug 29,2025 – 10:56am
C:\Users\Apeterson\AppData\Local\Temp\AcPublish_45240\A20007_A200 EXHIBIT HALL ELEVATIONS AND DETAILS.dwg

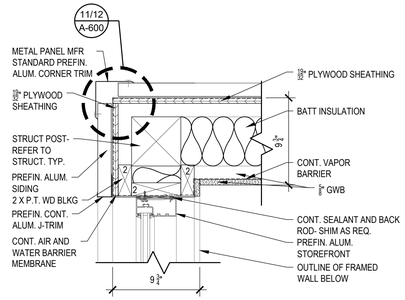
36x24 PLOT SHEET



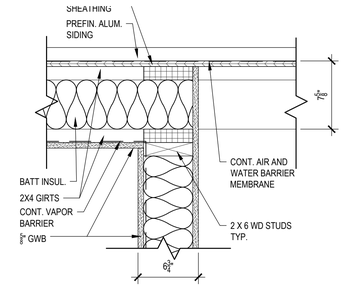
1 CORNER DETAIL
1 1/2" = 1'-0"



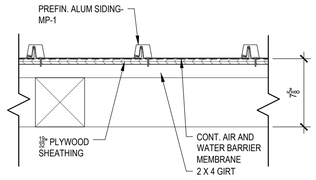
2 PARTITION TO EXT. WALL DETAIL
1 1/2" = 1'-0"



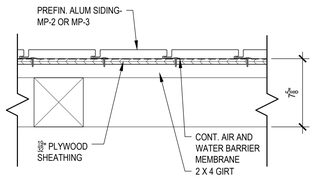
3 STOREFRONT CORNER DETAIL
1 1/2" = 1'-0"



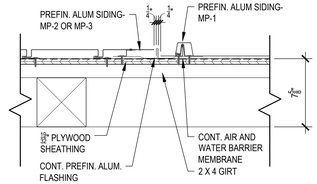
4 TYP. PARTITION TO EXT. WALL DETAIL
1 1/2" = 1'-0"



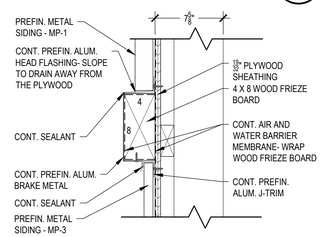
5 MP-1 TYPICAL DETAIL
1 1/2" = 1'-0"



6 MP-2/3 TYPICAL DETAIL
1 1/2" = 1'-0"



7 PANEL TRANSITION DETAIL
1 1/2" = 1'-0"



8 FRIEZE BOARD DETAIL
1 1/2" = 1'-0"

9 TYP. WALL BASE DETAIL
1 1/2" = 1'-0"

10 TYP. WALL BASE (CONDITIONED)
1 1/2" = 1'-0"

11 BASE AT CURTAIN WALL
1 1/2" = 1'-0"

11 MP-1 CORNER DETAIL
1 1/2" = 1'-0"

12 MP-2/3 CORNER DETAIL
1 1/2" = 1'-0"

13 CHAIN LINK FENCE
1/2" = 1'-0"

14 CHAIN LINK GATE
1/2" = 1'-0"

4

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MARK	DATE	DESCRIPTION

PROJECT NUMBER: - 47634 — C

DESIGNED BY: -

DRAWN BY: -

FIELD CHECK: -

APPROVED:

SHEET TITLE: DETAILS

DRAWING NUMBER: A-600

SHEET 36 OF 56

Aug 29,2025 - 1:16pm
P:\NYS Office of General Services\24008 NYS Fairground FFA Buildings 47634\Drawings\Arch\22007_A600 EXHIBIT HALL DETAILS.dwg
36x24 PLOT SHEET

LEGEND

SYMBOL	DESCRIPTION
T	THERMOSTAT OR TEMPERATURE SENSOR
T_R	REVERSE COOLING THERMOSTAT
	AIR FLOW
	AUTOMATIC AIR VENT
	PRESSURE/TEMPERATURE PLUG
	PRESSURE GAUGE w/GAUGE COCK
	THERMOMETER
SD	SMOKE DETECTOR
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
AAD	AUTOMATIC AIR DAMPER
	MANUAL VOLUME DAMPER
	SQUARE TO ROUND DUCT TRANSITION
	FLEXIBLE CONNECTION
MD	MOTORIZED DAMPER
AD	ACCESS DOOR
	DUCT TRANSITION
	RECTANGULAR BRANCH TAKE-OFF
	BELL MOUTH BRANCH TAKE-OFF
	ROUND BRANCH TAKE-OFF
	SUPPLY AIR DEVICE WITH 2'x2' LAY-IN PANEL
	RETURN AIR DEVICE WITH 2'x2' LAY-IN PANEL
	FLEXIBLE DUCTWORK
	SUPPLY/OUTSIDE AIR DUCT RISER
	RETURN AIR DUCT RISER
	EXHAUST/RELIEF AIR DUCT RISER
	RECTANGULAR DUCT ELBOW
	ROUND DUCT RISER
ø	DIAMETER
XXX	CONTROL DEVICE

PIPING SYMBOLS

	UNION
	PIPE DROP
	PIPE RISE
	SANITARY TRAP
	CAP OR PLUG
	PIPE REDUCER

ABBREVIATIONS

A	AMP
AAD	AUTOMATIC AIR DAMPER
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
APPROX	APPROXIMATELY
BDD	BACK DRAFT DAMPER
BTU/HR	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
D	DIRECT
DN.	DOWN
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EB	ELECTRIC BASEBOARD
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
°F	DEGREES FAHRENHEIT
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GA	GALVANIZED
HP	HORSEPOWER
HZ	HERTZ
IN WG	INCHES OF WATER
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MD	MOTORIZED DAMPER
MIN.	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
NO.	NUMBER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
PH	PHASE
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RS&RL	REFRIGERANT SUCTION AND REFRIGERANT LIQUID
SA	SUPPLY AIR
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ FT	SQUARE FOOT
TEMP	TEMPERATURE
THRU	THROUGH
TYP.	TYPICAL
V	VOLTS
W/	WITH
Y	YES

DESIGNATIONS

EQUIPMENT

ACCU-	AIR COOLED CONDENSING UNIT
SF-	SUPPLY FAN
EB-	ELECTRIC BASEBOARD
EF-	EXHAUST FAN
EUH-	ELECTRIC UNIT HEATER
LV-	LOUVER DESIGNATION
AC-	AIR CONDITIONER
CF-	CEILING FAN
ERV-	ENERGY RECOVERY VENTILATOR
RH	REHEAT

DRAWING

DRAWING NORTH ARROW

GENERAL NOTES

1. WORK WILL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS, THE LATEST APPLICABLE CODE OF THE AUTHORITY HAVING JURISDICTION, AND APPLICABLE RULES, REGULATIONS, LAWS, AND ORDINANCES OF FEDERAL AND LOCAL AUTHORITIES.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS WILL INCLUDE MECHANICAL SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS SUCH AS CARPENTRY ETC. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT WILL MEAN "FURNISH AND INSTALL COMPLETE, TESTED, AND READY FOR USE."
4. LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC.
5. WORK IN OCCUPIED SPACE WILL BE COORDINATED WITH THE DIRECTOR'S REPRESENTATIVE, SCHEDULED IN ADVANCE AND ARRANGE TO MINIMIZE DISRUPTION TO THE FACILITY'S OPERATION.
6. LEAVE THE ENTIRE MECHANICAL SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND WILL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
7. PRIOR TO THE BEGINNING OF WORK, SUBMIT SHOP DRAWINGS AND SUBMITTALS OF EQUIPMENT FOR REVIEW. ADDITIONALLY, FURNISH A DRAWING SHOWING THE DIMENSIONED LOCATION AND SIZE OF PENETRATIONS FOR APPROVAL.
8. COORDINATE FINAL LOCATIONS AND HEIGHTS OF THERMOSTATS WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION. ADHERE TO ADA REQUIREMENTS AND DO NOT MOUNT THERMOSTATS GREATER THAN 48 INCHES OFF FINISHED FLOOR AND NO LESS THAN 15 INCHES ABOVE FINISHED FLOOR.
9. OPENINGS RESULTING FROM REMOVALS WILL BE CLOSED, SEALED AND FINISHED TO MATCH EXISTING AND TO MAINTAIN FIRE RATINGS. IMMEDIATELY FOR FIRE SEPARATIONS AND TEMPORARILY FOR OPENINGS TO MAINTAIN FIRE SEPARATION.
10. WORK WILL BE PERFORMED IN ACCORDANCE WITH 2017 NFPA 70, 2020 MECHANICAL CODE OF NEW YORK STATE, OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
11. DO NOT INTERRUPT UTILITY SERVICES OR BRANCH SERVICES WITHIN THE BUILDING EXCEPT FOR THE TIME REQUIRED TO MAKE NEW CONNECTIONS. ARRANGE WITH THE DIRECTOR'S REPRESENTATIVE FOR THE TIME AND DURATION OF INTERRUPTIONS OF SERVICES. PROVIDE TEMPORARY SERVICES REQUIRED TO MAINTAIN BUILDING SERVICES AT ALL TIMES OTHER THAN DURING SCHEDULES INTERRUPTIONS.
12. DUCT DIMENSIONS SHOWN ON DRAWINGS ARE SHOWN AS "SIDE SEEN" X "SIDE NOT SEEN" AND INDICATE CLEAR INSIDE DIMENSIONS. ROUND DUCT MAY BE SUBSTITUTED FOR RECTANGULAR DUCT, AS APPROVED. SUBSTITUTE SIZES ACCORDING TO THE TABLE OF EQUIVALENT RECTANGULAR DUCT DIMENSIONS, ASHRAE HANDBOOK OF FUNDAMENTALS. FIELD VERIFY CLEARANCE FOR ROUND DUCT IN LIEU OF RECTANGULAR.

CODE COMPLIANCE STATEMENTS

2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE:
(SECTION R105.2.2 WRITTEN STATEMENT)
TO THE BEST OF THE KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT OF THE LICENSED PROFESSIONAL SEALING THESE PLANS AND SPECIFICATIONS, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.

NEW YORK STATE UNIFORM FIRE PREVENTATION AND BUILDING CODE (UNIFORM CODE):
TO THE BEST OF THE KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT OF THE LICENSED PROFESSIONAL SEALING THESE PLANS AND SPECIFICATIONS, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE TO INCLUDE:

2020 BUILDING CODE OF NEW YORK STATE.
2020 EXISTING BUILDING CODE OF NEW YORK STATE
2020 FIRE CODE OF NEW YORK STATE
2020 PLUMBING CODE OF NEW YORK STATE
2020 MECHANICAL CODE OF NEW YORK STATE
2020 FUEL GAS CODE OF NEW YORK STATE
2017 NFPA 70 NATIONAL ELECTRICAL CODE

CONSTRUCTION SAFEGUARDS:

1. SCOPE: THE SAFETY OF THE CONSTRUCTION AREA AND ADJACENT PUBLIC AND PRIVATE PROPERTIES SAFETY, WILL BE PROTECTED DURING CONSTRUCTION AND DEMOLITION IN ACCORDANCE WITH THE 2020 EXISTING BUILDING CODE OF NEW YORK STATE (EBCNYS) CHAPTER 15 AND THE 2020 FIRE CODE OF NEW YORK STATE (FCNYS) CHAPTER 33. COMPLIANCE WITH NFPA 241 IS REQUIRED FOR ITEMS NOT SPECIFICALLY ADDRESSED. THIS SPECIFICATION PROSCRIBES MINIMUM SAFEGUARDS FOR CONSTRUCTION TO PROVIDE REASONABLE SAFETY TO LIFE AND PROPERTY FROM FIRE DURING SUCH OPERATIONS.
2. CONSTRUCTION INCLUDES ANY NEW CONSTRUCTION, REMOVALS, REMODELING, ALTERATIONS, REPAIRS OR ADDITIONS TO ANY BUILDING OR STRUCTURE.
3. MAINTENANCE OF SAFE CONDITIONS: REQUIRED SAFETY ELEMENTS SUCH AS EXITS, EXISTING STRUCTURAL MEMBERS, FIRE PROTECTION DEVICES AND SANITARY SAFEGUARDS WILL BE MAINTAINED AT ALL TIMES, EXCEPT WHERE THE BUILDING IS NOT OCCUPIED OR WHERE SUCH REQUIRED ELEMENTS ARE BEING ALTERED OR REPAIRED AND ADEQUATE SUBSTITUTE PROVISIONS ARE MADE.
4. MEAN OF EGRESS: AN APPROVED PERMANENT OR TEMPORARY MEANS OF EGRESS WILL BE MAINTAINED. AN EGRESS COMPONENT WILL NOT BE DESTROYED UNLESS AND UNTIL A SUBSTITUTE MEANS OF EGRESS HAS BEEN PROVIDED.
5. FIRE SAFETY DURING CONSTRUCTION AND REMOVALS: FIRE SAFETY WILL COMPLY WITH THE APPLICABLE REQUIREMENTS OF EBCNYS CHAPTER 15 AND FCNYS CHAPTER 33.

5.A. FIRE EXTINGUISHERS: PROVIDE PORTABLE FIRE EXTINGUISHERS FOR PROTECTION DURING CONSTRUCTION AND REMOVALS AT EACH STAIRWAY, ON EACH FLOOR LEVEL, WHERE COMBUTIBLE MATERIALS HAVE ACCUMULATED, AND IN EVERY STORAGE AND CONSTRUCTION SHED. EXTINGUISHERS WILL COMPLY WITH FCNYS 906, SIZED FOR ORDINARY HAZARD UNLESS GREATER HAZARD IS SPECIFIED. ADDITIONAL PORTABLE FIRE EXTINGUISHERS WILL BE PROVIDED WHERE SPECIAL HAZARDS EXIST, SUCH AS THE STORAGE AND USE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.

5.B. ANY BURNING, CUTTING OR WELDING WILL REQUIRE A HOT WORK PERMIT AND APPROVAL.

- MATERIAL HANDLING: EQUIPMENT AND MATERIALS WILL BE STORED AND PLACED, AND WASTE WILL BE REMOVED, SO AS NOT TO ENDANGER THE PERSONS OR PROPERTY OR TO IMPEDE A MEANS OF EGRESS. PLACE MATERIAL AND WASTE SO AS NOT TO OBSTRUCT ACCESS TO FIRE HYDRANTS, STANDPIPES, FIRE EXTINGUISHERS, FIRE OR POLICE ALARMS BOXES, CATCH BASINS, MANHOLES, RELEVANT UTILITY STRUCTURES, TRAFFIC OR OBSERVATION OF TRAFFIC SIGNALS. COMBUSTION DEBRIS WILL NOT BE ACCUMULATED ON SITE, AND WILL BE REMOVED AT THE END OF EACH WORK SHIFT. RUBBISH CONTAINERS WITH A CAPACITY EXCEEDING 5.33 CUBIC FEET (40 GALLONS OR 0.15 CUBIC METERS) WILL HAVE TIGHT FITTING OR SELF CLOSING LIDS, AND WILL BE CONSTRUCTED OF NONCOMBUSTIBLE MATERIAL OR MATERIAL THAT MEETS FCNYS SECTION 3304.2.2 (2)

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

STATE OF NEW YORK · JOSEPH ALBERT ERICK · LICENSED PROFESSIONAL ENGINEER · 086029

CONTRACT:
HVAC

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

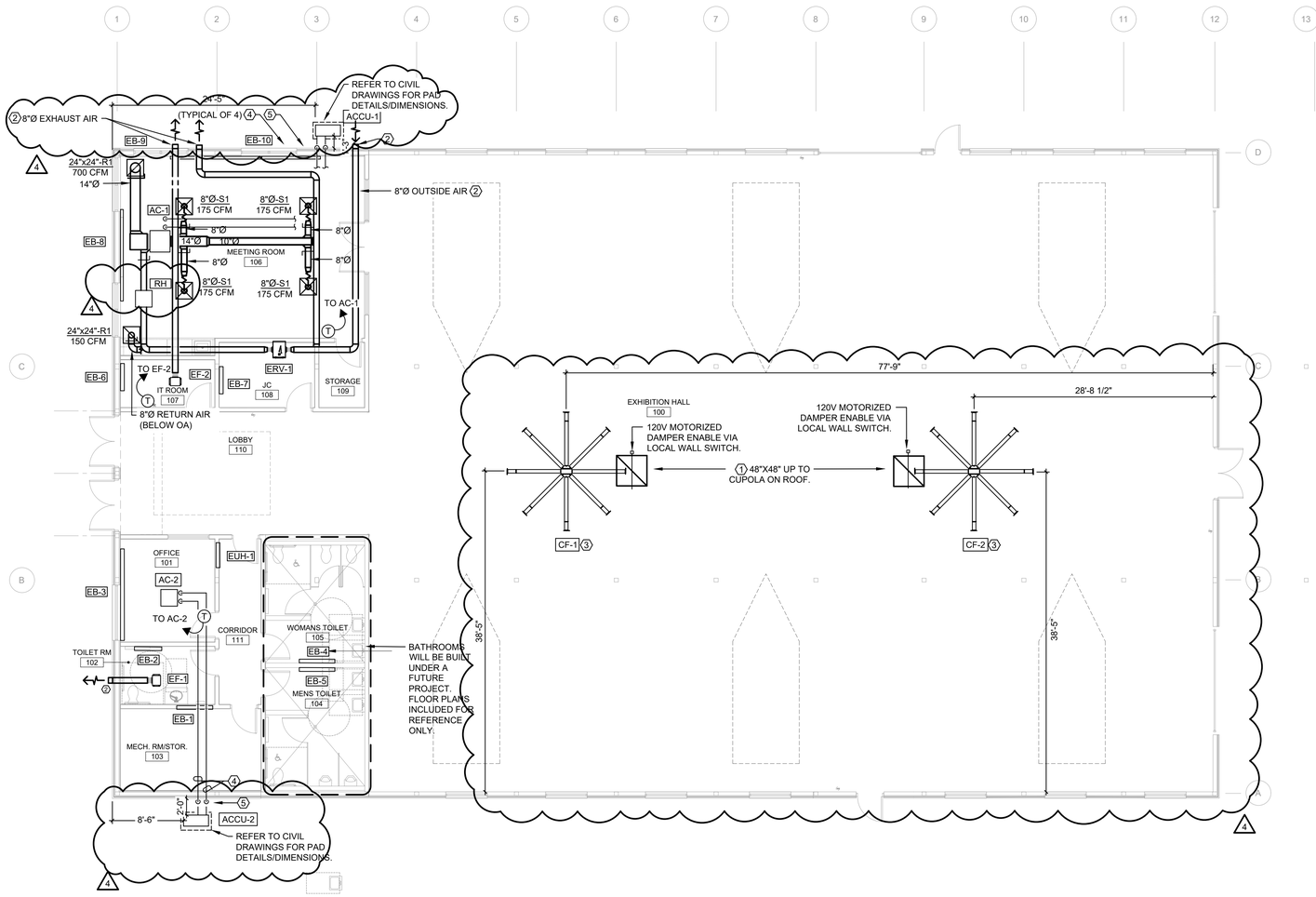
MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – H
DESIGNED BY:	MAE
DRAWN BY:	MAE
FIELD CHECK:	F.C.
APPROVED:	JAE

SHEET TITLE:
LEGENDS, ABBREVIATIONS & GENERAL NOTES

DRAWING NUMBER:
M–001

SHEET 41 OF 56



1 MECHANICAL FLOOR PLAN
SCALE: 1/8"=1'-0"

0' 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

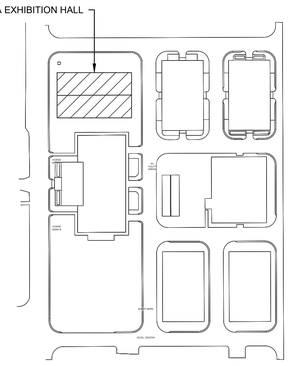
1. REFER TO M-001 FOR MECHANICAL LEGENDS, ABBREVIATIONS AND GENERAL PROJECT NOTES.

