

PROJECT MANUAL

New Addition For
**NEW RIVER
ELECTRICAL**

15 Cloverdale Pl.
Cloverdale, Virginia
June 30, 2021
Comm. No. 20064

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Division 03 - Concrete

Section 031000 - Concrete Forming and Accessories

SECTION INCLUDES

FORMWORK - GENERAL

Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

WOOD FORM MATERIALS

Form Materials: At the discretion of the Contractor.

EARTH FORMS

Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

Section 032000 - Concrete Reinforcing

REINFORCEMENT

Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).

Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars.

Reinforcing Steel: Deformed bars, ASTM A996/A996M Grade 40 (280), Type A.

Reinforcing Steel Mat: ASTM A704/A704M, using ASTM A615/A615M, Grade 40 (40,000 psi) steel bars or rods, unfinished.

Stirrup Steel: ASTM A1064/A1064M steel wire, unfinished.

Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.

Section 033000 - Cast-in-Place Concrete

FORMWORK

Comply with requirements of Section 031000.

REINFORCEMENT MATERIALS

Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.

CONCRETE MATERIALS

Cement: ASTM C150/C150M, Type I - Normal Portland type.

Blended, Expansive Hydraulic Cement: ASTM C845/C845M, Type K.

Fine and Coarse Aggregates: ASTM C33/C33M.

Lightweight Aggregate: ASTM C330/C330M.

Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

ACCESSORY MATERIALS

Underslab Vapor Retarder:

Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.

PLACING CONCRETE

Place concrete in accordance with ACI 304R.

Division 04 - Masonry

Section 040511 - Mortar and Masonry Grout

MORTAR AND GROUT APPLICATIONS

Mortar Mix Designs: ASTM C270, Property Specification.

MATERIALS

Section 042000 - Unit Masonry

CONCRETE MASONRY UNITS

Concrete Block: Comply with referenced standards and as follows:

Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.

Load-Bearing Units: ASTM C90, normal weight.

MORTAR AND GROUT MATERIALS

Masonry Cement: ASTM C91/C91M, Type N.

Hydrated Lime: ASTM C207, Type S.

Mortar Aggregate: ASTM C144.

Grout Aggregate: ASTM C404.

REINFORCEMENT AND ANCHORAGE

Reinforcing Steel: Type specified in Section 032000; size as indicated on drawings; galvanized finish.

FLASHINGS

Metal Flashing Materials:

Membrane Non-Asphaltic Flashing Materials:

Composite Polymer Flashings - Self-Adhering: Composite polyethylene; 40 mil thick with pressure-sensitive adhesive and release paper.

EPDM Flashing: ASTM D4637/D4637M, Type I, 0.040 inch thick.

ACCESSORIES

Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.

Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.

Weeps:

Termite-Excluding Weep and Vent:

Drainage Fabric: Polyester or polypropylene mesh bonded to a water and vapor-permeable fabric.

MORTAR AND GROUT MIXING

Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.

COURSING

Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

Concrete Masonry Units:

Bond: Running.

Section 047200 - Cast Stone Masonry

MATERIALS

Portland Cement: ASTM C150/C150M.

Coarse Aggregate: ASTM C33/C33M, except for gradation; granite, quartz, or limestone.

Fine Aggregate: ASTM C33/C33M, except for gradation; natural or manufactured sands.

Admixtures: ASTM C494/C494M.

Water: Potable.

Reinforcing Bars: ASTM A615/A615M, Grade 40 (40,000 psi), deformed bars, galvanized.

Steel Welded Wire Reinforcement: ASTM A1064/A1064M, galvanized or ASTM A884/A884M, epoxy coated.

Embedded Anchors, Dowels, and Inserts: Type 304 stainless steel, of type and size as required for conditions.

Mortar: Portland cement-lime, as specified in Section 040511 ; do not use masonry cement.

