



MANUFACTURER
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SPECIFICATION DATA
Vinyl Fence and Gates

SECTION 02820 – FENCES AND GATES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: National Vinyl Products (NVP) vinyl fencing and gate systems.
- B. Related Sections: Section(s) related to this section include:
 - 1. Division 3 Section: Concrete
 - 2. Division 2 Section: Site Construction
 - a. 02300 – Earthwork
 - 3. Division 6 Section: Woods and Plastics
 - a. 06510 – Structural Plastic Shapes and Plates
 - b. 06520 – Plastic Structural Assemblies
 - c. 06600 – Plastic Fabrications

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
 - 2. ASTM D638 Standard Test Method for Tensile Properties of Plastics.
 - 3. ASTM D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
 - 4. ASTM D792 Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
 - 5. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - 6. ASTM D4216 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly (Vinyl Chloride) (CPVC) Building Products Compounds.
 - 7. ASTM F964 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Exterior Profiles Used for Fencing.

1.03 DEFINITIONS

- A. Posts: Vertical structure support members of the fence/gate system.

- B. Rails: Horizontal structural support members of the fence/gate system.
- C. Pickets: Vertical members between the bottom and top rails.
- D. Aluminum Channel: Structural supports inside rails.
- E. Galvanized Steel Channel: Structural supports inside rails.
- F. Aluminum Post Inserts/Reinforcement: Structural supports inside posts.
- G. Galvanized Steel Inserts/Reinforcement: Structural supports inside posts.

1.04 SYSTEM DESCRIPTION

- A. The contractor shall provide a complete PVC fencing/gate system of the design, style and strength defined herein. Fencing and gate components are comprised of profiles made of extruded, rigid polyvinylchloride (PVC). This PVC material is specially formulated for outdoor use with superior color hold and impact resistant properties after extended outdoor exposure. The system shall include all posts, rails, pickets, caps, metal inserts, and accessory items necessary to complete the installation. Color shall be White, Tan, Clay, Slate Gray, Desert, Textured Tan, Textured Clay, Weathered Aspen, Driftwood, Textured Driftwood, Dark Walnut, Dark Sequoia, or Textured Dark Sequoia

1.05 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract.
- B. Product Data: Submit product data for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories and finish colors. Include details showing fabrication and installation of rails and pickets, including plans elevations, sections, details of components and attachments to other units of work, if required.
- D. Samples: Submit selection and verification samples for finishes, colors and profiles if requested.
- E. Quality Assurance Submittals: Submit the following:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties. Include copies of selected test reports by independent laboratories verifying the compliance of fencing components and systems with applicable building codes upon request.
 - 2. Compliance Reports: Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction. Provide evidence that the polyvinyl chloride fencing systems are in compliance with applicable building code in effect for project.
 - 3. Certificates: Product certificates signed by the manufacturer certifying that materials comply with specified performance characteristics and criteria and physical requirements.

4. Manufacturer's Instructions: Manufacturer's installation instructions.
 5. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
- F. Closeout Submittals: Submit the following:
1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 2. Warranty: Warranty documents specified herein.

1.06 QUALITY ASSURANCE

A. Qualifications:

1. Polyvinyl Chloride Fencing Fabricator/Installer Qualifications: Engage a National Vinyl Products (NVP) approved fabricator to ensure successful completion of project.
2. Obtain PVC Fence accessories, fittings and fasteners from an NVP approved source to ensure consistent quality standards are maintained throughout the project.
 - a. Certificate: When requested, submit certificate indicating qualifications.
3. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction (as required by size and scope of project) and should be capable of approving acceptable installer and application methods

1.07 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 2 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to material handling damage and accumulation of dirt and grime, at temperature and humidity conditions recommended by manufacturer. Handle and store product according to NVP recommendations. Store in original packaging whenever possible until components are required on the project.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements and openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.09 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions used with their permission. The manufacturer is responsible for technical accuracy.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