KEY NOTES:

1. PROVIDE SHEET METAL PLENUM CONNECTION UP TO CUPOLA THROUGH ROOF. SEE SHEET M-501 FOR CONNECTION TO CUPOLA DETAIL.
2. TERMINATE WITH MANUFACTURER'S WALL CAP AND BACKDRAFT DAMPER.
3. SUSPEND FROM STRUCTURE ABOVE WITH MANUFACTURER'S MOUNTING BRACKETRY.
4. REFRIGERANT SUCTION AND LIQUID LINES. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS AND BASED ON FINAL SYSTEM PIPING LENGTHS.
5. PROVIDE PIPE SUPPORTS CONFORMING WITH METAL SIDING MANUFACTURER'S REQUIREMENTS. COORDINATE DURING SUBMITTAL PHASE FOR FINAL APPROVED ASSEMBLY.

SEQUENCE OF OPERATIONS:

1. CEILING FANS - CEILING FANS SHALL BE ENABLED/DISABLED VIA A LOCAL WALL SWITCH LOCATED AT LIGHT SWITCH IN JANITORS CLOSET.
2. ENERGY RECOVERY VENTILATOR (ERV) - ERV SHALL BE ENABLED/DISABLED VIA AN OCCUPANCY SENSOR. REHEAT COIL SHALL BE INTERLOCKED WITH AUXILLIARY CONTACTS ON ERV'S INTEGRAL CONTROL BOARD TO ENABLE/DISABLE AS REQUIRED PER ERV CONTROL.
3. STAND ALONE ELECTRIC BASEBOARD (EBB) - EBB SHALL BE ENABLED/DISABLED VIA INTEGRAL DIAL THERMOSTAT ON FACE OF BASEBOARD HEATER.
4. EXHAUST FAN (EF) - EF SHALL BE ENABLED/DISABLED VIA A LOCAL WALL SWITCH LOCATED NEXT TO LIGHT SWITCH IN JANITORS CLOSET.
5. DUCTLESS SPLIT SYSTEM W/ ELECTRIC BASEBOARD (EBB) BACK UP - DUCTLESS SPLIT SYSTEM SHALL ENABLE/DISABLE VIA LOCAL WALL THERMOSTAT FOR DUCTLESS SPLIT SYSTEM TO MAINTAIN ROOM SET POINT TEMPERATURE. ELECTRIC BASEBOARD RELAY SHALL BE INTERLOCKED WITH MANUFACTURER'S CONTROL BOARD ON DUCTLESS SPLIT TO ENABLE/DISABLE ELECTRIC BASEBOARD HEAT TO ENABLE/DISABLE TO MAINTAIN ROOM SET POINT AS REQUIRED.



KEY PLAN
NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:

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STATE OF NEW YORK · JOSEPH ALBERT ERICA · 086029 · LICENSED PROFESSIONAL ENGINEER

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PROJECT NUMBER:	47634 – H
DESIGNED BY:	MAE
DRAWN BY:	MAE
FIELD CHECK:	F.C.
APPROVED:	JAE

SHEET TITLE:
MECHANICAL FLOOR PLAN

DRAWING NUMBER:
M–101

SHEET 42 OF 56

Aug 22,2025 – 4:36pm
P:\00 JSE PROJECTS\2024\29-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\M-101.dwg
36x24 PLOT SHEET

DUCTLESS SPLIT SYSTEM SCHEDULE

INDOOR UNIT													OUTDOOR UNIT								
UNIT TAG	LOCATION	ARRANGEMENT	TOTAL COOLING (BTUH)	SENSIBLE COOLING (BTUH)	MIN SEER	HEATING CAPACITY (BTUH)	SUPPLY CFM HIGH/LOW	OA CFM	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL AMP	REMARKS	UNIT TAG	LOCATION	SERVICE	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL MCA	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER INDOOR UNIT	BASIS OF DESIGN MODEL NUMBER OUTDOOR UNIT	REMARKS
AC-1	MEETING ROOM	DUCTED	23000	N/A	15.5	26600	731/512	150	208	1		(1)	ACCU-1	EXTERIOR	AC-1	208	1	13.5	DAIKIN	FDMQ24WVJU9	RX24WMVJU9	(2)
AC-2	OFFICE	CASSETTE	11000	7900	20	14000	378/268	0	208	1		(1)	ACCU-2	EXTERIOR	AC-2	208	1	7.6	DAIKIN	FFQ09W2VJU8	RX09WMVJU9	(2)

(1) PROVIDE WITH MANUFACTURER'S LOCAL WALL THERMOSTAT AND FACTORY LOCAL CONTROLLER TO INTERLOCK WITH ASSOCIATED ELECTRIC BASEBOARD HEAT.
(2) PROVIDE WITH 6" CONCRETE PAD AND DIVERSITECH 18" HIGH QUICK SLING STAND.

4

AIR INLET AND OUTLET SCHEDULE

TYPE	DESCRIPTION	SERVICE	FACE SIZE (NECK SIZE)	MOUNTING TYPE	BASIS OF DESIGN MANUFACTURER AND MODEL
S1	DIFFUSER	SUPPLY	SEE PLANS	SURFACE MOUNT	PRICE SDG SERIES
R1	GRILLE	RETURN	24X24	LAY-IN	PRICE 81 SERIES

FAN SCHEDULE

UNIT TAG	SERVICE	ARRANGEMENT	DRIVE	CFM	SP (IN WG)	FAN RPM	MAX SONES	ROOF OPENING SIZE	ELECTRICAL HP (W)	ELECTRICAL VOLTS	ELECTRICAL PHASE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
EF-1	EXHAUST	IN-LINE FAN	DIRECT	75	0.3	817	1.2	N/A	(14)	120	1	GREENHECK	SP-AP0511W	(1)
EF-2	EXHAUST	IN-LINE FAN	DIRECT	150	0.3	900	3.0	N/A	(50)	120	1	GREENHECK	SP-A200	(2)

(1) PROVIDE WITH STARTER AND SPEED CONTROLLER, FAN WILL BE ENABLED BY LOCAL WALL SWITCH
(2) PROVIDE WITH STARTER AND SPEED CONTROLLER, FAN WILL BE ENABLED BY LOCAL REVERSE ACTING COOLING THERMOSTAT.

ENERGY RECOVERY UNIT SCHEDULE

UNIT TAG	LOCATION	SERVICE	EXHAUST CFM	EXHAUST ESP	SUPPLY CFM	SUPPLY ESP	ELECTRICAL W	ELECTRICAL VOLTS	ELECTRICAL PHASE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
ERV-1	EXHIBITION	CONFERENCE	150	0.5	150	0.6	85	120	1	RENEWAIRE	EV PREMIUM L	(1)

(1) PROVIDE WITH MANUFACTURER'S CEILING MOUNT OCCUPANCY SENSOR FOR ENABLE/DISABLE OF ERV SYSTEM. INTERLOCK ERV WITH RENEWAIRE REHEAT COIL.

ELECTRIC UNIT HEATER SCHEDULE

UNIT TAG	MOUNTING ARRANGEMENT	KW	SUPPLY CFM	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL AMPS	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
EUH-1	WALL	1.5	N/A	208	1	6	TPI CORP	03283502	(1)

(1) PROVIDE WITH INTEGRAL THERMOSTAT AND DISCONNECT SWITCH.

CEILING FAN SCHEDULE

UNIT TAG	SERVICE	ARRANGEMENT	DRIVE	FAN MAX RPM	FAN DIA. (FT)	MOUNTING HEIGHT (FT)	ELECTRICAL HP (W)	ELECTRICAL VOLTS	ELECTRICAL PHASE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
CF-1	EXHIBITION	CEILING	DIRECT	30	14	16 AFF	1/4	115	1	GREENHECK	DC-5-14	
CF-2	EXHIBITION	CEILING	DIRECT	30	14	16 AFF	1/4	115	1	GREENHECK	DC-5-14	

(1) PROVIDE WITH MANUFACTURERS MOUNTING HARDWARE. FAN WILL BE ENABLED VIA LOCAL WALL SWITCH.

4

ELECTRIC BASEBOARD SCHEDULE

UNIT TAG	VOLTS	PHASE	CAPACITY (WATTS)	ENCLOSURE HEIGHT	HEATER LENGTH (IN)	MOUNTING HEIGHT	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
EB-1	208	1	750	8.5	40	0	TPI CORP	F3707-040	(1)
EB-2	208	1	375	8.5	24	0	TPI CORP	F3703-024	(1)
EB-3	208	1	2500	8.5	120	0	TPI CORP	F3725-120	(2)
EB-4	208	1	750	8.5	40	0	TPI CORP	F3707-040	(1)
EB-5	208	1	750	8.5	40	0	TPI CORP	F3707-040	(1)
EB-6	208	1	375	8.5	24	0	TPI CORP	F3703-024	(1)
EB-7	208	1	375	8.5	24	0	TPI CORP	F3703-024	(1)
EB-8	208	1	2500	8.5	120	0	TPI CORP	F3725-120	(2)
EB-9	208	1	2500	8.5	120	0	TPI CORP	F3725-120	(2)
EB-10	208	1	1500	8.5	72	0	TPI CORP	F3715-072	(2)

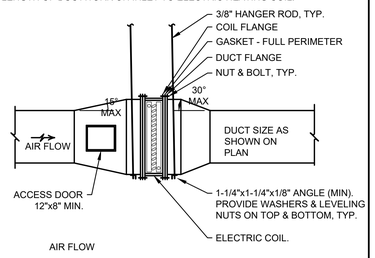
(1) PROVIDE WITH OPTIONAL INTEGRAL THERMOSTAT AND DISCONNECT SWITCH INSIDE MANUFACTURER'S END CONTROL ENCLOSURE.
(2) PROVIDE WITH RELAY FOR CONNECTION TO SPLIT SYSTEM AUXILLIARY CONTACTS FOR CONTROL. PROVIDE WITH DISCONNECT SWITCH INSIDE MANUFACTURER'S END CONTROL ENCLOSURE.

DUCTED MOUNTED ELECTRIC COIL SCHEDULE

UNIT TAG	LOCATION	SYSTEM	KW	CFM	EAT (%°F)	LAT (°F)	COIL SIZE (HXL)	ELECTRICAL PH	ELECTRICAL V	ELECTRICAL A	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
RH-1	MEETING ROOM	ERV-1	5	150	-20	70	8"Ø	1	208	24	RENEWAIRE	EK SERIES	(1)

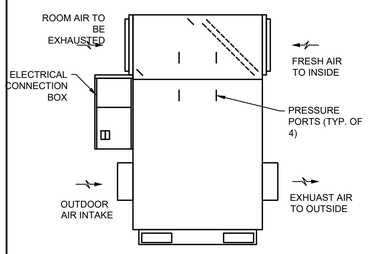
(1) PROVIDE WITH SCR CONTROL, INTEGRAL THERMOSTAT.

NOTE:
MAINTAIN MANUFACTURER'S SERVICE CLEARANCE.
INSTALL DUCTWORK WITH 10x DUCT DIAMETER OF STRAIGHT LENGTH OF DUCTWORK ON INLET TO ELECTRIC HEATING COIL.

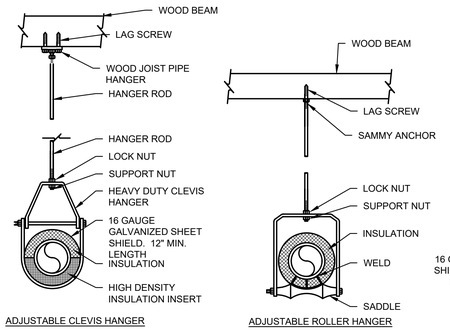


DUCT-MOUNTED ELECTRIC HEATING COIL DETAIL
SCALE: NTS

NOTE:
MAINTAIN MANUFACTURER'S SERVICE CLEARANCE.



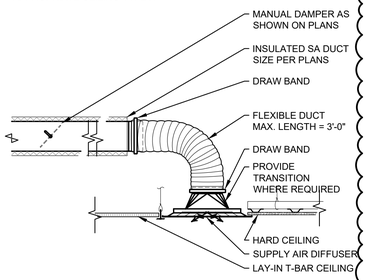
ENERGY RECOVERY UNIT DETAIL
SCALE: NTS



NOTES:
1. 2"x2"x1/4" ANGLE FOR JOIST DETAIL APPLIES TO MAX PANEL SPACING 6 FT, MAX PIPE SIZE 6 IN, AND MAX HANGER SPACING 12 FT, FOR GREATER DIMENSIONS CONSULT ENGINEER IN WRITING.
2. TRAPEZE STYLE HANGER DETAIL APPLIES FOR UP TO (2) PIPES MAXIMUM PIPE SIZE 6 IN. FOR GREATER PIPE QUANTITIES OR SIZES CONSULT ENGINEER IN WRITING.
3. HANGER ROD LOADS NOT TO EXCEED 500 POUNDS. ADJUST FREQUENCY OF SPACING IF NECESSARY.

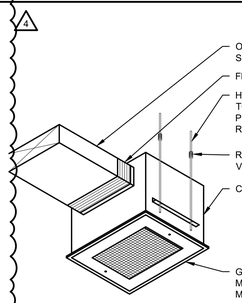
PIPE HANGER DETAILS
SCALE: NTS

NOTE:
PROVIDE DIFFUSER WITH APPROPRIATE BORDER CONFIGURATION TO ACCOMMODATE INSTALLATION IN APPROPRIATE CEILING TYPES.

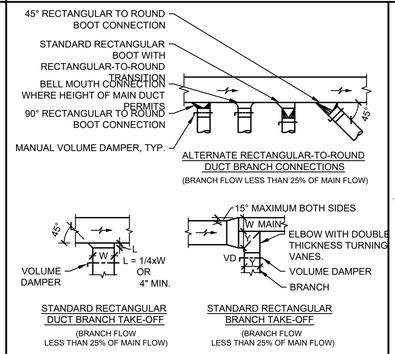


CEILING DIFFUSER DETAIL
SCALE: NTS

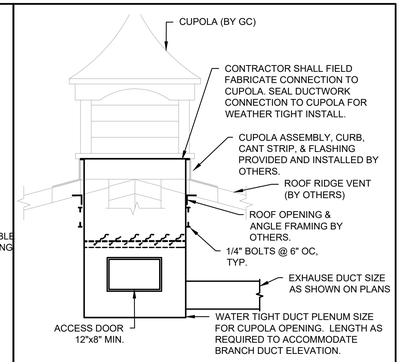
4



CEILING EXHAUST FAN DETAIL
SCALE: NTS



DUCTWORK DETAILS
SCALE: NTS



CUPOLA CONNECTION DETAIL
SCALE: NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES
CERTIFICATE OF AUTHORIZATION: # 018337

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FIELD CHECK: F.C.
APPROVED: JAE

SHEET TITLE:
MECHANICAL SCHEDULES AND DETAILS

DRAWING NUMBER:
M–501

SHEET 43 OF 56

ABBREVIATIONS

@	AT
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
CLG	CEILING
CW	DOMESTIC COLD WATER
DIA, Ø	DIAMETER
DN	DOWN
DPCO	DECK PLATE CLEANOUT
(E)	EXISTING
FD	FLOOR DRAIN
HP	HORSE POWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATION
INV	INVERT
KW	KILOWATT
LAV	LAVATORY
MIN	MINIMUM
NTS	NOT TO SCALE
RCP	RECIRCULATION PUMP
RPM	REVOLUTIONS PER MINUTE
TMV	TEMPERATURE MIXING VALVE
TYP	TYPICAL
V	VENT
VTR	VENT THRU ROOF
WC	WATER CLOSET
W/	WITH

PIPING SYMBOLS

SYMBOL	DESCRIPTION
	COLD WATER SUPPLY
	HOT WATER SUPPLY
	HOT WATER RETURN
	SANITARY WASTE LINE
	SANITARY VENT PIPING
	CAP OR PLUG
	CHECK VALVE
	BALANCING VALVE
	DECK PLATE CLEAN OUT
	FLOOR DRAIN/P-TRAP
	FLOW ARROW
	HOSE BIB
	MANUAL GAS COCK
	PIPE DROP
	PIPE RISE
	RELIEF VALVE
	WATER HAMMER ARRESTOR
	BALL TYPE VALVE
	UNION
	VENT THRU ROOF (VTR)
	Y STRAINER
	TRAP PRIMER
	PUMP