Section 047300 - Manufactured Stone Masonry

MORTAR APPLICATIONS

Division 05 - Metals

Section 052100 - Steel Joist Framing

MATERIALS

Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

Section 053100 - Steel Decking

STEEL DECK

All Deck Types: Select and design metal deck in accordance with SDI Design Manual.

Acoustical Roof Deck: Non-composite type, steel sheet with plain vertical flute faces perforated with 1/8 inch diameter holes staggered 3/8 inch on center:

Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.

Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.

Section 054000 - Cold-Formed Metal Framing

FRAMING SYSTEM

Provide primary and secondary framing members, bridging, bracing, plates, gussets, clips, fittings, reinforcement, and fastenings as required to provide a complete framing system.

FRAMING MATERIALS

Studs and Track: ASTM C955; studs formed to channel, C- or Sigma-shaped with punched web; U-shaped track in matching nominal width and compatible height.

Section 055100 - Metal Stairs

METAL STAIRS - GENERAL

Metal Stairs: Provide stairs of the design specified, complete with landing platforms, vertical and horizontal supports, railings, and guards, fabricated accurately for anchorage to each other and to building structure.

Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.

Section 055213 - Pipe and Tube Railings

RAILINGS - GENERAL REQUIREMENTS

Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.

Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

Division 06 - Wood, Plastics, and Composites

Section 061000 - Rough Carpentry

GENERAL REQUIREMENTS

Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.

Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

Section 061053 - Miscellaneous Rough Carpentry

GENERAL REQUIREMENTS

Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

DIMENSION LUMBER FOR CONCEALED APPLICATIONS

Sizes: Nominal sizes as indicated on drawings, S4S.

Moisture Content: S-dry or MC19.

Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:

Lumber: S4S, No.2 or Standard Grade.

Boards: Standard or No.3.

Section 061753 - Shop-Fabricated Wood Trusses

TRUSSES

Wood Trusses: Designed and fabricated in accordance with ANSI/TPI 1 and TPI DSB-89 to achieve structural requirements indicated.

Division 07 - Thermal and Moisture Protection

Section 070553 - Fire and Smoke Assembly Identification

FIRE AND SMOKE ASSEMBLY IDENTIFICATION

Regulatory Requirements: Comply with "Marking and Identification" requirements of "Fire-Resistance Ratings and Fire Tests" chapter of ICC (IBC).

Adhered Fire and Smoke Assembly Identification Signs: Printed vinyl or paper sign with factory applied adhesive backing.

Applied Fire and Smoke Assembly Identification: Identification markings applied to partition with paint and a code compliant stencil. See Section 099123 for products.

Languages: Provide sign markings in English.

Section 071113 - Bituminous Dampproofing

BITUMINOUS DAMPPROOFING

Bituminous Dampproofing: Cold-applied water-based emulsion; asphalt with mineral colloid or chemical emulsifying agent; with or without fiber reinforcement; asbestos-free; suitable for application on vertical and horizontal surfaces.

Composition - Vertical Application: ASTM D1227/D1227M Type III or ASTM D1187/D1187M Type I.

Composition - Horizontal and Low-Slope Application: ASTM D1227/D1227M Type II or III.

VOC Content: Not more than permitted by local, State, and federal regulations.

Applied Thickness: 1/16 inch, minimum, wet film.

APPLICATION

Foundation Walls: Apply two coats of asphalt dampproofing.

Perform this work in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.

Section 071400 - Fluid-Applied Waterproofing

WATERPROOFING APPLICATIONS

FLUID APPLIED WATERPROOFING MATERIALS

Section 072119 - Foamed-In-Place Insulation

MATERIALS

Section 072400 - Exterior Insulation and Finish Systems

EXTERIOR INSULATION AND FINISH SYSTEM

MATERIALS

Section 072726 - Fluid-Applied Membrane Air Barriers - Dow

FLUID-APPLIED MEMBRANE AIR BARRIER ASSEMBLY

Applications:

Fluid-Applied Membrane Air Barrier: Single-component, vapor permeable, 100 percent silicone elastomeric air barrier.

Vapor Permeance: 10 perms, minimum, when tested in accordance with ASTM E96/E96M using Desiccant Method at 73.4 degrees F.

Air Barrier Leakage: Not greater than 0.04 cfm/sq ft of surface area at pressure of 1.57 psf when tested in accordance with ASTM E2357.

Section 073113 - Asphalt Shingles

ASPHALT SHINGLES

Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.

Fire Resistance: Class A, complying with ASTM E108.
Color: As selected by Architect.

SHEET MATERIALS

Roll Roofing:

Smooth Surfaced Roll Roofing: Asphalt-coated organic felt, with smooth asphalt coating both sides, complying with ASTM D6380/D6380M, Class S, Type III, 51.1 lb/100 sq ft.

Eave Protection Membrane:

Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

Underlayment: Self-adhering rubber-modified asphalt sheet complying with ASTM D1970/D1970M; 22 mil total thickness; with strippable release film and woven polypropylene sheet top surface.

METAL FLASHINGS

Metal Flashings: Provide sheet metal eave edge, gable edge, ridge, ridge vents, open valley flashing, chimney flashing, dormer flashing, and other flashing indicated.

Section 076100 - Sheet Metal Roofing

SHEET MATERIALS

Pre-Finished Galvanized Steel Sheet: ASTM A653/A653M, with G90/Z275 zinc coating; 24 gauge, 0.0239 inch minimum base metal thickness, shop pre-coated with PVDF (polyvinylidene fluoride) coating; color as selected.

FABRICATION

Form sections true to shape, accurate in size, square, and free from distortion or defects.

Form pieces in longest practical lengths.

ACCESSORIES

Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.

Section 076200 - Sheet Metal Flashing and Trim

SHEET MATERIALS

Pre-Finished Aluminum: ASTM B209/B209M; 18 gauge, 0.040 inch thick; plain finish shop pre-coated with silicone modified polyester coating.

GUTTER AND DOWNSPOUT FABRICATION

Gutters: SMACNA (ASMM) Rectangular profile.

Downspouts: Rectangular profile.

Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).

ACCESSORIES

Fasteners: Galvanized steel, with soft neoprene washers.

Section 077100 - Roof Specialties

COMPONENTS

Section 077123 - Manufactured Gutters and Downspouts

MATERIALS

Section 078400 - Firestopping

FIRESTOPPING SYSTEMS

Division 08 - Openings

Section 081113 - Hollow Metal Doors and Frames

PERFORMANCE REQUIREMENTS

Requirements for Hollow Metal Doors and Frames:

Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.

Accessibility: Comply with ICC A117.1 and ADA Standards.

HOLLOW METAL DOORS

HOLLOW METAL FRAMES

Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

Frame Finish: Factory primed and field finished.

Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.

Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.

Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

Door Frames, Fire-Rated: Knock-down type.

Fire Rating: Same as door, labeled.

Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.

Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.

Section 081116 - Aluminum Doors and Frames

DOORS AND FRAMES

Dimensions and Shapes: As indicated on drawings; dimensions indicated are nominal.

Provide the following clearances:

Hinge and Lock Stiles: 1/8 inch.

Between Meeting Stiles: 1/4 inch.

At Top Rail and Bottom Rail: 1/8 inch.

Section 081416 - Flush Wood Doors

DOORS AND PANELS

Doors: See drawings for locations and additional requirements.

DOOR AND PANEL CORES

DOOR FACINGS

DOOR CONSTRUCTION

Fabricate doors in accordance with door quality standard specified.

Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

FINISHES - WOOD VENEER DOORS

Section 087100 - Door Hardware

DESIGN AND PERFORMANCE CRITERIA

Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

Provide door hardware products that comply with the following requirements:

Applicable provisions of federal, state, and local codes.

Fire-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), testing firm acceptable to authorities having jurisdiction, or [] as suitable for application indicated.

FINISHES

Section 088000 - Glazing

GLASS MATERIALS

Float Glass: Provide float glass based glazing unless otherwise indicated.

Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.

Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.

Kind FT - Fully Tempered Type: Complies with ASTM C1048.

Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

Heat-Soak Testing (HST): Provide HST of fully tempered glass used on canopy, point-supported, spider wall, high-risk, sloping overhead, horizontal overhead, free-standing glass protective barrier, or other demanding applications of project, to reduce risks of spontaneous breakage due to nickel sulfide (NiS) induced fractures in accordance with industry established testing requirements.

Impact Resistant Safety Glass: Complies with ANSI Z97.1 - Class B, or 16 CFR 1201 - Category I criteria.

Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.

Laminated Glass: Float glass laminated in accordance with ASTM C1172.

Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

INSULATING GLASS UNITS

Fabricator: Certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.

Insulating Glass Units: Types as indicated.

Durability: Certified by an independent testing agency to comply with ASTM E2190.

Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.

Metal Edge Spacers: Aluminum, bent and soldered corners.

Edge Seal:

Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.

Type IG-1 - Insulating Glass Units: Vision glass, double glazed.

Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.

Metal edge spacer.

Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.

Total Thickness: 1 inch.

Type IG-5 - Insulating Glass Units: Safety glazing.

Glass Type: Same as Type [] except use fully tempered float glass for both outboard and inboard lites.

Total Thickness: 1 inch.

Metal edge spacer.

GLASS COATINGS

Solar Control Coating: Two-component, metal-oxide nano-particles with 5 percent solids content, minimum.

Application: Locations as indicated on drawings.

Color: Clear, fade resistant.

Dry Film Thickness: 10 microns, bubble and crack resistant.

Self-Cleaning Photocatalytic Glass Coating: Transparent visible light activated coating that improves air quality and maintaining clean glass that also breaks down VOC's, odors, and airborne pollutants; ISO-tested.

Application: Locations as indicated on drawings.

Dry Film Thickness: 0.1 microns.

Protective Glass Coating: High performance, poly-siloxane based coating that durably seals and protects interior and exterior glass against wear, corrosion, and degradation from environmental exposure.

Application: Locations as indicated on drawings.

Color: Clear, colorless liquid.

Section 088813 - Fire-Rated Glazing

GLASS MATERIALS

Section 089100 - Louvers

LOUVERS

Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.

Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.

Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.

Stationary Louvers, Type [___]: Horizontal blade, formed galvanized steel sheet construction, with intermediate mullions matching frame.

Blades: Straight.

Frame: 4 inches deep, channel profile; corner joints mitered and , with continuous recessed caulking channel each side.

Steel Finish: Superior performing organic coating, finished after fabrication.

Division 09 - Finishes

Section 092116 - Gypsum Board Assemblies

METAL FRAMING MATERIALS

Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.

BOARD MATERIALS

Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.

Application: Use for vertical surfaces and ceilings, unless otherwise indicated.

Unfaced fiber-reinforced gypsum panels as defined in ASTM C1278/C1278M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.

At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.

GYPSUM WALLBOARD ACCESSORIES

Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.

Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

Joint Compound: Drying type, vinyl-based, ready-mixed.

Joint Compound: Setting type, field-mixed.

Finishing Compound: Surface coat and primer, takes the place of skim coating.

High Build Drywall Surfer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

Concrete Cover Coat Compound: Ready-mix compound for filling and smoothing interior, above-grade, monolithic concrete ceilings and columns.

Section 092216 - Non-Structural Metal Framing

FRAMING MATERIALS

Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.

Section 095100 - Acoustical Ceilings

ACOUSTICAL UNITS

Acoustical Units - General: ASTM E1264, Class A.

SUSPENSION SYSTEM(S)

Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.