PART 2 – PRODUCTS

2.01 PVC FENCING AND GATE SYSTEMS

- A. Manufacturer: National Vinyl Products (NVP)
 - 1. Contact: 1277 N. 200 W., PO Box 151, Nephi, UT 84648; Telephone: (435) 623-2750; Fax (435) 623-2751
- B. Proprietary Product(s)/Systems(s): NVP Fencing Systems:
 - 1. Post Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 4" x 4" x 0.140" wall
 - b. 4" x 4" x 0.165" wall
 - c. 5" x 5" x 0.135" wall
 - d. 5" x 5" x 0.150" wall
 - e. 5" x 5" x 0.175" wall
 - 2. Rails Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 1.75" x 3.5" x 0.100" wall, hollow
 - b. 2" x 3.5" x 0.110" wall, hollow
 - c. 1.5" x 5.5" x 0.100" wall, ribbed
 - d. 1.5" x 5.5" x 0.080" wall, ribbed
 - e. 1.5" x 5.5" x 0.090" wall, pocket rail
 - f. 2" x 6" x 0.110" wall, hollow
 - g. 2" x 6" x 0.100" wall, ribbed
 - h. 1.75" x 8" x 0.090" wall, deco pocket rail
 - i. 2" x 7" x 0.090" wall, pocket rail
 - 3. Pickets Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 0.875" x 1.5" x 0.060" wall, rectangular picket
 - b. 0.875" x 3" x 0.060" wall, rectangular picket
 - c. 0.875" x 6" x 0.060" wall, rectangular ribbed picket

- d. 1" x 1" x 0.060" wall, square picket
- e. 1.375" x 1.375" x 0.060" wall, square picket
- f. 1.75" x 1.75" x 0.060" wall, square picket
- g. 7/8" x 6" tongue and groove (T&G)
- h. 7/8" x 8" tongue and groove (T&G)
- i. 7/8" x 11.3" single groove – tongue and groove (T&G)
- j. 7/8" x 11.3" double groove – tongue and groove (T&G)

4. Caps Profile Types and Sizes: As indicated on drawings and as follows:

SPECIFIER NOTE: Edit and revise paragraphs below to suit project requirements and specifier's practice. Note that not all caps may be available in all colors.

- a. Post Cap Styles and Sizes:
 - i. Flat: [5" x 5"], [4" x 4"]
 - ii. Federation: [5" x 5"], [4" x 4"]
 - iii. New England: [5" x 5"], [4" x 4"]
 - iv. Gothic: [5" x 5"], [4" x 4"]
 - v. Solar Light: [5" x 5"], [4" x 4"]
- b. Rail Cap Styles and Sizes:
 - i. Flat Rail End Cap (External): [1.75" x 3.5"], [2" x 3.5"]
 - ii. Flat Rail End Cap: [2" x 3.5"], [1.5" x 5.5"], [2" x 6"]
 - iii. Pergola Rail End Cap: [1.5" x 5.5"], [2" x 6"]
- c. Picket Cap Styles and Sizes:
 - i. Sharp: [.875" x 1.5"], [.875" x 3"]
 - ii. Dog Ear: [.875" x 1.5"], [.875" x 3"]
 - iii. Arrowhead: [1" x 1"]
 - iv. Pyramid: [1.375" x 1.375"]
 - v. Flat: [1.75" x 1.75"]
 - vi. Boy Scout: [1" x 1"]
 - vii. Gothic: [1" x 1"]

5. Lattice (white or tan only)

- a. 2" x 2" pattern

6. Steel or Aluminum Reinforcements Types and Sizes: As indicated on drawings and as follows:

- a. J Rail Stiffener – [2" x 3.5"]
- b. U Rail Stiffener – [1.5" x 5.5"]
- c. H Rail Stiffener - [1.5" x 5.5"]
- d. Post Stiffener (L Gate Post Insert) – [4" x 4"], [5" x 5"]
- e. Z Post Stiffener - [5" x 5"]
- f. T&G Panel Stiffener - fits inside tongue and groove pickets

7. Finishes: Smooth, soft gloss

8. Colors: Color selections and options vary by style and size. Contact manufacturer for availability.

9. Product(s)/System(s) Testing: Provide PVC fencing system that complies with the following physical/chemical properties:
- a. ASTM D256 - Izod Impact greater than 5 ft lb/in (2.1 N•rn/m) at 23 degrees C.
 - b. ASTM D638 - Tensile Strength 6950 psi (43 MPa).
 - c. ASTM D638 - Tensile Modulus 407,800 psi (2963 MPa).
 - d. ASTM D648 - Deflection Temperature 67 degrees C.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No Substitutions permitted.

SPECIFIER NOTE: Edit 2.03 below utilizing types and sizes in Article 2.01.