GENERAL NOTES

1. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE SIZE AND GENERAL ARRANGEMENT OF PIPING, EQUIPMENT, AND SPECIALTIES. EXACT LOCATIONS AND ROUTINGS WILL BE DETERMINED IN THE FIELD BEFORE AND AS THE WORK PROGRESSES.
2. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCEMENT OF ANY WORK. ANY REQUIRED CHANGES TO WORK SHOWN ON DRAWINGS WILL BE COORDINATED WITH DIRECTOR'S REPRESENTATIVE AND OTHER TRADES PRIOR TO CONSTRUCTION.
3. DRAWINGS DO NOT INDICATE ALL OFFSETS, CHANGES IN ELEVATION, ETC. WHICH MAY BE REQUIRED BY ACTUAL FIELD CONDITIONS. PROVIDE FOR SUCH CHANGES IN PIPING OR EQUIPMENT LOCATIONS AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS AND THE WORK OF OTHER CONTRACTS.
4. THE WORK INCLUDED IN THIS CONTRACT ENCOMPASSES BOTH THE DRAWINGS AND SPECIFICATIONS. WORK INCLUDED ON THE DRAWINGS ONLY, OR IN THE SPECIFICATIONS ONLY, WILL BE INCORPORATED AS IF INCLUDED IN BOTH. SYSTEMS ARE INTENDED TO BE COMPLETE AND FULLY FUNCTIONING. PROVIDE SUCH COMPONENTS AS NECESSARY FOR A FULLY FUNCTIONING SYSTEM.
5. PHASE INSTALLATION OF EQUIPMENT AND PIPING TO ENSURE CONSTRUCTABILITY, AND THAT CONSTRUCTION PROCEEDS IN AN ORGANIZED, EFFICIENT, AND ORDERLY MANNER. PIPING TO BE SLOPED WILL TAKE PRECEDENCE OVER PRESSURE PIPING, DUCTWORK, AND EQUIPMENT LOCATIONS.
6. SEAL ALL PIPING AND DUCT PENETRATIONS IN ACCORDANCE WITH THE NEW YORK STATE BUILDING CODE AND NFPA.
7. EXCEPT AS NOTED IN SPECIFICATIONS, ALL CUTTING AND PATCHING OF BUILDING COMPONENTS REQUIRED TO ACCOMMODATE THE WORK OF THIS CONTRACT WILL BE THE RESPONSIBILITY OF THIS CONTRACT. ALL PATCHING WILL MATCH THE EXISTING COMPONENTS AND FINISHES. CUTTING AND PATCHING WORK WILL BE PERFORMED BY PERSONNEL TRAINED AND REGULARLY EMPLOYED FOR SUCH SERVICES.
8. ALL HORIZONTAL DRAINAGE WILL BE SLOPED AT A MINIMUM OF 1/4" PER FOOT FOR PIPING 2-1/2" OR LESS, AND 1/8" PER FOOT FOR 3" TO 6" PIPING.
9. PHASE INSTALLATION OF EQUIPMENT AND PIPING TO ENSURE CONSTRUCTABILITY, CONSTRUCTION PROCEEDS IN AN EFFICIENT, ORGANIZED, AND ORDERLY MANNER. PIPING TO BE SLOPED WILL TAKE PRECEDENCE OVER PRESSURE PIPING, DUCTWORK AND EQUIPMENT LOCATIONS.
10. INSTALL ALL PIPING, EQUIPMENT, AND SPECIALTIES TO ALLOW MAXIMUM CLEARANCE AND AVOID INTERFERENCE WITH THE OPERATION AND MAINTENANCE OF ALL EQUIPMENT, NEW OR EXISTING. DO NOT INSTALL ANYTHING ABOVE OR WITHIN 3 FT. IN FRONT OF ELECTRICAL GEAR.
11. PROVIDE NECESSARY SUPPORT FRAMING, STIFFENERS, BRACING, AND HANGERS WHETHER SHOWN OR NOT TO ENSURE A COMPLETE AND DURABLE SYSTEM. SUPPORT FRAMING CONNECTIONS WILL BE WELDED UNLESS SPECIFICALLY SHOWN OTHERWISE. ACTUAL SUPPORTS MAY VARY FROM THOSE SHOWN IN DETAILS AS REQUIRED BY ACTUAL EQUIPMENT FURNISHED OR BY FIELD CONDITIONS.
12. ALL EQUIPMENT WILL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTION MANUAL OR MANUFACTURER'S REPRESENTATIVE'S WRITTEN INSTRUCTIONS. ALL EQUIPMENT WILL BE INSTALLED IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS.
13. PROVIDE BALL TYPE SHUT-OFF VALVES IN ALL PIPING BRANCH TAKE-OFFS FROM THE DOMESTIC WATER / NON-POTABLE WATER SUPPLY MAINS, WHETHER SHOWN OR NOT, FOR ISOLATION AND SERVICE TO SYSTEM.
13. PROVIDE WATER HAMMER ARRESTORS WHERE QUICK-CLOSING VALVES ARE UTILIZED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ASSE 1010.

BACKFLOW PREVENTER SCHEDULE

TAG	LOCATION	TYPE	INLET/OUTLET (IN.)	ORENTATION	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NO.
DCVA-1	MECHANICAL & FIRE SERVICE ROOM	DOUBLE CHECK VALVE ASSEMBLY	2"	HORIZONTAL	WATTS	LF-009

4

ELECTRIC WATER HEATER SCHEDULE

UNIT TAG	VOLTS	PHASE	CAPACITY (KW)	SIZE (GAL)	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
WH-1	208	1	4.5	30	AO SMITH	DEL-30	(1)

(1) PROVIDE WITH 4" HOUSEKEEPING PAD.

FIXTURE SCHEDULE

FIXTURE TAG	FIXTURE DESCRIPTION	MINIMUM CONNECTIONS (IN)				DESIGN BASIS	
		COLD	HOT	WASTE	VENT	FIXTURE	FAUCET/FLUSH VALVE
SS-A	SERVICE SINK	3/4	3/4	2	1-1/2	ACORN ENG: TERRAZZO-WARE™ MOP SINK - STANDARD HEIGHT (12") SERIES	ACORN ENG: OPTION KFC. UTILITY FAUCET WITH CHROME FINISH. (2.2 GPM)
WC-A	WALL MOUNT TOILET	1	-	3	2	SLOAN ST2459, WALL MOUNT ELONGATED, TOP SPUD, REAR OUTLET.	SLOAN ROYAL 111 ESS-1.28, TOP SPUD, HARDWIRED. PROVIDE WITH MANUFACTURERS TRANSFORMER. 1.28 GPF
LAV-A	DROP-IN LAVATORY	1/2	1/2	1-1/2	1-1/2	AMERICAN STANDARD AQUALYN COUNTERTOP SINK (ADA COMPLIANT)	MOEN 8413 (ADA COMPLIANT, 0.5 GPM)
KS-A	SINGLE BOWL KITCHEN SINK	1/2	1/2	1-1/2	1-1/2	LUSTERTONE® CLASSIC STAINLESS STEEL 22" X 19-1/2" X 5-1/2" SINGLE BOWL DROP-IN ADA SINK. SINK IS MANUFACTURED FROM 18 GAUGE 304 STAINLESS STEEL	LKAV4061LS ELKAY AVADO SINGLE HOLE KITCHEN FAUCET W/ SEMI-PRO SPOUT LUSTROUS STEEL (2.2 GPM)
FD-A	FLOOR DRAIN	-	-	-	-	WATTS MODEL: FD-100	PROVIDE WITH TRAP BARRIER SEALS
DPCO	DECK PLATE CLEAN-OUT	-	-	-	-	JAY R. SMITH #4020 OUTLET SIZE W/ ADJUSTABLE NICKEL BRONZE TOP	-
HB-A	HOSE BIB	3/4	-	-	-	WATTS SC8	-
WH-A	WATER HYDRANT	3/4	-	-	-	WATTS HY-420	-

4

DOMESTIC CIRCULATION PUMP SCHEDULE

UNIT TAG	LOCATION	SERVICE	GPM (GPH)	HEAD FT. WG.	RPM	ELECTRICAL			BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	REMARKS
						HP	VOLTS	PHASE			
RCP-1	MECH ROOM	WH-1	1	30	3300	1/6	120	1	B&G	PL-36	(1)

(1) PROVIDE WITH AQUASTAT AND BRASS LEAD FREE CONSTRUCTION.

CONSTRUCTION SAFEGUARDS:

1. SCOPE: THE SAFETY OF THE CONSTRUCTION AREA AND ADJACENT PUBLIC AND PRIVATE PROPERTIES SAFETY, WILL BE PROTECTED DURING CONSTRUCTION AND DEMOLITION IN ACCORDANCE WITH THE 2020 EXISTING BUILDING CODE OF NEW YORK STATE (EBCNYS) CHAPTER 15 AND THE 2020 FIRE CODE OF NEW YORK STATE (FCNYS) CHAPTER 33. COMPLIANCE WITH NFPA 241 IS REQUIRED FOR ITEMS NOT SPECIFICALLY ADDRESSED. THIS SPECIFICATION PROSCRIBES MINIMUM SAFEGUARDS FOR CONSTRUCTION TO PROVIDE REASONABLE SAFETY TO LIFE AND PROPERTY FROM FIRE DURING SUCH OPERATIONS.
2. CONSTRUCTION INCLUDES ANY NEW CONSTRUCTION, REMOVALS, REMODELING, ALTERATIONS, REPAIRS OR ADDITIONS TO ANY BUILDING OR STRUCTURE.
3. MAINTENANCE OF SAFE CONDITIONS: REQUIRED SAFETY ELEMENTS SUCH AS EXITS, EXISTING STRUCTURAL MEMBERS, FIRE PROTECTION DEVICES AND SANITARY SAFEGUARDS WILL BE MAINTAINED AT ALL TIMES, EXCEPT WHERE THE BUILDING IS NOT OCCUPIED OR WHERE SUCH REQUIRED ELEMENTS ARE BEING ALTERED OR REPAIRED AND ADEQUATE SUBSTITUTE PROVISIONS ARE MADE.
4. MEAN OF EGRESS: AN APPROVED PERMANENT OR TEMPORARY MEANS OF EGRESS WILL BE MAINTAINED. AN EGRESS COMPONENT WILL NOT BE DESTROYED UNLESS AND UNTIL A SUBSTITUTE MEANS OF EGRESS HAS BEEN PROVIDED.
5. FIRE SAFETY DURING CONSTRUCTION AND REMOVALS: FIRE SAFETY WILL COMPLY WITH THE APPLICABLE REQUIREMENTS OF EBCNYS CHAPTER 15 AND FCNYS CHAPTER 33.

5.A. FIRE EXTINGUISHERS: PROVIDE PORTABLE FIRE EXTINGUISHERS FOR PROTECTION DURING CONSTRUCTION AND REMOVALS AT EACH STAIRWAY, ON EACH FLOOR LEVEL, WHERE COMBUTIBLE MATERIALS HAVE ACCUMULATED, AND IN EVERY STORAGE AND CONSTRUCTION SHED. EXTINGUISHERS WILL COMPLY WITH FCNYS 906, SIZED FOR ORDINARY HAZARD UNLESS GREATER HAZARD IS SPECIFIED. ADDITIONAL PORTABLE FIRE EXTINGUISHERS WILL BE PROVIDED WHERE SPECIAL HAZARDS EXIST, SUCH AS THE STORAGE AND USE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.

5.B. ANY BURNING, CUTTING OR WELDING WILL REQUIRE A HOT WORK PERMIT AND APPROVAL.

- MATERIAL HANDLING: EQUIPMENT AND MATERIALS WILL BE STORED AND PLACED, AND WASTE WILL BE REMOVED, SO AS NOT TO ENDANGER THE PERSONS OR PROPERTY OR TO IMPEDE A MEANS OF EGRESS. PLACE MATERIAL AND WASTE SO AS NOT TO OBSTRUCT ACCESS TO FIRE HYDRANTS, STANDPIPES, FIRE EXTINGUISHERS, FIRE OR POLICE ALARMS BOXES, CATCH BASINS, MANHOLES, RELEVANT UTILITY STRUCTURES, TRAFFIC OR OBSERVATION OF TRAFFIC SIGNALS. COMBUSTION DEBRIS WILL NOT BE ACCUMULATED ON SITE, AND WILL BE REMOVED AT THE END OF EACH WORK SHIFT. RUBBISH CONTAINERS WITH A CAPACITY EXCEEDING 5.33 CUBIC FEET (40 GALLONS OR 0.15 CUBIC METERS) WILL HAVE TIGHT FITTING OR SELF CLOSING LIDS, AND WILL BE CONSTRUCTED OF NONCOMBUSTIBLE MATERIAL OR MATERIAL THAT MEETS FCNYS SECTION 3304.2.2 (2)

CODE COMPLIANCE STATEMENTS

2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE:
(SECTION R105.2.2 WRITTEN STATEMENT)
TO THE BEST OF THE KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT OF THE LICENSED PROFESSIONAL SEALING THESE PLANS AND SPECIFICATIONS, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.

NEW YORK STATE UNIFORM FIRE PREVENTATION AND BUILDING CODE (UNIFORM CODE):
TO THE BEST OF THE KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT OF THE LICENSED PROFESSIONAL SEALING THESE PLANS AND SPECIFICATIONS, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE TO INCLUDE:

2020 BUILDING CODE OF NEW YORK STATE.
2020 EXISTING BUILDING CODE OF NEW YORK STATE
2020 FIRE CODE OF NEW YORK STATE
2020 PLUMBING CODE OF NEW YORK STATE
2020 MECHANICAL CODE OF NEW YORK STATE
2020 FUEL GAS CODE OF NEW YORK STATE
2017 NFPA 70 NATIONAL ELECTRICAL CODE

NEW YORK STATE OFFICE OF GENERAL SERVICES
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

STATE OF NEW YORK · JOSEPH ALBERT ERICA · 086029 · LICENSED PROFESSIONAL ENGINEER

CONTRACT:
PLUMBING

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – P
DESIGNED BY:	MAE
DRAWN BY:	MAE
FIELD CHECK:	F.C.
APPROVED:	JAE

SHEET TITLE:
LEGENDS, ABBREVIATIONS & GENERAL NOTES

DRAWING NUMBER:
P–001

SHEET 44 OF 56

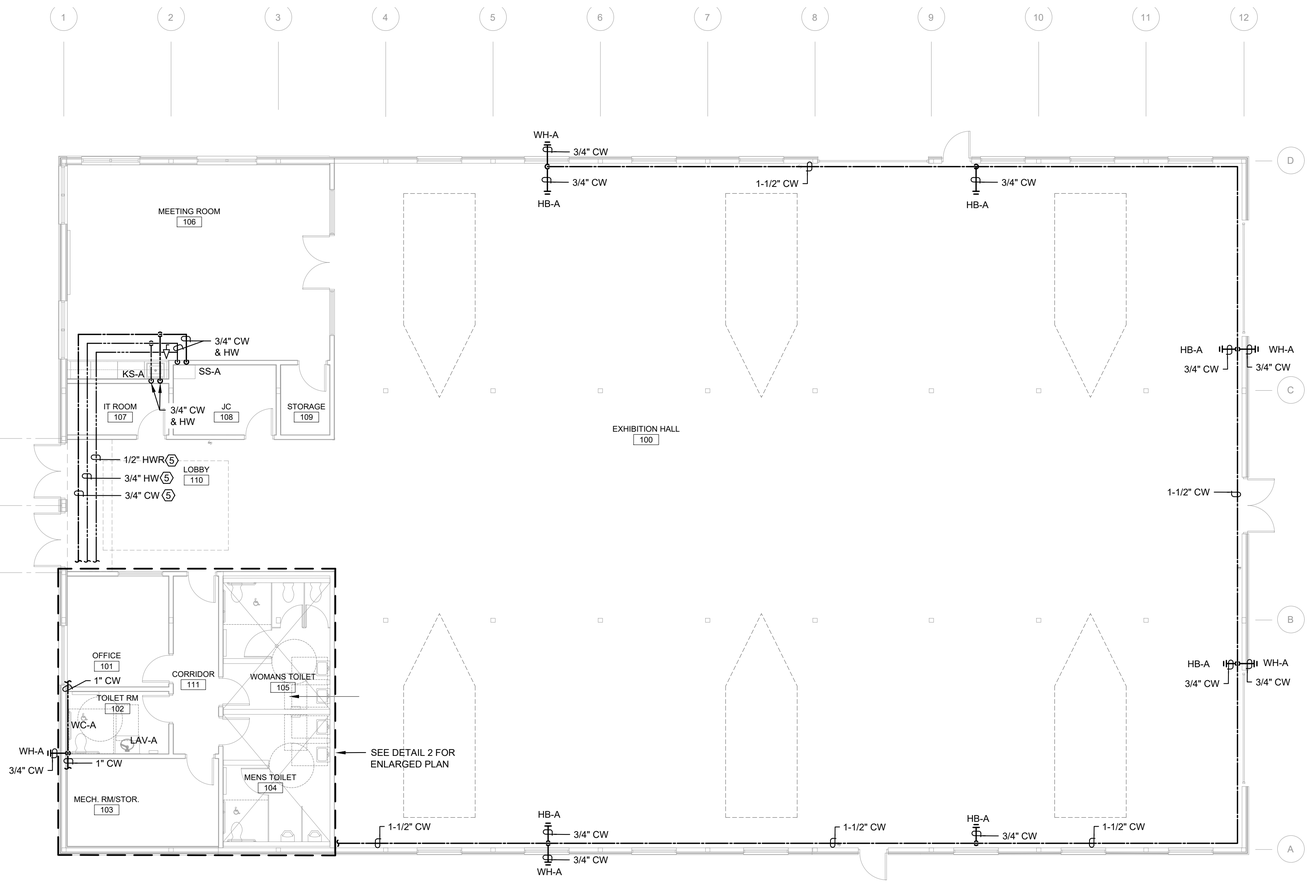
Aug 22,2025 - 4:36pm
P:\00 JSE PROJECTS\2024\29-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\P-001.dwg
36x24 PLOT SHEET

GENERAL NOTES:

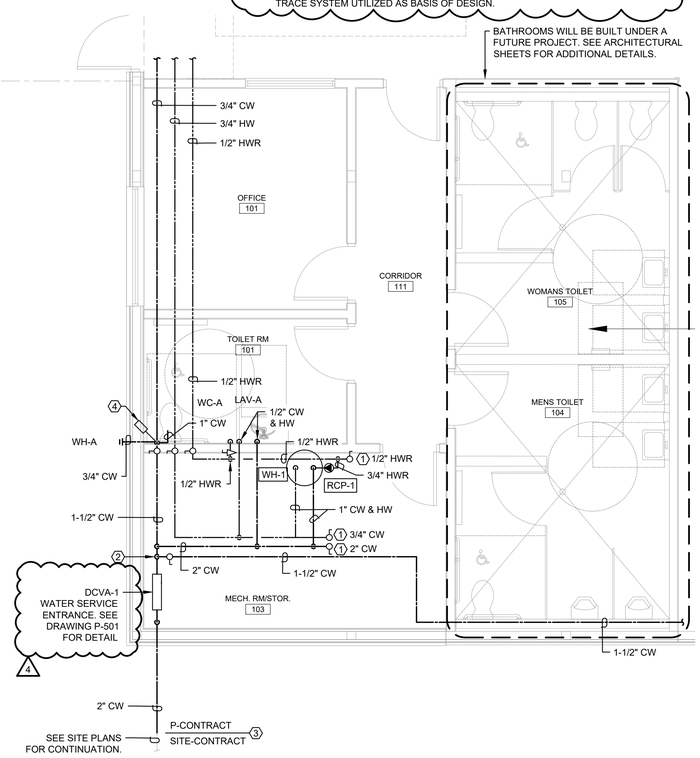
1. REFER TO P-001 FOR PLUMBING LEGEND, ABBREVIATIONS, AND GENERAL PROJECT NOTES.
   UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (——) ARE NEW AND PLUMBING ITEMS SHOWN LIGHT SOLID (——) ARE EXISTING TO REMAIN.

KEY NOTES:

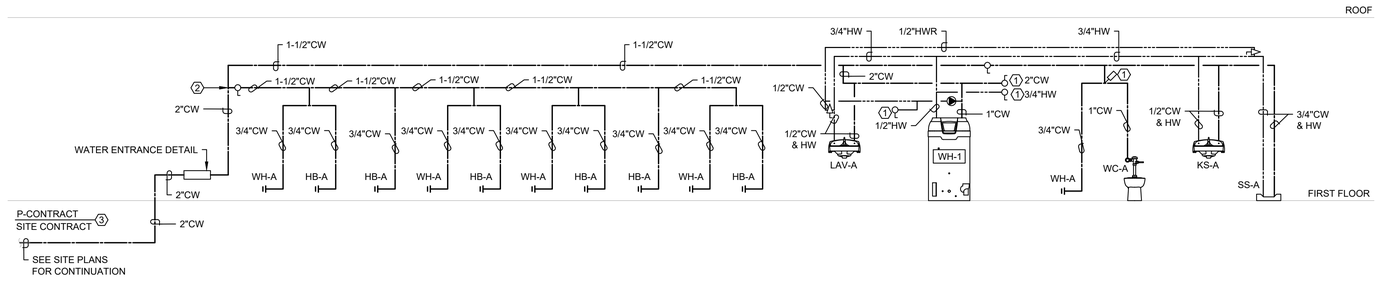
1. PROVIDE CAPPED PIPING IN LOCATION SHOWN FOR FUTURE CONNECTION TO RESTROOMS.
2. PROVIDE 3/4" DRAIN VALVE AT LOW POINT IN SYSTEM TO ALLOW FOR WINTERIZING OF DOMESTIC WATER. SLOPE ALL PIPING BACK TO THIS POINT.
3. FINAL LOCATIONS OF WATER ENTRANCE TO BE DETERMINED BASED ON CIVIL SITE PLAN LAYOUT.
4. WATER HAMMER ARRESTOR WILL BE CAPABLE OF ACCOMMODATING 11.5 WFU (ANNUUM).
5. PROVIDE AND INSTALL HEAT TAPE SYSTEM OVER DOMESTIC WATER PIPING WHERE IT CROSSES THROUGH UNHEATED LOBBY SPACE TO PREVENT PIPES FROM FREEZING. COORDINATE WITH EC. SEE SPECIFICATION 220533. THERMON HEAT TRACE SYSTEM UTILIZED AS BASIS OF DESIGN.



1 PLUMBING FLOOR PLAN
SCALE: 1/8"=1'-0"

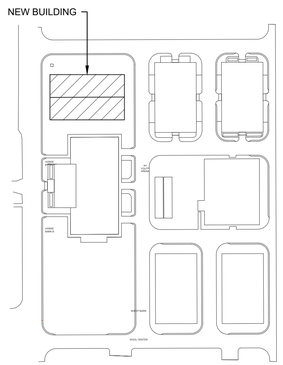


2 ENLARGED PLUMBING FLOOR PLAN
SCALE: 1/4"=1'-0"



3 PLUMBING DOMESTIC WATER RISER DIAGRAM
SCALE: 1/8"=1'-0"

0' 2' 4' 8'
SCALE: 1/4" = 1'-0"
0' 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"



KEY PLAN
NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

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STATE OF NEW YORK · JOSEPH ALBERT ERICA · LICENSED PROFESSIONAL ENGINEER · 086029

CONTRACT: PLUMBING

TITLE: PROVIDE FFA BUILDING

LOCATION: NEW YORK STATE, FAIRGROUNDS 581 STATE FAIR BOULEVARD SYRACUSE, NY

CLIENT: NEW YORK STATE DEPT. OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
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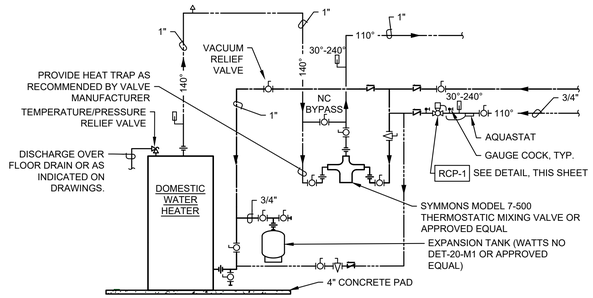
PROJECT NUMBER:	47634 – P
DESIGNED BY:	MAE
DRAWN BY:	MAE
FIELD CHECK:	F.C.
APPROVED:	JAE

SHEET TITLE: PLUMBING FLOOR PLAN – DOMESTIC WATER

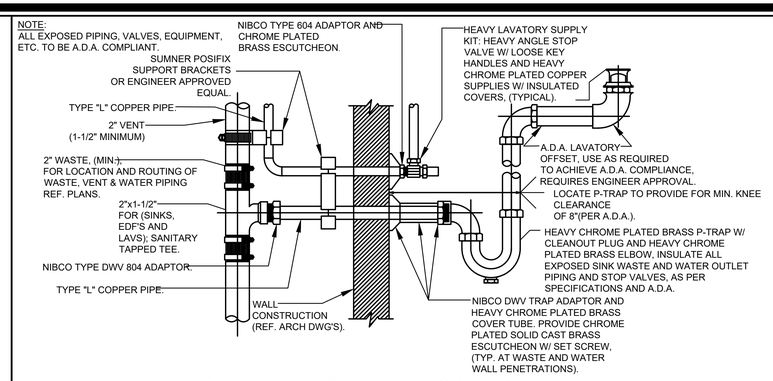
DRAWING NUMBER: P–201

SHEET 46 OF 56



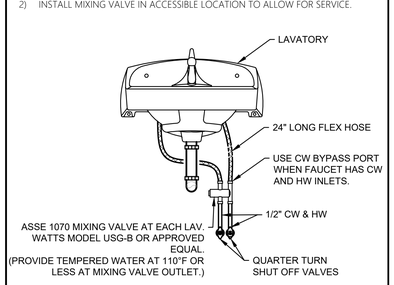
DOMESTIC WATER HEATER PIPING SCHEMATIC DETAIL

SCALE: NTS



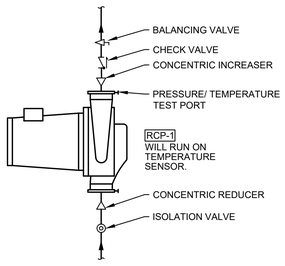
TYPICAL LAVATORY & SINK CONNECTION DETAIL

SCALE: NTS



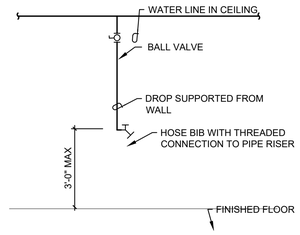
ASSE 1070 MIXING VALVE DETAIL

SCALE: NTS



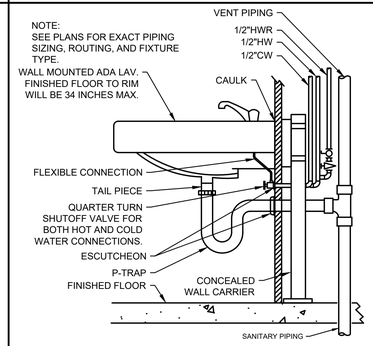
DOMESTIC WATER RECIRC PUMP DETAIL

SCALE: NTS



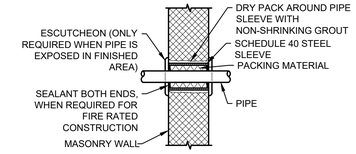
HOSE BIB PIPING DROP DETAIL

SCALE: NTS



WALL HUNG SINK DETAIL

SCALE: NTS

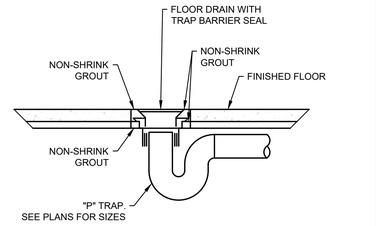


NOTE:

1. THIS DETAIL APPLIES TO BOTH INSULATED AND NON-INSULATED PIPE.
2. FOR FIRE RATED CONSTRUCTION PROVIDE APPROPRIATE APPROVED THROUGH-PENETRATION FIRESTOP ASSEMBLY TO MAINTAIN THE FIRE RATING OF THE WALL ASSEMBLY.
3. PROVIDE NEAT PENETRATION THROUGH EXTERIOR WALL. SLEEVE PENETRATION AND MORTAR BETWEEN WALL AND PIPE.

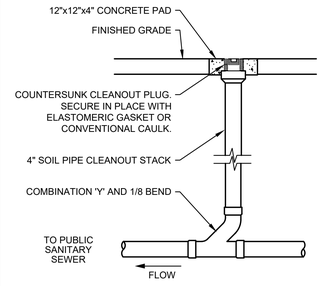
PIPE THRU WALL DETAIL

SCALE: NTS



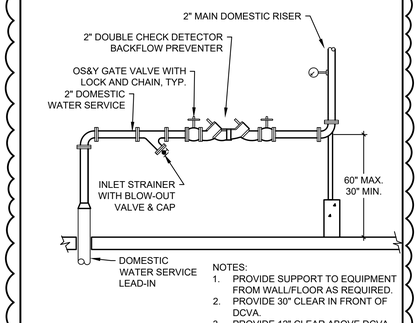
FLOOR DRAIN DETAIL

SCALE: NTS



TYPICAL INTERIOR FLOOR CLEANOUT DETAIL

SCALE: NTS

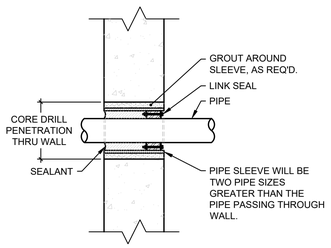


NOTES:

1. PROVIDE SUPPORT TO EQUIPMENT FROM WALL/FLOOR AS REQUIRED.
2. PROVIDE 30" CLEAR IN FRONT OF DCVA.
3. PROVIDE 12" CLEAR ABOVE DCVA.
4. PROVIDE 8" CLEAR BETWEEN DCVA AND WALL BEHIND.

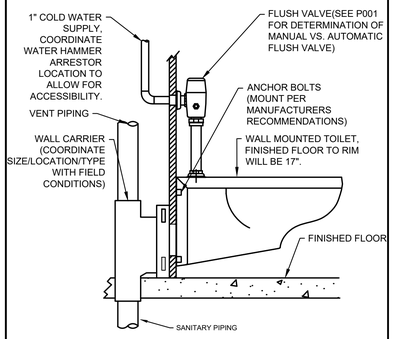
WATER SERVICE ENTRANCE DETAIL

SCALE: NTS



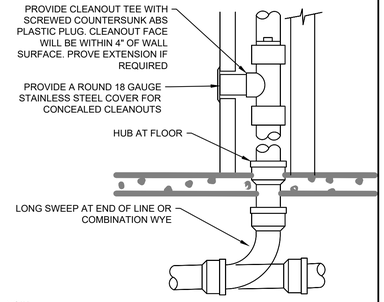
BELOW-GRADE PIPE WALL PENETRATION DETAIL

SCALE: NTS



WALL HUNG TOILET DETAIL

SCALE: NTS

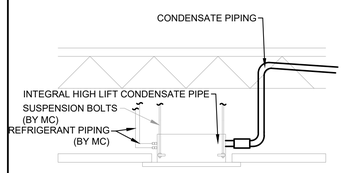


NOTE:

1) PROVIDE WALL CLEANOUT (WCO) WHERE SHOWN ON PLAN AND ON SANITARY WASTE BRANCHES NOT SERVED WITH A FLOOR CLEANOUT.

WALL CLEANOUT DETAIL

SCALE: NTS



NOTE:

1) PLUMBING CONTRACT RESPONSIBLE FOR CONDENSATE PIPING UP TO CEILING CASSETTES. CEILING CASSETTES PROVIDED AND INSTALLED BY MECHANICAL CONTRACT.

CEILING CASSETTE PIPING DETAIL

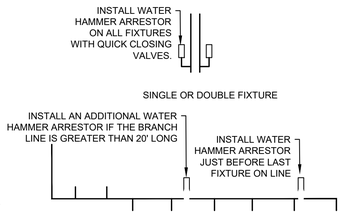
SCALE: NTS

PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1-1/4"	61-113
E	1-1/2"	114-154
F	2"	154-330

WATER SUPPLY FIXTURE UNIT (WSFU)		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	5	- -
URINAL	4	- -
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3

NOTE:

1) WATER HAMMER ARRESTORS WILL HAVE PISTON AND O-RING CONSTRUCTION WITH PDI #WH-201. ASSE # 1010 AND ANSI # A112.26.IM CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. SIZE THE UNI9TS AS SHOWN PER THE TABLES SHOWN ABOVE.

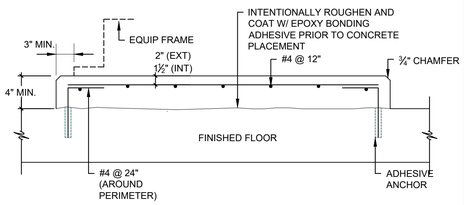


WATER HAMMER ARRESTOR DETAIL

SCALE: NTS

GENERAL NOTES:

1. CONCRETE 4,000 PSI @ 28 DAYS.
2. PROVIDE AS 4" MIN. PAD UNLESS OTHERWISE NOTED.
3. DEFORMED BARS ASTM A-615, GRADE 60.
4. TOP SURFACE SHALL BE TROWEL FINISHED.
5. 3/4" CHAMFER ALONG ALL EXPOSED EDGES, INCLUDING OPENING.
6. REINFORCING SHALL BE AS FOLLOWS: #4 BARS @ 12" EACH WAY.



TYPICAL EQUIPMENT PAD DETAIL

SCALE: NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:

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STATE OF NEW YORK · JOSEPH ALBERT ERICA · LICENSED PROFESSIONAL ENGINEER · 086029

CONTRACT:

PLUMBING

TITLE:

PROVIDE
FFA BUILDING

LOCATION:

NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:

NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – P
DESIGNED BY:	MAE
DRAWN BY:	MAE
FIELD CHECK:	F.C.
APPROVED:	JAE

SHEET TITLE:

PLUMBING DETAILS

DRAWING NUMBER:

P–501

SHEET 47 OF 56

Aug 22,2025 – 4:36pm
P:\00 JSE PROJECTS\2024\29-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\P-501.dwg
36x24 PLOT SHEET

GENERAL NOTES

SYMBOLS AND ABBREVIATIONS
1. THIS DRAWING CONTAINS SYMBOLS AND ABBREVIATIONS TYPICALLY SHOWN ON ELECTRICAL DRAWINGS AND SCHEMATICS. THIS CONTRACT DRAWING SET MAY NOT CONTAIN ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS DRAWING.

PERMITS AND INSPECTIONS
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2017 NEC, AND STATE AND LOCAL GOVERNING REGULATIONS.
2. PERFORM WORK AS REQUIRED BY CODES, REGULATIONS, LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. ALL MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM

SCOPE
1. UNLESS OTHERWISE INDICATED, PROVIDE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM INCLUDING ALL NECESSARY MATERIAL, LABOR, AND EQUIPMENT.
2. ALL EQUIPMENT AND MATERIAL SHALL BE LABELED AND LISTED, AND INSTALLED IN ACCORDANCE WITH THEIR LISTING.
3. PROVIDE ELECTRICAL CONNECTION FOR EVERY FIXTURE, OR ITEM OF EQUIPMENT REQUIRING SAME, WHICH IS SHOWN OR LISTED ON ANY CONTRACT DRAWING
4. PROVIDE NECESSARY SUPPORT FRAMING, STIFFENERS, BRACING, AND HANGERS WHETHER SHOWN OR NOT TO ENSURE A COMPLETE AND DURABLE SYSTEM. SUPPORT FRAMING CONNECTIONS SHALL BE WELDED UNLESS SPECIFICALLY SHOWN OTHERWISE. ACTUAL SUPPORTS MAY VARY FROM THOSE SHOWN IN DETAILS TO ACCOMMODATE EXISTING FIELD CONDITIONS.
5. THE WORK INCLUDED IN THIS CONTRACT ENCOMPASSES THE DRAWINGS AND SPECIFICATIONS. WORK INCLUDED ON THE DRAWINGS ONLY, OR IN THE SPECIFICATIONS ONLY, SHALL BE INCORPORATED AS IF INCLUDED IN BOTH. ALL SYSTEMS SHOWN ARE INTENDED TO BE COMPLETE AND FULLY FUNCTIONING. PROVIDE SUCH COMPONENTS AS NECESSARY FOR A FULLY FUNCTIONING SYSTEM.
6. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE.
7. FIELD VERIFY ALL SITE CONDITIONS AND DIMENSIONS PRIOR TO COMMENCEMENT OF ANY WORK OR SHOP FABRICATION. REQUIRED CHANGES TO WORK SHOWN ON CONSTRUCTION DRAWINGS SHALL BE APPROVED BY THE DIRECTOR'S REPRESENTATIVE IN WRITING, OTHER TRADES, AND OWNER AS REQUIRED PRIOR TO ANY CONSTRUCTION.

COORDINATION OF WORK
1. COORDINATE AND VERIFY THAT WORKING AND DEDICATED EQUIPMENT SPACE REQUIREMENTS ARE MET PER NEC.
2. FIELD LOCATE ALL CORE DRILL LOCATIONS.
3. BEFORE CUTTING OR DRILLING INTO BUILDING ELEMENTS INSPECT AND LAYOUT WORK TO AVOID DAMAGING STRUCTURAL ELEMENTS AND BUILDING UTILITIES.
4. BEFORE SELECTING MATERIAL/EQUIPMENT AND PROCEEDING WITH WORK, INSPECT AREAS WHERE MATERIAL AND EQUIPMENT ARE TO BE INSTALLED TO INSURE SUITABILITY, AND CHECK NEEDED SPACE FOR PLACEMENT, CLEARANCES AND INTERCONNECTIONS.
5. POSSIBLE SYSTEM SHUT-DOWNS AND WORK AREAS CLOSURES MUST BE COORDINATED WITH THE OWNER.
6. VERIFY RECEPTACLE, SWITCH, & COVER PLATE COLORS WITH OWNER.
7. TURN OVER TO THE DIRECTOR'S REPRESENTATIVE ALL MANUFACTURER'S WARRANTIES FOR EQUIPMENT AND MATERIALS PROVIDED.

DEFINITIONS
1. THE DEFINITION OF ELECTRICAL TERMS USED SHALL BE AS DEFINED IN THE EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS REFERENCED IN THE BUILDING CODE OF NEW YORK STATE.
2. THE TERM "INDICATED" SHALL MEAN "AS SHOWN ON CONTRACT DOCUMENTS (SPECIFICATIONS, DRAWINGS, AND RELATED ATTACHMENTS)".
3. THE TERM "PROVIDE" SHALL MEAN "TO FURNISH, INSTALL, AND CONNECT COMPLETELY".
4. THE TERM "SIZE" SHALL MEAN ONE OR MORE OF THE FOLLOWING: "LENGTH, CURRENT AND VOLTAGE RATING, NUMBER OF POLES, NEMA SIZE, AND OTHER SIMILAR ELECTRICAL CHARACTERISTICS".

PLANS
1. ELECTRICAL PLANS, DETAILS, AND ONE LINE DIAGRAMS SHOW THE GENERAL LOCATION AND ARRANGEMENT OF THE ELECTRICAL SYSTEM. THEY ARE DIAGRAMMATIC AND DO NOT SHOW ALL CONDUIT BODIES, CONNECTORS, BENDS, FITTINGS, HANGERS, AND ADDITIONAL PULL BOXES WHICH MUST BE PROVIDED TO COMPLETE THE ELECTRICAL SYSTEM.
2. ELECTRICAL PLANS AND DETAILS DO NOT SHOW ALL INTERFERENCES AND CONDITIONS, VISIBLE AND/OR HIDDEN, THAT MAY EXIST. INSPECT AND SURVEY THE SPACE BEFORE PERFORMING THE WORK.
3. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND REPRESENT A COMPLETED PROJECT. MINOR MODIFICATIONS OF WORK SHALL BE PROVIDED TO COMPLY WITH PROJECT REQUIREMENTS, LOCATIONS OF DEVICES AND EQUIPMENT SHOW A GENERAL ARRANGEMENT AND INTENDED FUNCTION. ALL COMPONENTS SHOWN ON THE RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH. EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS. BEFORE INSTALLATION OF WORK, CHECK FOR SWINGS AND ALL REQUIRED CLEARANCES, TO AVOID INTERFERENCE WITH OTHER TRADES. COORDINATE WITH ALL CONTRACT DOCUMENTS, SHOP DRAWINGS AND EQUIPMENT DRAWINGS. OBTAIN ALL REQUIRED CONTRACT DRAWINGS.

WIRING DEVICES

RECEPTACLES
1. FACEPLATE COLOR - WHITE THERMOPLASTIC NYLON IN FINISHED SPACES, STAINLESS STEEL ELSEWHERE.
2. DEVICE COLOR - WHITE IN FINISHED SPACES, GRAY ELSEWHERE.

#, #: 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., HEAVY DUTY DUPLEX RECEPTACLE, MOUNTING HEIGHT 4' AFF UON.
#: 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., HEAVY DUTY DUPLEX RECEPTACLE MOUNTED 4' AFF OR ABOVE COUNTER (WHICHEVER IS HIGHER).
#: 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DOUBLE DUPLEX "QUAD" RECEPTACLE, MOUNTING HEIGHT 4' AFF UON.
#: 125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DOUBLE DUPLEX "QUAD" RECEPTACLE MOUNTED 4' AFF OR ABOVE COUNTER (WHICHEVER IS HIGHER).

TEXT ADJACENT TO RECEPTACLES INDICATES CONFIGURATION OR ACCESSORIES. REFER TO LIST BELOW FOR DEFINITIONS.

- # — INDICATES PANELBOARD CIRCUIT TO WHICH RECEPTACLE SHALL BE CIRCUITED. REFER TO HOMERUN FOR PANELBOARD DESIGNATION.
- W — EXTERIOR RECEPTACLES SUBJECT TO DAMP ENVIRONMENTS SHALL HAVE WEATHER-PROOF-IN-USE BUBBLE COVER WITH PADLOCK CAPABILITY.
- G — RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
- U — COMBINATION RECEPTACLE AND USB CHARGER.

DATA
1. FACEPLATE COLOR - WHITE, UON.
2. DEVICE COLOR - REFER TO DRAWING E-602.

DATA DROP-REFER TO DRAWING E-602 FOR ADDITIONAL INFORMATION.

WAP — WIRELESS ACCESS POINT-REFER TO DRAWING E-602 FOR ADDITIONAL INFORMATION.

POWER EQUIPMENT

SINGLE LINE DIAGRAM

- POWER TRANSFORMER
- **AF / **AT — MOLDED CASE CIRCUIT BREAKER
  - "AF" INDICATES AMPERE FRAME SIZE
  - "AT" INDICATES AMPERE TRIP SETTINGS
- 400AF 300AT 3 — FUSED DISCONNECT
  - "400AF" INDICATES AMPERE SWITCH SIZE
  - "300AT" INDICATES AMPERE FUSE SIZE
- SYSTEM GROUND OR EQUIPMENT GROUND
- # — PANELBOARD WITH MAIN CIRCUIT BREAKER
  # = 3-PHASE VOLTAGE
- # — PANELBOARD WITH MAIN LUGS ONLY
  # = 3-PHASE VOLTAGE

FLOOR PLAN

- SURFACE MTD BRANCH CIRCUIT PANELBOARD.
- JUNCTION AND/OR PULL BOX
- ## — 240 VAC HEAVY DUTY NON-FUSED DISCONNECT SWITCH.
  "##" - INDICATES EQUIPMENT DISCONNECT SERVES
- ## — 240 VAC HEAVY DUTY MOTOR RATED SWITCH.
  "##" - INDICATES EQUIPMENT DISCONNECT SERVES
- SPD — SURGE SUPPRESSION DEVICE
- (M) — ELECTRICAL CONNECTION AS DEFINED IN MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- DB-XX — DESIGNATION FOR UNDERGROUND ELECTRICAL DUCT BANK

CIRCUITING LEGEND

CIRCUITING

- LP2A-1,3,5 — HOMERUN TO PANEL "LP2A", CIRCUITS #1,3,5 (VIA 20A-1P C/B'S). PROVIDE INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH SPECIFICATIONS. NUMBER OF CIRCUITS INDICATED BY QUANTITY OF ARROW HEADS
- L2PA-2 — HOMERUN TO PANEL "L2PA" VIA 20A/1P CKT BKR. SEE BELOW PARAGRAPH 'HASH MARKS' FOR CONDUCTOR SIZING:
- HASH MARKS INDICATE QUANTITY OF #12 AWG COPPER CONDUCTORS IN CONDUIT. WHEN NO HASH MARKS ARE INDICATED, CONDUIT SHALL CONTAIN (2) #12 WIRES AND #12 GROUND WIRE. ASSUME 3/4" DIAMETER CONDUIT, UNLESS NOTED OTHERWISE NOTED.
  EXAMPLE SHOWN AT LEFT INDICATES 2 HOT (SHORT LINES), 2 NEUTRAL (LONG LINES), AND 1 GROUND WIRES (LONG LINE WITH TAIL).

NOTE
CONDUCTORS REQUIRED FOR LUMINAIRE SWITCHING ARE NOT ACCOUNTED FOR ON THE PLANS USING HASH MARKS. INCLUDE ANY NECESSARY CONDUCTORS REQUIRED FOR SWITCHING IN BID. SWITCHING DESIGNATIONS (LOWER CASE LETTERS) ARE SHOWN TO ILLUSTRATE SWITCHING INTENT.

CIRCUIT ROUTING SHOWN ON DRAWINGS SHALL BE CONSIDERED DIAGRAMMATIC ONLY. PROVIDE NECESSARY OFFSETS AND ROUTE FEEDERS AFTER HAVING CONSIDERED ALL FIELD OBSTACLES

LIGHTING

4

LIGHT FIXTURES

- 'A' — UPPER CASE LETTER INDICATES FIXTURE TYPE.
- 'a' — LOWER CASE LETTER INDICATES SWITCH CONTROL. WHERE NO SWITCH CONTROL DESIGNATION IS PROVIDED, CONTROL SHALL BE VIA MASTER ROOM SWITCH OR MASTER ROOM OCCUPANCY SENSOR (WHERE PROVIDED).
- '#' — INDICATES PANELBOARD CIRCUIT TO WHICH FIXTURE SHALL BE CIRCUITED.
- 'NL' — INDICATES NIGHT LIGHT. FIXTURE SHALL NOT HAVE SWITCH CONTROL.
- MH — INDICATES FIXTURE MOUNTING HEIGHT

EXIT & EGRESS

- EBU — EMERGENCY BATTERY UNIT (EBU). REFER TO LUMINAIRE SCHEDULE
- EBU2 — EMERGENCY BATTERY UNIT (EBU) WITH REMOTE HEAD. REFER TO LUMINAIRE SCHEDULE
- CEILING-MOUNTED ILLUMINATED "EXIT" SIGN LIGHTING FIXTURE.
- WALL-MOUNTED ILLUMINATED "EXIT" SIGN LIGHTING FIXTURE.

NOTE: ARROWS INDICATE DIRECTION OF EGRESS.

EXIT SIGNS SHALL BE INSTALLED 8'-6" AFF. PROVIDE PENDANTS AS REQUIRED BY ROOM CEILING/STRUCTURE HEIGHT.

LIGHTING CONTROL

- LIGHT SWITCH. REFER TO LIGHTING CONTROL SYSTEM SCHEDULE.
- OSXX VSXX APP RC1 — LIGHT CONTROL DEVICES, REFER TO LIGHTING CONTROL SYSTEM SCHEDULE.

FIRE ALARM LEGEND

FIRE ALARM DEVICES

CEILING-MOUNTED DEVICES:
- F — HORN/STROBE (RED DEVICE, CLEAR LENS) CEILING MOUNTED. (15cd UNLESS OTHERWISE NOTED)
- V — STROBE ONLY (RED DEVICE, CLEAR LENS) CEILING MOUNTED. (15cd UNLESS OTHERWISE NOTED)

WALL-MOUNTED DEVICES:
- F — HORN/STROBE (RED DEVICE, CLEAR LENS) WALL MOUNTED. (15cd UNLESS OTHERWISE NOTED)
- V — STROBE ONLY (RED DEVICE, CLEAR LENS) WALL MOUNTED. (15cd UNLESS OTHERWISE NOTED)

FIRE ALARM EQUIPMENT
- FR — FAN/UNIT SHUTDOWN RELAY MODULE
- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR PANEL
- IAM — ADDRESSABLE INTERFACE MODULE
- NAC — NOTIFICATION APPLIANCE POWER SUPPLY

INITIATION DEVICES
- F — FIRE ALARM PULL STATION
- SD — FIRE ALARM SMOKE DETECTOR - PHOTOELECTRIC TYPE
- HD 135°F — FIRE ALARM HEAT DETECTOR - FIXED HEAD 135°F
- HD — FIRE ALARM HEAT DETECTOR - RATE OF RISE
- DS S R — DUCT MOUNTED SMOKE DETECTOR
  "S" DENOTES - MOUNT ON SUPPLY SIDE
  "R" DENOTES - MOUNT ON RETURN SIDE
- CO — CARBON MONOXIDE DETECTOR

GENERAL ABBREVIATIONS

A	AMPERES	LFMC	LIQUID-TIGHT FMC
ADA	AMERICANS WITH DISABILITIES ACT	LTFNMC	LIQUID-TIGHT FNMC
AFF	ABOVE FINISH FLOOR		
AFG	ABOVE FINISH GRADE	MC	METAL CLAD CABLE
AHJ	AUTHORITY HAVING JURISDICTION	MCB	MAIN CIRCUIT BREAKER
AIC	AMPERE INTERRUPTING CAPACITY	MCP	MOTOR CIRCUIT PROTECTOR
AL	ALUMINUM	MFR	MANUFACTURER
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AWG	AMERICAN WIRE GAUGE		
AXL	ACROSS-THE-LINE MOTOR STARTER	NC	NORMALLY CLOSED
		NEC	NATIONAL ELECTRIC CODE
BFG	BELOW FINISH GRADE	NEMA	NATL ELECTRICAL MFR'S ASSOC.
BLDG	BUILDING	NF	NON FUSED
		NTS	NOT TO SCALE
C	CONDUIT		
CB	CIRCUIT BREAKER	P	POLE
CKT	CIRCUIT	PH	PHASE
CL	CENTERLINE	PVC	POLYVINYL CHLORIDE
CLF	CURRENT LIMITING FUSE		
CT	CURRENT TRANSFORMER	QTY	QUANTITY
CU	COPPER		
		REQ'D	REQUIRED
DWG	DRAWING	RMC	RIGID METAL CONDUIT
		RTU	ROOF TOP UNIT
ECB	ENCLOSED CIRCUIT BREAKER		
EF	EXHAUST FAN	SP	SPARE
EM	EMERGENCY	SPD	SURGE PROTECTION DEVICE
EMT	ELECTRICAL METALLIC TUBING	TYP	TYPICAL
F	FUSE		
FLA	FULL LOAD AMPERES	UG	UNDERGROUND OR UNDERGRADE
FMC	FLEXIBLE METAL CONDUIT	UON,UNO	UNLESS OTHERWISE NOTED
FNMC	FLEXIBLE NON-METAL CONDUIT		
FT	FEET	V	VOLT
GFCI,GFI	GROUND-FAULT CIRCUIT INTERRUPTER	W	WIRE
GND,G	GROUND OR GROUNDING	WAP	WIRELESS ACCESS POINT
		WP	WEATHER PROOF RATED DEVICE
HOA	HAND, OFF, AUTOMATIC SWITCH		
		XFMR	TRANSFORMER
KCMIL	THOUSAND CIRCULAR MILS	Δ	DELTA
KVA	KILOVOLT AMPERES	Y	WYE
KW	KILOWATTS	ϕ	PHASE
LTG	LIGHTING		

BRANCH CIRCUIT SCHEDULE

CIRCUIT BREAKER	PHASE CONDUCTORS AND/OR NEUTRAL CONDUCTORS	GROUND CONDUCTOR	CONDUIT
3-POLE CIRCUITS			
50/3	(3)#6	#10	1"C
40/3	(3)#8	#10	1"C
30/3	(3)#10	#10	3/4"C
20/3	(3)#12	#12	3/4"C
15/3	(3)#12	#12	3/4"C
2-POLE CIRCUITS			
50/2	(2)#6	#10	1"C
40/2	(2)#8	#10	3/4"C
30/2	(2)#10	#10	3/4"C
20/2	(2)#12	#12	3/4"C
15/2	(2)#12	#12	3/4"C
1-POLE CIRCUITS			
40/1	(2)#8	#10	3/4"C
30/1	(2)#10	#10	3/4"C
20/1	(2)#12	#12	3/4"C
15/1	(2)#12	#12	3/4"C

NOTES REGARDING USE OF THIS SCHEDULE:
1. USE THIS SCHEDULE AS FOLLOWS:
   - FOR ALL RECEPTACLE AND LIGHTING CIRCUITS.
   - WHERE SPECIFIC CONDUCTOR/CONDUIT SIZING IS NOT INDICATED ELSEWHERE ON THE DRAWING SET.
   - FOR ANY BRANCH CIRCUITS THAT ARE REQUIRED TO BE RELOCATED/EXTENDED, ETC.
2. DO NOT USE THIS SCHEDULE AS FOLLOWS:
   - FOR LARGE MECHANICAL LOADS (REFER TO MECHANICAL EQUIPMENT SCHEDULE, THIS DRAWING).
   - FOR SERVICE ENTRANCE CONDUCTORS.
   - WHERE SPECIFIC CONDUCTOR/CIRCUIT IS CALLED FOR ON THE DRAWINGS.
3. WHERE CIRCUIT LENGTH EXCEEDS 100', USE NEXT HIGHER PHASE/NEUTRAL CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP.

RACEWAY SCHEDULE

AREA	CABLING/RACEWAY METHOD	REMARKS
EXTERIOR EXPOSED	RIGID GALVANIZED	SEE NOTES BELOW
RISERS FROM UNDERGROUND	RIGID GALVANIZED	SEE NOTES BELOW
UNDERGROUND	PVC #40	SEE NOTES BELOW
INTERIOR	REFER TO SPECIFICATION 260533	SEE NOTES BELOW
FINAL CONNECTIONS TO EQUIPMENT	FMC CABLE (DRY AREAS) LTFMC (WET AREAS)	SEE NOTES BELOW

GENERAL CONDUIT SCHEDULE NOTES:
1. FITTINGS:
   - RIGID GALVANIZED: THREADED
   - PVC: BELL OR GLUE
   - FLEXIBLE CONDUIT: LISTED FITTINGS FOR USE WHEN FLEXIBLE RACEWAY USED.
2. ALL CIRCUITS SHALL CONTAIN DEDICATED NEUTRALS (NO MULTI-WIRE CIRCUITS PERMITTED)
3. CONDUIT SHALL NOT BE UTILIZED FOR EFFECTIVE GROUND FAULT RETURN PATH. ALL CIRCUITS SHALL CONTAIN DEDICATED GREEN INSULATED CONDUCTOR SIZED PER DRAWINGS OR IN ACCORDANCE WITH NEC CRITERIA.
4. ALL RACEWAY TYPES ARE AS DESCRIBED HERE UNLESS OTHERWISE NOTED ON DRAWINGS.

GENERAL SCHEDULES

DRAWING NOTATION

- HEAVY & DASHED AND/OR HATCHED INDICATES EXISTING EQUIPMENT TO BE DEMOLISHED/REMOVED.
- LIGHT & SOLID INDICATES EXISTING EQUIPMENT TO REMAIN.
- HEAVY & SOLID INDICATES EQUIPMENT TO BE PROVIDED.

TEXT ADJACENT TO EQUIPMENT IS SOMETIMES ADDED FOR EXTRA CLARIFICATION ON DEMO/EXISTING TO REMAIN ITEMS. REFER TO LIST BELOW FOR DEFINITIONS.

- TBR — EXISTING EQUIPMENT TO BE REMOVED.
- ETR — EXISTING EQUIPMENT TO REMAIN. MAINTAIN IN OPERATION.
- ERE — EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED AS SHOWN.
- ETN — EXISTING EQUIPMENT TO BE REMOVED AND REPLACED WITH NEW.
- # OR 1 / E-100 — SYMBOL INDICATING GENERAL LOCATION FROM WHICH REFERENCE PHOTOGRAPH WAS TAKEN.

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES
CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

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STATE OF NEW YORK · SHANE GARRABRANT · 106086 · LICENSED PROFESSIONAL ENGINEER
REGISTRATION EXPIRES: 05/31/2028

CONTRACT:
ELECTRICAL

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

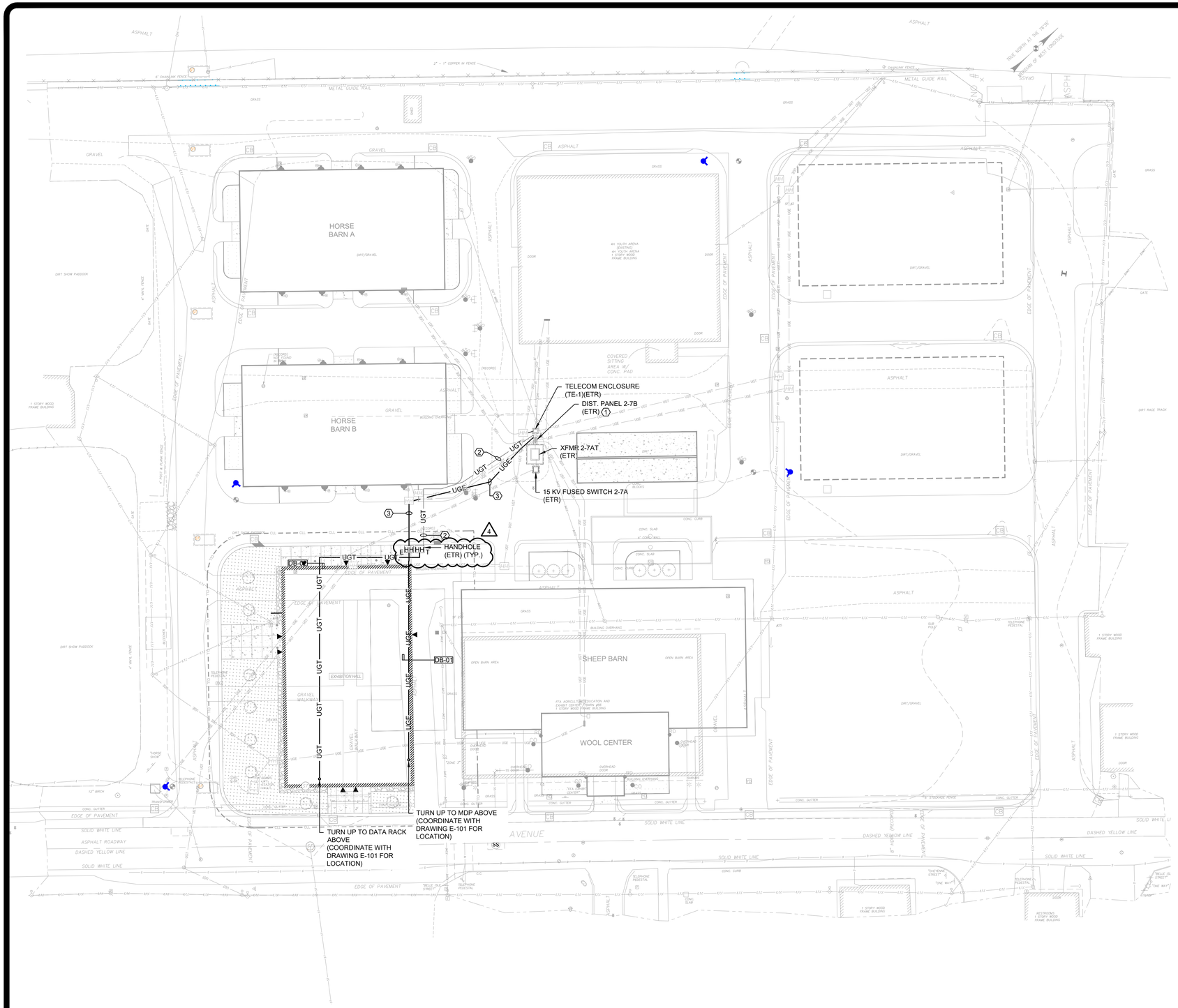
MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – E
DESIGNED BY:	SAG
DRAWN BY:	JWD
FIELD CHECK:	F.C.
APPROVED:	BCW

SHEET TITLE:
LEGENDS, ABBREVIATIONS & GENERAL NOTES

DRAWING NUMBER:
E–001

SHEET 48 OF 56



1 ELECTRIC SITE PLAN
SCALE: 1"=30'

0' 30' 60'
SCALE: 1" = 30'-0"

GENERAL NOTES:

1. REFER TO DRAWING E-001 FOR ELECTRICAL LEGENDS, ABBREVIATIONS, SCHEDULES AND GENERAL PROJECT NOTES.
2. REFER TO DRAWING E-001 FOR RACEWAY SCHEDULE FOR APPROVED RACEWAY USAGE.
3. REFER TO DRAWING E-501 FOR PANEL SCHEDULES FOR CIRCUIT CHARACTERISTICS.
4. REFER TO DRAWING E-001 FOR BRANCH CIRCUIT SCHEDULE (BCS) FOR CIRCUIT REQUIREMENTS.
5. INSTALLATION SHALL BE PER NECA1 GUIDELINES.
6. PROVIDE HANGERS & SUPPORTS AS REQUIRED.
7. PROVIDE GROUNDING PER NEC FOR ALL ELECTRICAL EQUIPMENT AND ASSOCIATED EQUIPMENT.
8. PROVIDE SUBMITTAL DATA FOR ALL PROPOSED HARDWARE, DEVICES, CONDUIT, HANGERS, ETC. FOR ENGINEER REVIEW & APPROVAL PRIOR TO ORDERING.
9. ALL CONDUCTORS AND EQUIPMENT NOT SHOWN FOR CLARITY. COORDINATE WITH ALL TRADES AND PROVIDE COMPLETE ELECTRICAL CIRCUITING FOR ALL INSTALLED EQUIPMENT. ALL REQUIREMENTS TO BE PER NEC.
10. SUGGESTED DUCT BANK ROUTING SHOWN DIAGRAMMATICALLY. COORDINATE PATH WITH C-CONTRACT AND DIRECTOR'S REPRESENTATIVE PRIOR TO ROUGH-IN. ALL TRENCHING, BACKFILLING, ETC. UP TO 5' FROM BUILDING TO BE PROVIDED BY C-CONTRACT. E-CONTRACT TO PROVIDE FROM 5' FROM BUILDING TO BUILDING INTERIOR. COORDINATE WITH C-CONTRACT.
11. PROVIDE ALL NECESSARY UNDERGROUND PULLBOXES PER NEC. REFER TO SPECIFICATION 260533 FOR ADDITIONAL INFORMATION.

KEY NOTES:

1. DISTRIBUTION PANEL MOUNTED WITHIN FREESTANDING ENCLOSURE ON EQUIPMENT PAD. CORE DRILL DB-01 CONDUIT FROM ENCLOSURE THROUGH PAD AND TRANSITION UNDERGROUND. PROVIDE WATERTIGHT PENETRATIONS AT ENCLOSURE.
2. SPARE 4"C FROM TELECOM ENCLOSURE TO HANDHOLE TO BE UTILIZED BY NYS FAIR FOR DATA SERVICE. CONDUIT PATH PROVIDED IN PREVIOUS OGS PROJECT 47304. FIELD VERIFY INSTALLED ROUTING FOR NYS FAIR WITH DIRECTOR'S REPRESENTATIVE.
3. UTILIZE SPARE 4"C BETWEEN HANDHOLES PROVIDED DURING PREVIOUS OGS PROJECT 47304. PROVIDE (4)#250 & #4G, IN EXISTING CONDUIT FROM HANDHOLE TO DISTRIBUTION PANEL 2-7B. REFER TO SINGLE LINE DIAGRAM, DRAWING E-701, FOR ADDITIONAL INFORMATION.

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

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STATE OF NEW YORK · SHANE GARRABRANT · LICENSED PROFESSIONAL ENGINEER · 106086

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SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

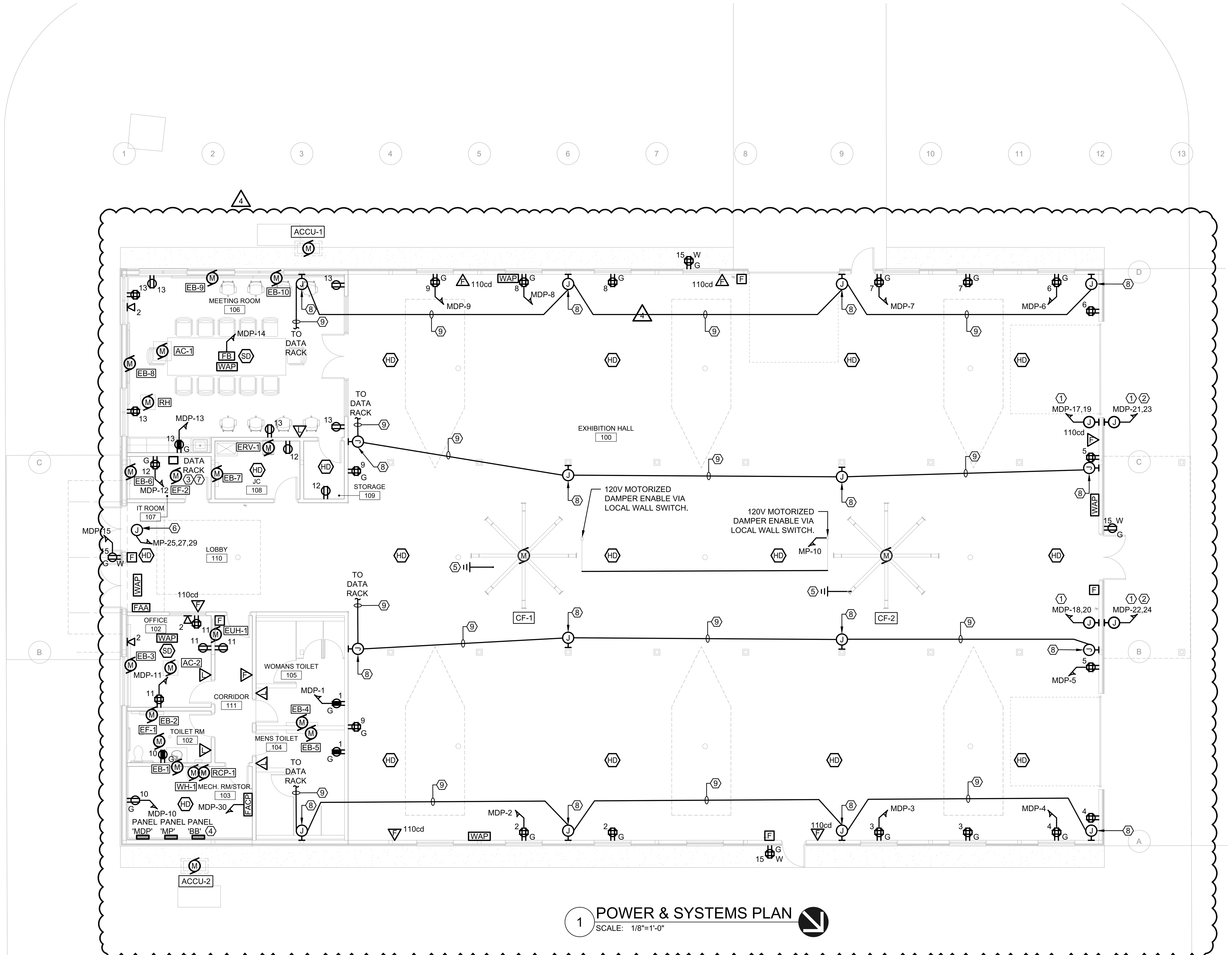
PROJECT NUMBER:	47634 – E
DESIGNED BY:	SAG
DRAWN BY:	JWD
FIELD CHECK:	F.C.
APPROVED:	BCW

SHEET TITLE:
SITE PLAN

DRAWING NUMBER:
E–002

SHEET 49 OF 56

Aug 21,2025 – 4:22pm
P:\00 JSE PROJECTS\2024\29-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\E-002.dwg
36x24 PLOT SHEET



1 POWER & SYSTEMS PLAN
SCALE: 1/8"=1'-0"

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. REFER TO DRAWING E-001 FOR ELECTRICAL LEGENDS, ABBREVIATIONS, SCHEDULES AND GENERAL PROJECT NOTES.
2. REFER TO DRAWING E-001 FOR RACEWAY SCHEDULE FOR APPROVED RACEWAY USAGE.
3. REFER TO DRAWING E-501 FOR PANEL SCHEDULES FOR CIRCUIT CHARACTERISTICS.
4. REFER TO DRAWING E-001 FOR BRANCH CIRCUIT SCHEDULE (BCS) FOR CIRCUIT REQUIREMENTS.
5. ALL CONDUCTORS SHALL BE THHN/THWN-2.
6. INSTALLATION SHALL BE PER NECA1 GUIDELINES.
7. PROVIDE HANGERS & SUPPORTS AS REQUIRED.
8. PROVIDE GROUNDING PER NEC FOR ALL ELECTRICAL EQUIPMENT AND ASSOCIATED EQUIPMENT.
9. PROVIDE SUBMITTAL DATA FOR ALL PROPOSED HARDWARE, DEVICES, CONDUIT, HANGERS, ETC. FOR ENGINEER REVIEW & APPROVAL PRIOR TO ORDERING.
10. ALL CONDUCTORS AND EQUIPMENT NOT SHOWN FOR CLARITY. COORDINATE WITH ALL TRADES AND PROVIDE COMPLETE ELECTRICAL CIRCUITING FOR ALL INSTALLED EQUIPMENT. ALL REQUIREMENTS TO BE PER NEC.

KEY NOTES:

(1) PROVIDE DEDICATED 50A 208V, 1 PHASE CIRCUIT AND L6-50R RECEPTACLE FOR PORTABLE SIMULATOR. COORDINATE LOCATION IN FIELD WITH DIRECTOR'S REPRESENTATIVE PRIOR TO ROUGH-IN. COORDINATE ROUGH-IN REQUIREMENTS (RECEPTACLE VS. DIRECT CONNECTION) IN FIELD WITH DIRECTOR'S REPRESENTATIVE AND MANUFACTURER'S RECOMMENDATIONS.

(2) PROVIDE RECEPTACLE WITH WEATHERPROOF COVER.

(3) PROVIDE WALL MOUNTED DATA RACK, COORDINATE FINAL MOUNTING LOCATION WITH FACILITY PRIOR TO INSTALLATION. PROVIDE DEDICATED 120V, 20A CIRCUIT FROM PANEL MDP AND QUAD RECEPTACLE AND DEDICATED 208V, 1ϕ, 30A CIRCUIT FROM PANEL MDP AND TWIST LOCK L6-30R RECEPTACLE ADJACENT TO RACK FOR RACK POWER. COORDINATE LOCATIONS AND ROUGH-IN WITH NYS FAIR IT GROUP AND DIRECTOR'S REPRESENTATIVE PRIOR TO ROUGH-IN.

(4) PANEL MAIN CIRCUIT BREAKER TO BE PROVIDED WITH SHUNT TRIP CAPABILITY, CONNECT SHUNT TRIP CONTROL TO MOISTURE SENSOR. MOISTURE SENSOR TO BE PROVIDED WITH 24V CAPABILITY. PROVIDE SUBMITTAL OF SENSOR TO DIRECTOR'S REPRESENTATIVE SHOWING ALL RELEVANT PRODUCT DATA, WIRING DIAGRAMS, ETC. FOR REVIEW/APPROVAL. COORDINATE SENSOR LOCATIONS IN FIELD WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION.

4

(5) PROVIDE GROUNDING OF ROOF-MOUNTED WEATHER VANE. COORDINATE WITH C-CONTRACT FOR WEATHER VANE LOCATION. PROVIDE #2 COPPER GROUND DOWN CONDUCTOR AND BOND TO WEATHER VANE. RUN DOWN CONDUCTOR THROUGH BUILDING (COORDINATE PATH IN FIELD TO BE CONCEALED). TERMINATE/BOND GROUND CONDUCTOR TO (2) 3/4" X 10' COPPER GROUND RODS. BURY GROUND RODS IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(6) PROVIDE DEDICATED CIRCUIT FOR HEAT TRACE SYSTEM. COORDINATE ROUGH-IN REQUIREMENTS WITH P-CONTRACT (SPECIFICATION SECTION 220533) . COORDINATE ALL CIRCUITRY, CONTROLS, WIRING, ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE A COMPLETE AND OPERABLE SYSTEM WITH TURN-KEY INSTALLATION. COORDINATE PIPING REQUIRING HEAT TRACE WITH P- CONTRACT.

(7) WITH DATA RACK PROVIDE THE FOLLOWING:
-QSC GX3 AMPLIFIER
-A SYMETRIX PRISM WITH DANTE 4X4 MATRIX SWITCH
-SYMETRIX ARC-2E WHITE REMOTE CONTROL
-CISCO SWITCH SG350 W/POE 24 PORT INCLUDING SFP MODULE FOR SINGLE MODE FIBER INPUT
- 500' 16 GAUAGE SPEAKER WIRE
- (2) ATLAS CJ-46 70V WIDE ANGLE HORNS AND (2) ATLAS DRIVERS DAYTON AUDIO D0175T WITH 70V TRANSFORMERS.
TURN ALL OVER TO NYS FAIR IT GROUP FOR INSTALLATION BY NYS FAIR IT GROUP.
NOTE: EQUIPMENT REQUESTED BASED ON PREVIOUSLY INSTALLED UNDER 47304 PROJECT. COORDINATE ALL EQUIPMENT WITH DIRECTOR'S REPRESENTATIVE DURING SUBMITTAL PHASE.

(8) PROVIDE 4X4X4 JUNCTION BOX AT APPROXIMATELY 14' AFF. FOR SOUND SYSTEM SPEAKER (INSTALLED BY NYS FAIR). COORDINATE BOX LOCATIONS IN FIELD WITH DIRECTOR'S REPRESENTATIVE.

(9) PROVIDE 1-1/4" EMT CONDUIT PATH BETWEEN DATA RACK AND JUNCTION BOXES FOR NYS FAIR INSTALLED SPEAKERS. ROUTE SHOWN IS DIAGRAMMATIC. COORDINATE CONDUIT ROUTING IN FIELD WITH DIRECTOR'S REPRESENTATIVE PRIOR TO ROUGH-IN.

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES
CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

REGISTRATION EXPIRES: 05/31/2028

CONTRACT: ELECTRICAL

TITLE: PROVIDE FFA BUILDING

LOCATION: NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT: NEW YORK STATE DEPT. OF AGRICULTURE & MARKETS

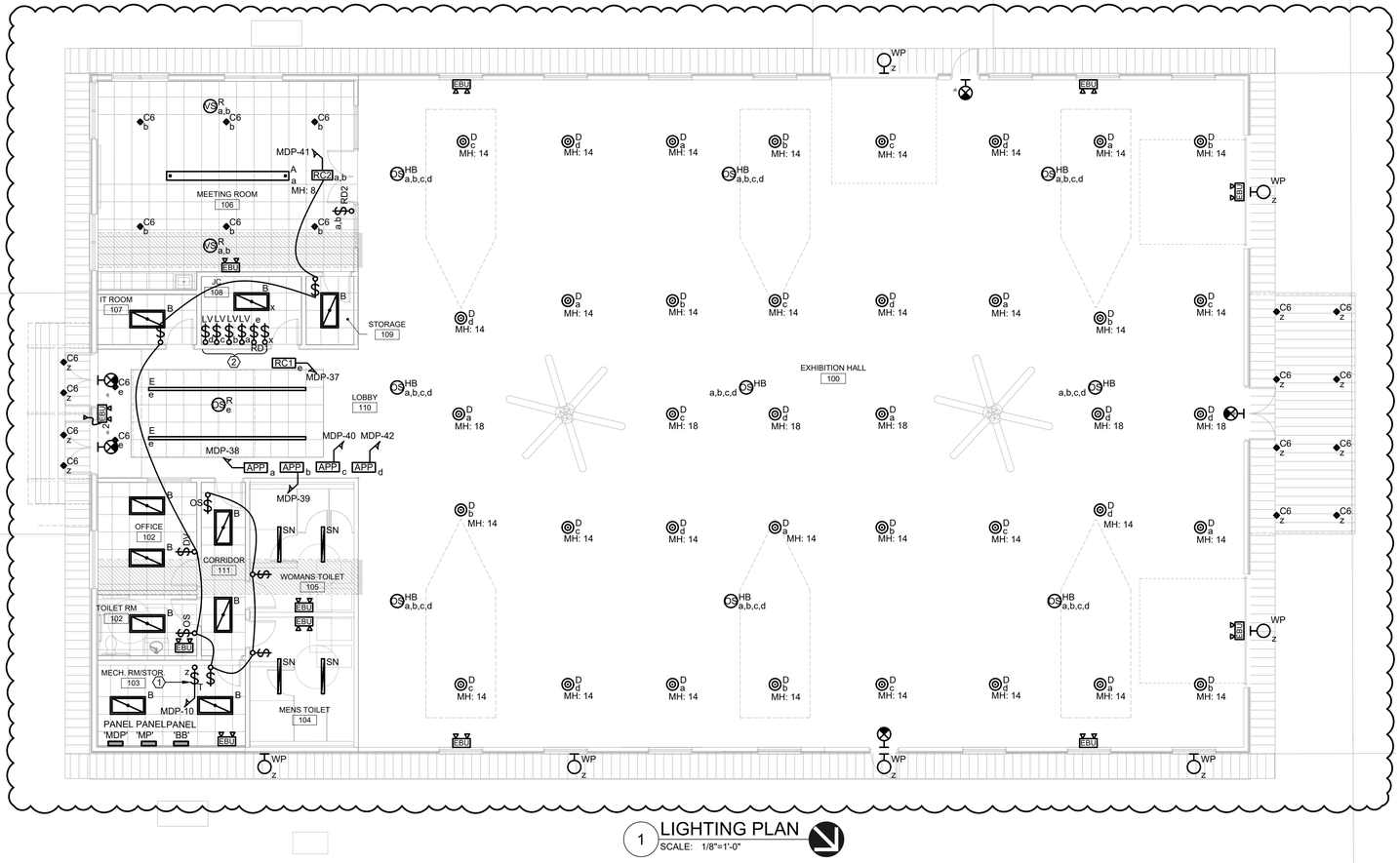
MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 — E
DESIGNED BY:	SAG
DRAWN BY:	JWD
FIELD CHECK:	F.C.
APPROVED:	BCW

SHEET TITLE: POWER & SYSTEMS PLAN

DRAWING NUMBER: E–101

SHEET 50 OF 56



1 LIGHTING PLAN
SCALE: 1/8"=1'-0"

0' 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. REFER TO DRAWING E-001 FOR ELECTRICAL LEGENDS, ABBREVIATIONS, SCHEDULES AND GENERAL PROJECT NOTES.
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3. REFER TO DRAWING E-501 FOR PANEL SCHEDULES FOR CIRCUIT CHARACTERISTICS.
4. REFER TO DRAWING E-001 FOR BRANCH CIRCUIT SCHEDULE (BCS) FOR CIRCUIT REQUIREMENTS.
5. ALL CONDUCTORS SHALL BE THHN/THWN-2.
6. INSTALLATION SHALL BE PER NECA1 GUIDELINES.
7. PROVIDE HANGERS & SUPPORTS AS REQUIRED.
8. PROVIDE GROUNDING PER NEC FOR ALL ELECTRICAL EQUIPMENT AND ASSOCIATED EQUIPMENT.
9. PROVIDE SUBMITTAL DATA FOR ALL PROPOSED HARDWARE, DEVICES, CONDUIT, HANGERS, ETC. FOR ENGINEER REVIEW & APPROVAL PRIOR TO ORDERING.
10. ALL CONDUCTORS AND EQUIPMENT NOT SHOWN FOR CLARITY. COORDINATE WITH ALL TRADES AND PROVIDE COMPLETE ELECTRICAL CIRCUITING FOR ALL INSTALLED EQUIPMENT. ALL REQUIREMENTS TO BE PER NEC.

KEY NOTES:

1. PROVIDE ASTRONOMICAL TIMECLOCK SWITCH FOR EXTERIOR LIGHTING CONTROL. PROGRAM PER MANUFACTURER'S RECOMMENDATIONS IN ACCORDANCE WITH DIRECTOR'S REPRESENTATIVE. COORDINATE SWITCH LOCATION IN FIELD WITH DIRECTOR'S REPRESENTATIVE.
2. COORDINATE EXHIBITION HALL 100 SWITCH BANK LOCATION IN FIELD WITH DIRECTOR'S REPRESENTATIVE PRIOR TO ROUGH-IN.

NEW YORK STATE OF OPPORTUNITY. | Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES

CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

STATE OF NEW YORK · SHANE GARRABRANT · 106086 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 05/31/2028

CONTRACT: ELECTRICAL

TITLE: PROVIDE FFA BUILDING

LOCATION: NEW YORK STATE, FAIRGROUNDS 581 STATE FAIR BOULEVARD SYRACUSE, NY

CLIENT: NEW YORK STATE DEPT. OF AGRICULTURE & MARKETS

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4	08/27/2025	REVISED DRAWING
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1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – E
DESIGNED BY:	SAG
DRAWN BY:	JWD
FIELD CHECK:	F.C.
APPROVED:	BCW

SHEET TITLE: LIGHTING PLAN

DRAWING NUMBER: E–102

SHEET 51 OF 56

Aug 21,2025 – 4:23pm
P:\00 JSE PROJECTS\2024\29-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\E-102.dwg
36x24 PLOT SHEET

200 AMP FRAME
200A MCB
208/120 VOLT 3ϕ, 4W+G
22K AIC RMS SYM

PANEL MDP

CIRCUIT NUMBER	CIRCUIT SERVED	BREAKER AMP	BREAKER POLE	BREAKER TYPE	BREAKER AMP	BREAKER POLE	BREAKER TYPE	CIRCUIT SERVED	CIRCUIT NUMBER
1	RECEPTACLES-WOMANS T.105, MENS T. 104	20	1	G	20	1	G	RECEPTACLES-EXHIBITION HALL 100	2
3	RECEPTACLES-EXHIBITION HALL 100	20	1	G	20	1	G	RECEPTACLES-EXHIBITION HALL 100	4
5	RECEPTACLES-EXHIBITION HALL 100	20	1	G	20	1	G	RECEPTACLES-EXHIBITION HALL 100	6
7	RECEPTACLES-EXHIBITION HALL 100	20	1	G	20	1	G	RECEPTACLES-EXHIBITION HALL 100	8
9	RECEPTACLES-EXHIBITION HALL 100	20	1	G	20	1	G	RECEPTACLES-MECH. RM/STOR. 103, T. RM 102	10
11	RECEPTACLES-OFFICE 101, CORR. 111	20	1	G	20	1	G	RECEPTACLES-IT RM 107, JC 108, STOR 109	12
13	RECEPTACLES-MEETING ROOM 106	20	1	G	20	1	G	FLOOR BOX-MEETING ROOM 106	14
15	EXTERIOR RECEPTACLES	20	1	G	20	1		SPARE	16
17	SIMULATOR (INTERIOR)	50	2		50	2		SIMULATOR (INTERIOR)	18
19									20
21	SIMULATOR (EXTERIOR)	50	2	G	50	2	G	SIMULATOR (EXTERIOR)	22
23									24
25	MP FEED	150	3		30	2		DATA RACK POWER	26
27									28
29					20	1	L	FIRE ALARM CONTROL PANEL	30
31	DATA RACK UPS	20	1		20	1		SPARE	32
33	SPARE	20	1		20	1		SPARE	34
35	SPARE	20	1		20	1		SPARE	36
37	LIGHTING	20	1	G	20	1	G	LIGHTING	38
39	LIGHTING	20	1	G	20	1	G	LIGHTING	40
41	LIGHTING	20	1	G	20	1	G	LIGHTING	42

GENERAL SCHEDULE NOTES:

1. PROVIDE SPARE BREAKERS AS INDICATED.
2. PROVIDE ARC FLASH WARNING LABEL PER SPECIFICATIONS.
3. PROVIDE TYPED PANEL DIRECTORY INDICATING LOADS SERVED.
4. REFER TO ELECTRICAL PLANS FOR GENERAL LOCATIONS OF EQUIPMENT.
5. PROVIDE ALL REQUIRED MOUNTING HARDWARE, BRACKETS, ACCESSORIES, ETC...
6. CONTRACTOR TO BALANCE PROPOSED PANEL LOAD ACROSS ALL PHASES EQUALLY.
7. VERIFY ALL CIRCUIT BREAKER REQUIREMENTS WITH EQUIPMENT MANUFACTURER. PROVIDE AS REQUIRED.
8. COORDINATE FINAL LABELING REQUIREMENTS WITH THE OWNER AND PROVIDE NAMEPLATE PER SPECIFICATIONS.
9. PROVIDE TOTAL NUMBER OF 1P SPACES AS INDICATED. PROVIDE BLOCK OFF PLATES FOR ALL SPACES WHICH ARE NOT UTILIZED.
10. REFER TO ELECTRICAL SINGLE LINE DIAGRAM, EQUIPMENT CONNECTION SCHEDULE & SPECIFICATIONS FOR ADDITIONAL INFORMATION/REQUIREMENTS.

ACCESSORIES & TRIM:

1. MOUNTING: SURFACE
2. NEMA 1 ENCLOSURE
3. DOOR-IN-DOOR COVER
4. COPPER BUS BARS
5. BASIS OF DESIGN: EATON

TYPE:
BLANK - PROVIDE NORMAL BREAKER
G - PROVIDE AS GFCI RATED BREAKER
A - PROVIDE AS AFCI RATED BREAKER
L - PROVIDE LOCK ON PROVISIONS

INTEGRAL SPD	
YES	✓
NO	

150 AMP FRAME
MLO
208/120 VOLT 3ϕ, 4W+G
22K AIC RMS SYM

PANEL MP

CIRCUIT NUMBER	CIRCUIT SERVED	BREAKER AMP	BREAKER POLE	BREAKER TYPE	BREAKER AMP	BREAKER POLE	BREAKER TYPE	CIRCUIT SERVED	CIRCUIT NUMBER
1	EF-2	20	1		20	1		EF-1	2
3	WH-1	30	2		20	1		ERV-1	4
5					20	1		CF-1	6
7	EB-5	20	2		20	1		CF-2	8
9					20	1		MOTORIZED DAMPER	10
11	SPARE	20	1		20	2		ACCU-1, AC-1	12
13	EUH-1	20	2						14
15					20	2		ACCU-2, AC-2	16
17	RCP-1	20	1						18
19	SPARE	20	1		40	2		RH-1	20
21	SPARE	20	1						22
23	SPARE	20	1		20	1		SPARE	24
25									26
27	HEAT TRACE SYSTEM	30	3		100	3		BB FEED	28
29									30

GENERAL SCHEDULE NOTES:

1. PROVIDE SPARE BREAKERS AS INDICATED.
2. PROVIDE ARC FLASH WARNING LABEL PER SPECIFICATIONS.
3. PROVIDE TYPED PANEL DIRECTORY INDICATING LOADS SERVED.
4. REFER TO ELECTRICAL PLANS FOR GENERAL LOCATIONS OF EQUIPMENT.
5. PROVIDE ALL REQUIRED MOUNTING HARDWARE, BRACKETS, ACCESSORIES, ETC...
6. CONTRACTOR TO BALANCE PROPOSED PANEL LOAD ACROSS ALL PHASES EQUALLY.
7. VERIFY ALL CIRCUIT BREAKER REQUIREMENTS WITH EQUIPMENT MANUFACTURER. PROVIDE AS REQUIRED.
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9. PROVIDE TOTAL NUMBER OF 1P SPACES AS INDICATED. PROVIDE BLOCK OFF PLATES FOR ALL SPACES WHICH ARE NOT UTILIZED.
10. REFER TO ELECTRICAL SINGLE LINE DIAGRAM, EQUIPMENT CONNECTION SCHEDULE & SPECIFICATIONS FOR ADDITIONAL INFORMATION/REQUIREMENTS.

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2. NEMA 1 ENCLOSURE
3. DOOR-IN-DOOR COVER
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5. BASIS OF DESIGN: EATON

TYPE:
BLANK - PROVIDE NORMAL BREAKER
G - PROVIDE AS GFCI RATED BREAKER
A - PROVIDE AS AFCI RATED BREAKER
L - PROVIDE LOCK ON PROVISIONS

INTEGRAL SPD	
YES	✓
NO	

LIGHTING CONTROL SYSTEM SCHEDULE

SYMBOL	DESCRIPTION	FACEPLATE & DEVICE COLOR	BASIS OF DESIGN FACEPLATE	BASIS OF DESIGN SWITCH	REMARKS
$ DV	VACANCY SENSOR DUAL TECH DIMMING (0-10V) WALL SWITCH	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER DW-311	
$ OS	OCCUPANCY SENSOR DUAL TECH WALL SWITCH	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER DSW-301	
$ LV	1-BUTTON LOW VOLTAGE MOMENTARY WALL SWITCH	WHITE	STAINLESS STEEL	WATTSTOPPER LVSW-101	
$ RD1	RAISE/LOWER DIGITAL DIMMING WALL SWITCH	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER LMSW-211	
$ RD2	2-BUTTON DIGITAL DIMMING WALL SWITCH	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER LMDM-102	
RC1	DIGITAL ROOM CONTROLLER - SINGLE ZONE (DIMMING)	-	-	WATTSTOPPER LMRC-211	
RC2a,b	DIGITAL ROOM CONTROLLER - DUAL ZONE (DIMMING)	-	-	WATTSTOPPER LMRC-212	
VS Ra	DUAL TECHNOLOGY VACANCY SENSOR	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER LMDC-100	
OS Ra	DUAL TECHNOLOGY OCCUPANCY SENSOR	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER LMDC-100	
OS HBa	HIGH BAY PIR OCCUPANCY SENSOR	WHITE	THERMOPLASTIC NYLON	WATTSTOPPER HB3X0	
APP	ANALOG 20A RATED POWER PACK	-	-	WATTSTOPPER BZ-150	
$	SINGLE POLE SWITCH	WHITE	STAINLESS STEEL	PASS & SEYMOUR PT20AC1	

GENERAL SCHEDULE NOTES:

1. NYLON FACEPLATE COLOR SHALL MATCH DEVICE COLOR
2. "a, b, c ..." LOWER CASE LETTERING IS USED TO INDICATE FIXTURE SWITCHING CONFIGURATION

REMARKS:

(1) COORDINATE DURING SUBMITTALS.

(2) INTERFACES WITH LIGHTING CONTROLS (OCCUPANCY/VACANCY SENSORS). REFER TO ELECTRICAL POWER PLAN(S) FOR LOCATIONS.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	FIXTURE BASIS OF DESIGN	LENS/DIFFUSER/ FINISH	VOLTAGE	LAMPS	BALLAST BASIS OF DESIGN	MOUNTING	DIMMING	REMARKS
A	2" SUSPENDED DIRECT/INDIRECT	COOPER (NEO-RAY) S122-DIP-ULO-1-35-X-X0048-1D-UDD-1-5-W	SATIN WHITE	120V	5.1W/T LED, 3500K 290 LM/FT DWN 330 LM/FT UP	0-10V DIMMING DRIVER	SUSPENDED	YES	(2) (4) (5)
B	LED HIGH PERFORMANCE 2'X4' TROFFER LED MODULE	COOPER (METALUX) 24FP3135C	ACRYLLIC LENS	120V	38W LED, 4000K 4500 LM	0-10V DIMMING DRIVER	RECESSED	YES	(2)
C6	6" LED DOWNLIGHT	COOPER PORTFOLIO HC610D010-HM60525835-61WDC	SPECULAR CLEAR	120V	10W LED, 3500K 1000 LM	0-10V DIMMING DRIVER	RECESSED	YES	(2)
D	LED 16" LOW BAY	KENALL ENVIROPRO EPLB-16-E-CA-GW-94L-40K8-DCC-DV	PRIMSATIC LENS	120V	106W LED, 4000K 9798 LM	0-10V DIMMING DRIVER	SUSPENDED	NO	(5) (6)
E	4" LED RECESSED LINEAR	COOPER CORELITE SQ4R-F-075D-835-1-UNV-STD-W-T1-XX	FROSTED LENS	120V	6.7W/FT LED, 3500K 746 L/FT	0-10V DIMMING DRIVER	RECESSED	NO	(2) (4)
F	LED RECESSED LINEAR	COOPER CORELITE SQ2R-F-100D-835-1-D-UNV-STD-W-T1-18	FROSTED LENS	120V	9.4W/FT LED, 3500K 106.3 LM/FT	0-10V DIMMING DRIVER	RECESSED GRID	NO	
SN	4' LED STRIPLIGHT	COOPER METALUX 4SNX-33SL-LW-UNV-CC3-CD-1-U-AYC-CHAIN-SET/U	FULL FROST	120V	24W LED, COLOR SELECTABLE 3300 LM	0-10V DIMMING DRIVER	CHAIN HUNG	NO	
WP	LED EXTERIOR WALL PACK	COOPER MCGRAW-EDISON IST-SA1A-740-U-SL4-BZ	BRONZE	120V	23.3W LED, 4000K 2680 LM	0-10V DIMMING DRIVER	WALL	NO	
EBU	LED EMERGENCY BATTERY BACK-UP UNIT	ILP EXL1-U-WS	WHITE	120V	LED	N/A	WALL	N/A	(1) (3)
EBU2	LED EMERGENCY BATTERY BACK-UP UNIT W/REMOTE HEAD	ILP EXL1-U-WH-RC-EXR1-WSS	WHITE	120V	LED	N/A	WALL	N/A	(1) (3)
EXIT	LED EXIT SIGN - QUANTITY & ORIENTATION OF FACES & HANDS AS INDICATED ON DRAWINGS	ILP EXS1-U-2RW	RED LETTERS/WHITE HOUSING	120V	LED	N/A	CEILING OR WALL	N/A	(1) (3) (4)

GENERAL SCHEDULE NOTES:

1. MODELS ARE GIVEN FOR QUALITY ONLY, SUBSTITUTE LIGHT FIXTURES SHALL BE OF APPROVED EQUAL OR GREATER QUALITY.
2. ALL FIXTURES (WHERE APPLICABLE) SHALL BE POST FABRICATION PAINTED, BAKED ACRYLIC ENAMEL.
3. PROVIDE ALL NECESSARY MOUNTING HARDWARE FOR INSTALLATION TYPE AS INDICATED.
4. ALL FIXTURES TO BE PROVIDED WITH LAMPS INSTALLED.
5. REFER TO ELECTRICAL FLOOR PLANS FOR QUANTITIES AND GENERAL LOCATIONS.

REMARKS:

1. FIXTURE TO BE PROVIDED WITH INTEGRAL EMERGENCY BATTERY BACK-UP.
2. FIXTURE TO BE PROVIDED WITH 0-10V DIMMING DRIVER. PROVIDE ALL 0-10V LOW VOLTAGE DIMMING CONDUCTORS AS REQUIRED FOR FULL DIMMING OPERATION.
3. CONTRACTOR TO REFER TO FLOOR PLANS TO DETERMINE ORIENTATION OF FACES/ARROWS AND TO VERIFY MOUNTING TYPE.
4. REFER TO FLOOR PLANS FOR FIXTURE LENGTH.
5. COORDINATE FIXTURE MOUNTING HEIGHT WITH LIGHTING PLAN, DRAWING E-102.
6. COORDINATE LENGTH OF FIXTURE MOUNTING CABLE WITH ARCHITECTURAL ELEVATIONS.

DUCT BANK SCHEDULE

DESIGNATION DB-XX	TYPE	ORIGIN	DESTINATION	POWER CIRCUIT CONDUCTORS/ CONDUIT	POWER CIRCUIT ORIGIN	POWER CIRCUIT DESTINATION	DATA CIRCUIT CONDUCTORS/ CONDUIT	DATA CIRCUIT ORIGIN	DATA CIRCUIT DESTINATION	REMARKS	
DB-01	FLOWABLE FILL CONCRETE	HANDHOLE HH-E (INSTALLED UNDER 47304)	FFA BUILDING	(4)#250 & #4G, 3"C	DISTRIBUTION PANEL 2-7B	PANEL MDP	N/A	N/A	N/A	(1)	
DB-02	FLOWABLE FILL CONCRETE	HANDHOLE HH-T (INSTALLED UNDER 47034)	FFA BUILDING	N/A	N/A	N/A	(1) 4"C W/ 24ST FOC	TELECOM ENCLOSURE TE-1	DATA RACK	(1)	

GENERAL SCHEDULE NOTES:

1. VERIFY CIRCUIT REQUIREMENTS WITH APPLICABLE EQUIPMENT MANUFACTURERS. PROVIDE CONDUCTORS AND CONDUIT AS REQUIRED.
2. DUCT BANK SWEEPS SHALL NOT HAVE LESS THAN 20'-0" RADIUS UNLESS OTHERWISE NOTED.
3. COORDINATE DUCT BANK LOCATIONS AND INSTALLATIONS WITH EXISTING AND PROPOSED STRUCTURES, EQUIPMENT, AND PIPING SYSTEMS.
4. NOT ALL CIRCUITS SHOWN FOR CLARITY. REFER TO SINGLE LINE DIAGRAMS, CONTROL DIAGRAMS, FLOOR PLANS, AND SCHEDULES FOR ADDITIONAL REQUIREMENTS.

REMARKS:

(1) ALL TRENCHING, BACKFILLING, ETC. UP TO 5' FROM BUILDING TO BE PROVIDED BY C-CONTRACT. E-CONTRACT TO PROVIDE FROM 5' FROM BUILDING TO BUILDING INTERIOR. COORDINATE WITH C-CONTRACT.

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES
CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

STATE OF NEW YORK · SHANE GARRABRANT · 106086 · LICENSED PROFESSIONAL ENGINEER
REGISTRATION EXPIRES: 05/31/2028

CONTRACT:
ELECTRICAL

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

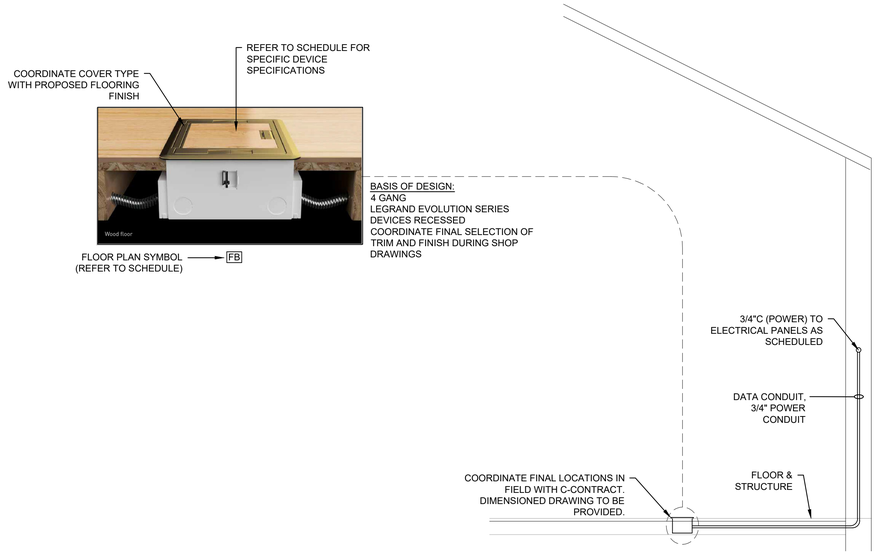
PROJECT NUMBER: 47634 – E
DESIGNED BY: SAG
DRAWN BY: JWD
FIELD CHECK: F.C.
APPROVED: BCW

SHEET TITLE:
SCHEDULES

DRAWING NUMBER:
E–502

SHEET 53 OF 56

Aug 21,2025 – 4:23pm
P:\00 JSE PROJECTS\2024\29-24 OSS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\E-502.dwg
36x24 PLOT SHEET



1 FLOOR BOX BASIS OF DESIGN & INSTALLATION DETAIL
SCALE: NOT TO SCALE

FLOOR BOX SCHEDULE

	BOX TYPE			STYLE			EQUIPPED WITH (QTY)							TRIM FINISH	BASIS OF DESIGN	REMARKS:
	POKE THRU	FLOOR BOX	WALL BOX	FLUSH/SURFACE	RECESSED	-	5-20R POWER	RJ-45 DATA	RJ-45 VOICE	SM FOC W/ LC	VGA	USB	L/R RCA			
FB	-	●	-	-	●	-	(4)	(2)	-	-	-	-	-	BRONZE	LEGRAND EVOLUTION	

GENERAL SCHEDULE NOTES:

1. COORDINATE THE EXACT HEIGHT AND POSITION OF FLOOR BOX IN ALL ROOMS PRIOR TO ROUGH-IN.

HORIZONTAL UTP CABLING

	CABLE COLOR					UTP TYPE					INSULATION			RJXX JACK COLOR					CONFIG.		
	BLUE	WHITE	PURPLE	RED	BLACK	CAT 5e	CAT 6	CAT 6A	CAT 3 4-PR	RG-8	PLENUM	RISER	GEN	WHITE	BLACK	IVORY	BLUE	OTHER	T568A	T568B	HOMERUN LOCATION
DATA	●						●				●						●			●	DATA RACK WITHIN IT RM
WAP			●				●				●						●			●	DATA RACK WITHIN IT RM

GENERAL SCHEDULE NOTES:

1. COORDINATE FINAL CABLING, DEVICE, AND FACEPLATE COLORS WITH DIRECTOR'S REPRESENTATIVE. COORDINATE FINAL COLORS DURING THE SUBMITTAL PHASE.
2. ALL CABLING TO BE LABELED AT EACH END.

REMARKS:

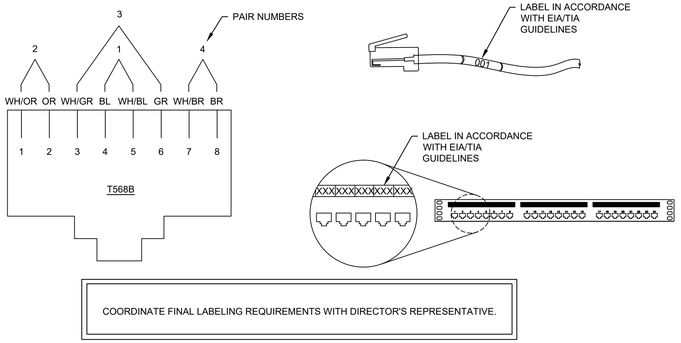
1. PROVIDE A DEDICATED CABLE FOR EACH JACK IDENTIFIED ON THE PLANS/DETAILS.
2. CONFIRM PUNCHDOWN SCHEME REQUIRED (T568B OR T568A) WITH DIRECTOR'S REPRESENTATIVE PRIOR TO PUNCHDOWN (T568B SHOWN ON THIS DRAWING).
3. REFER TO DRAWING E-101 FOR LOCATIONS.

GENERAL NOTES:

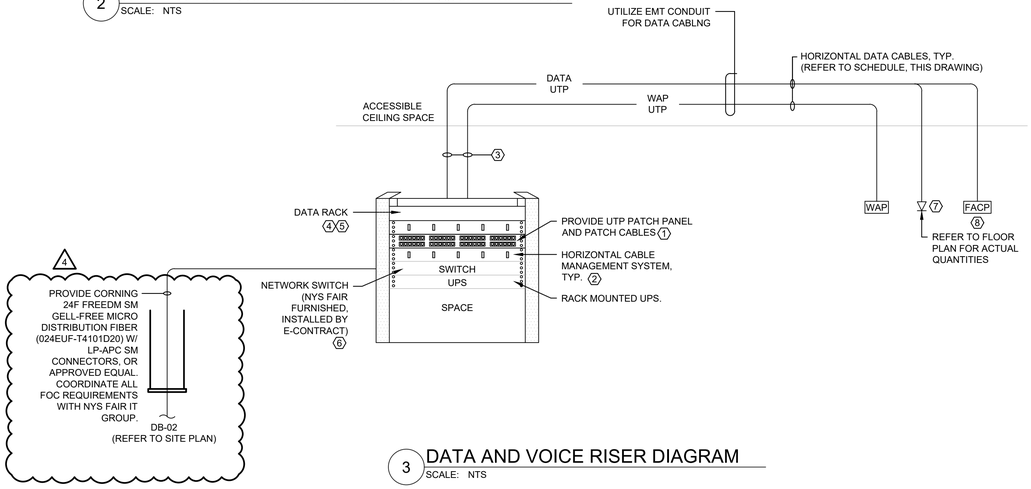
1. REFER TO DRAWING E-001 FOR ELECTRICAL LEGENDS, ABBREVIATIONS AND GENERAL NOTES.
2. ALL CABLING SHALL BE LABELED AT EACH END, AND AT FACEPLATE. CABLE LABELS SHALL BE SELF LAMINATING, PANDUIT OR EQUAL (COMMSCOPE, LEVITON). FINAL LABELING REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRESENTATIVE.
3. ALL CABLING SHALL BE NEATLY RUN AND SUFFICIENTLY SUPPORTED. FOLLOW NECA 1-2015 GUIDELINES.
4. PROVIDE GROUNDING PER NEC FOR ALL ELECTRICAL EQUIPMENT AND ASSOCIATED EQUIPMENT.
5. ALL PENETRATIONS TO BE PERFORMED IN A NEAT MANOR AND CAULKED. PROVIDE FIRE RATED CAULK WHERE REQUIRED.
6. ALL CABLING SHALL BE TESTED FOR PROPER IDENTIFICATION AND CONTINUITY. ALL OPENS, SHORTS, CROSSES, GROUNDS AND REVERSALS SHALL BE CORRECTED.
7. CONTRACTOR TO COORDINATE ALL PROPOSED WORK WITH DIRECTOR'S REPRESENTATIVE.
8. EXACT ROUTING OF HORIZONTAL CABLING SHALL BE DETERMINED IN FIELD. REFER TO DRAWING E-101 FOR DATA RACK AND VOICE BLOCK LOCATION.
9. SUBMIT PRODUCT/SUBMITTAL DATA ON ALL MATERIALS SHOWN ON THIS DRAWING FOR APPROVAL BY ENGINEER OF RECORD, PRIOR TO PURCHASE/INSTALL.

KEY NOTES:

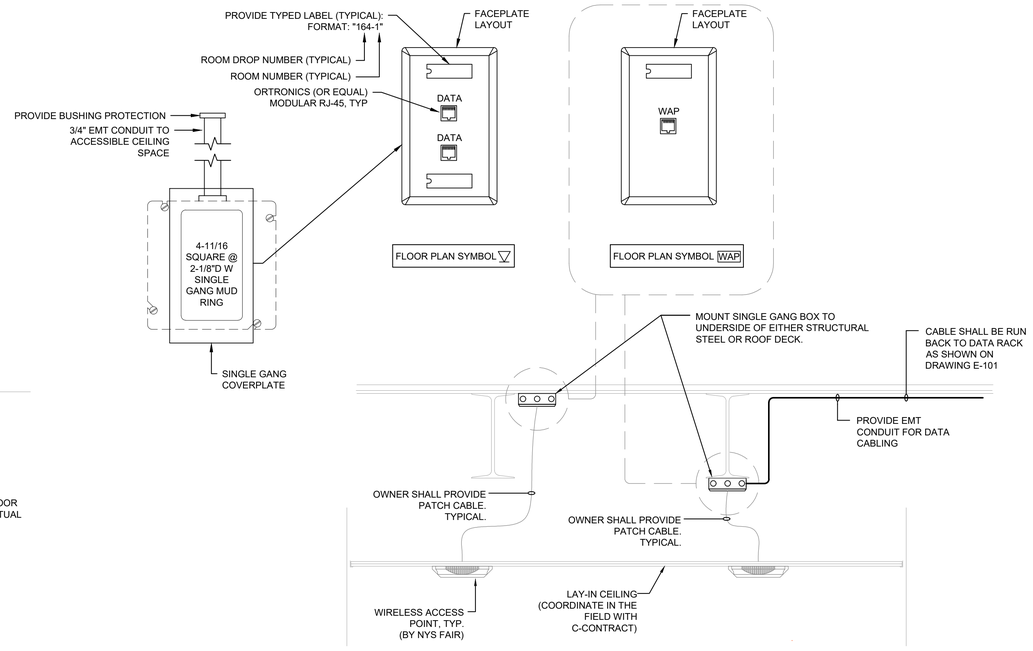
1. PROVIDE UTP PATCH PANEL (TYP. OF 1) FOR ALL DEVICES. FINAL REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION & TERMINATIONS.
2. PROVIDE HORIZONTAL CABLE MANAGEMENT SYSTEMS WITHIN THE RACK ENCLOSURE AS REQUIRED TO FACILITATE A NEAT CABLE MANAGEMENT SYSTEM. FINAL REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRSENTATIVE PRIOR TO PURCHASE AND INSTALLATION.
3. DETERMINE HOMERUN ROUTE IN FIELD. ALL THRU-WALL PENETRATIONS TO BE PROPERLY SEALED.
4. PROVIDE WALL MOUNTED RACK WITH TOP AND BOTTOM 4-1/2" FANS, BOTH AS MANUFACTURED BY MIDDLE ATLANTIC OR APPROVED EQUAL (HOFFMAN, LEGRAND). PROVIDE ALL REQUIRED CIRCUITRY FOR FAN CONNECTION/OPERATION. FINAL REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION & TERMINATIONS. REFER TO DIVISION 27 SPECIFICATIONS FOR RACK BASIS OF DESIGN.
5. PROVIDE ALL REQUIRED EQUIPMENT WITHIN RACK ENCLOSURE TO FACILITATE MOUNTING OF PROPOSED EQUIPMENT INCLUDING BUT NOT LIMITED TO; REAR RACKRAIL (RRF10) AS MANUFACTURED BY MIDDLE ATLANTIC OR APPROVED EQUAL (HOFFMAN, LEGRAND). FINAL REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION & TERMINATIONS.
6. NETWORK SWITCH IS TO BE FURNISHED BY THE NYS FAIR AND INSTALLED WITHIN THE RACK UNDER THIS CONTRACT. FINAL REQUIREMENTS TO BE CLOSELY COORDINATED WITH DIRECTOR'S REPRESENTATIVE PRIOR TO INSTALLATION & TERMINATIONS.
7. TERMINATE, TEST, AND GROUND ALL CABLING AND SYSTEMS. COORDINATE ALL REQUIREMENTS WITH THE DIRECTOR'S REPRESENTATIVE. INSTALLATION TO COMPLY WITH ALL BICSI STANDARDS. UPON COMPLETION OF TESTING TURN A COPY OF THE TESTING REPORT OVER TO THE DIRECTOR'S REPRESENTATIVE.
8. REFER TO DRAWING E-701 FOR INFORMATION REGARDING DATA REQUIRED FOR THE FIRE ALARM SYSTEM.



2 UTP PUNCHDOWN & LABELING REQUIREMENTS
SCALE: NTS



3 DATA AND VOICE RISER DIAGRAM
SCALE: NTS



4 GENERAL DATA/VOICE BOX INSTALLATION DETAIL
SCALE: NTS

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: TRAUTMAN ASSOCIATES
CERTIFICATE OF AUTHORIZATION: # 018337

TRAUTMAN ASSOCIATES
ARCHITECTS / ENGINEERS

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

STATE OF NEW YORK · SHANE GARRABRANT · LICENSED PROFESSIONAL ENGINEER · 106086
REGISTRATION EXPIRES: 05/31/2028

CONTRACT:
ELECTRICAL

TITLE:
PROVIDE
FFA BUILDING

LOCATION:
NEW YORK STATE, FAIRGROUNDS
581 STATE FAIR BOULEVARD
SYRACUSE, NY

CLIENT:
NEW YORK STATE DEPT.
OF AGRICULTURE & MARKETS

MARK	DATE	DESCRIPTION
4	08/27/2025	REVISED DRAWING
3	03/20/2025	FINAL SUBMISSION
2	11/04/2024	100% SUBMISSION
1	10/09/2024	INTERIM REVIEW

PROJECT NUMBER:	47634 – E
DESIGNED BY:	SAG
DRAWN BY:	JWD
FIELD CHECK:	F.C.
APPROVED:	BCW

SHEET TITLE:
DETAILS

DRAWING NUMBER:
E–602

SHEET 55 OF 56

Aug 21,2025 – 4:36pm
P:\00 JSE PROJECTS\2024\39-24 OGS NYS Fairgrounds FFA Building\1-Active Drawings\3-MPE\E-602.dwg
36x24 PLOT SHEET