2.03 MATERIALS

- A. National Vinyl Products (NVP) Fence System Materials:

1. General: Posts, Rails, Pickets, post caps, and picket caps shall comply with ASTM D4216, Class 13334432.
2. Posts: One-piece extruded square profile: [specify type and size].
3. Rails: One-piece extruded rectangular profile: [specify type and size].
4. Picket/panels: One-piece extruded profile: [specify type and size].
5. Post Caps Molded: Specify to fit the selected post profile.
 - a. Sizes: [Specify Post Size]
 - b. Styles: [Flat] [Federation] [New England] [Gothic] [Solar Light]
6. Rail Caps Molded: Specify to fit the selected rail profile.
 - a. Sizes: [Specify Rail Size]
 - b. Styles: [Flat (External)] [Flat] [Pergola]
7. Picket Caps Molded: Specify to fit the selected picket profile
 - a. Sizes: [Specify Picket Size]
 - b. Styles: [Flat] [Sharp] [Dog Ear] [Arrowhead] [Pyramid] [Boy Scout] [Gothic]
8. Gate Components: [Specify type or size].
9. Aluminum / Galvanized Steel Reinforcement Insert: [Specify type or size].
10. Miscellaneous Component: [Specify type or size].
11. Fasteners: [Specify]

SPECIFIER NOTE: Edit paragraph below. Modify (keep or remove) to meet the project requirements and specifier's practices.

2.05 RELATED MATERIALS

- A. Related Materials: Refer to other sections listed in Related Sections Paragraph herein for related materials.
- B. Adhesive and Cement:
 - 1. Adhesive: PVC based adhesive with the same UV properties as NVP fencing system. Adhesive should be formulated and designed to work with PVC fence systems.
 - a. "Christy's" brand or equal, PVC fence glue.
 - 2. Products: Subject to Compliance with requirements, provide 1 of the following:
 - a. "Quick-Crete"

2.06 FABRICATION

- A. General: Fabricate fencing systems to comply with requirements indicated for design, dimensions, details, finish and member sizes, including wall thickness, but not less than those required to support structural loads.
 - 1. Fabricated at a National Vinyl Products (NVP) approved dealer. Fabrication includes, but is not limited to, cutting, routing, and drilling components in accordance with engineering drawings, specifications or NVP CAD details for fence sections.
 - 2. Fabricate with galvanized steel or aluminum inserts as necessary.

2.07 SOURCE QUALITY

- A. Source Quality: Obtain PVC fencing system products from a single NVP Fence and Railing approved dealer or approved source.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, product carton instructions for installation, or design/detail drawings.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with that manufacturer's instructions.

3.03 PREPARATION

- A. All new installation shall be laid out by the contractor in accordance with the consultation plans.

3.04 INSTALLATION

- A. Depending upon the style of fence being installed, set fence posts, on 6', 7', or 8' centers (see individual installation instructions for the appropriate style). Set gate posts for gate opening specified in the construction drawings. Posts shall be placed 24" – 36" in the ground, depending upon the style of fence and local conditions and set in concrete (see individual installation instructions for appropriate style).
- B. Gate posts and corner posts on all fences and some line posts on taller fences shall be reinforced with either aluminum or galvanized steel (as specified) post inserts that are installed in conjunction with the posts in the concrete. Concrete should not contact rails to allow for expansion.
- C. Place assembled fence sections into position and slide rails into posts. The rails are secured into posts by tabs which are notched into the rails and catch on the inside wall of the post or can be secured with a #8-3/4" screw through the rail, inside the post.
- D. Install gates using bolt-on hardware supplied by the manufacturer.
- E. Site Tolerances: [Specify applicable site tolerances for specified product(s) installation].
- F. Related Products Installation: Refer to other sections listed in Related Sections Paragraph herein for related materials installation.

3.05 FIELD QUALITY REQUIREMENTS

- A. Site Tests [Installation and Post-Installation Testing]: [Specify applicable test requirements to be performed during and/or after product installation].
- B. Inspection: [Specify applicable product inspection requirements to be performed after product installation.].

SPECIFIER NOTE: Edit Paragraph below. Establish number and duration of periodic site visits with Owner and manufacturer, and specify below. Consult with manufacturer for services required. Coordinate Paragraph below with Division 1 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if manufacturer's field service is not required.

- C. Manufacturer's Field Services: Upon Owner' s request, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

1. Site Visits: [Specify number and duration of periodic site visits].

3.07 CLEANING

SPECIFIER NOTE: Vinyl fence and railing products manufactured by National Vinyl Products (NVP) are designed to be easy to clean and low maintenance. Since our products are manufactured to be in the outdoors, it is expected that they will experience exposure to the elements that may require some simple maintenance from time to time. In most cases, spraying your fence with a garden hose will remove dirt and grime. For more stubborn stains try the following: Create a solution of soap and water and utilize a soft (microfiber) rag to wipe the area clean. If necessary, use a bristle brush (similar to what you would use on a vehicle), taking care to not scratch the fence. To remove algae, mold or mildew stains, use Zep® – House and Siding Pressure Wash or similar product. Follow all instructions provided by the manufacturer.

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer 's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION