Free-No Modular Railroading

Inclusive Modular Railroading

Standards and Recommendations Revision 1

Free-No attempts to *raise-the-bar* for modular railroading by specifying standards for bench work, and digital control that promotes, and even forces, prototypical appearance and operational characteristics of today's modern short line railroads. This document contains standards that must be followed to the letter and *recommendations, in italics,* that have been gathered from various sources.

Definitions

MODULE:

Any component (or group of "sections") of bench work that is meant to be operated as a single unit in a fixed configuration. A module can have any number of sections. The ends of a module comply with the mechanical standards defined in the Framework description, below.

SECTION:

A component of a module, complete with bench work, scenery, etc. Except where otherwise noted, standards for module end interfaces do not apply to inter-section interfaces, as these are considered to be internal to the module.

ENDPLATE:

Endplates are the standardized end surfaces of a module, usually two, that join to another module.

Objectives

The Free-No standard has the following objectives in mind:
- To promote and require hi-fidelity prototypical scale model railroading.
- To encourage visual continuity between modules.
- To encourage a **loose** association among individuals free from club memberships, dues and titles.
- To keep the standard specifications to a **minimum** without compromising the previous objectives.

These are the goals that the standards presented here are attempting to achieve as they apply to any scale. Each standard set forth below must satisfy at least one of these goals.

Framework

Framework refers to a module's structural frame including end plates, legs, braces, decking, etc. Throughout this document common sense construction techniques should apply. Materials and joints should be flat, square and true.

Endplates

Endplates shall be constructed of 3/4 inch birch plywood or an equivalent material that resists warping and be 6 inches high and a minimum 12 inches wide. Module to module end plates shall be secured with C-clamps.

A 24 inch width is recommended for ease of transportation and continuity with other modules. Any deviation from this recommended width would result in cosmetic misalignment of the fascia with other modules. Avoid using dimensional lumber since it has a tendency to warp.

Legs & Bracing

Each module shall have legs that support the module free-standing. Each leg must be vertically adjustable plus and minus 1 inch to compensate for uneven floors. The bottoms of the legs shall have rubber tip or equivalent floor protection. Nominal and minimum height of rail head from the floor shall be 50 inches. On modules with grades the maximum height of the rail head shall be 62 inches above the floor and the elevation of the high end shall be some multiple of 3/4 inch above the low end.

Surface

Sub roadbed surface shall be sturdy enough to prevent sagging over the length of the module.

Fascia

Each side of a module shall have a fascia that fully covers the side. The top edge of the fascia shall be contoured to match the scenic topography of the module. The fascia shall be painted a semi- gloss, satin or equivalent black color.

Crowd Control Barrier System

Each 8-foot length of module should have one barrier stand per side. A crowd control barrier system consists of stands and ropes. Ropes are 1/4 inch yellow nylon style (available at any hardware store). Stands consist of a base and upright designed for simple construction and setup, and which may be separated for efficient storage and transport. Stand bases are 12” square made from 1” plywood (or equivalent multiple plywood layers). Painting is optional. A hole is centered in the base to accommodate a 1/2 inch white PVC pipe end cap, used to receive the stand upright. Stand uprights press-fit into the base and are 36” tall 1/2 inch white PVC pipe with a PVC “T- junction” mounted on top, through which the nylon rope is threaded. Painting is not allowed - leave uprights white.

Skirting

Both sides of a module shall have a black skirt. Each end of the skirt shall extend past the module end plate to overlap with adjacent module skirting. The bottom edge of the skirt shall be even with the bottom of the leg vertical member to prevent dragging on the floor.

Scenery

Main line shall be ballasted with a fine light gray material and some form of scenery hiding the bench work. Scenery for the first 6 inches at the end plates shall have a flat profile roughly 1/4 inch below the top of the roadbed.

Landscaping along the module ends must be designed to flow smoothly into adjacent modules - avoid features such as roads, lakes, and so forth from running against the module ends. Use a generic grassy/sandy terrain. Avoid structures and other details that could obstruct your forearms when installing joiner rails between modules.

Track

Main line track shall be represented either by weathered ties spaced prototypically, or with an an asphalt-like paved bike trail, or a gravel road.

Minimum radius for the main line shall be 22 inches with at least 6 inches of straight track between reverse curves. If you transition between asphalt and gravel, it is expected that the modeler will provide either a trailhead or other form of visual barrier to represent the begin or end of maintained trail.

Maximum grade shall be 2.0 percent to be ADA compliant (1/4 inch per foot). Main line roadbed must be 1/8 inch cork or equivalent. At the endplates the roadbed or trails shall be centered on the width, perpendicular to the end, straight and level for at least 4 inches from the outside face of the endplate. Rail and track shall be cut flush with the outside face of the endplate. Modules will connect at the end-plates by clamping securely so that the roadbed aligns without the use of rail joiners or fitter sections.

Wiring and Electrical

There is no requirement for wiring or electrical control busses, as there is no track power in Free-No.

For those folks wishing to argue about DC vs DCC, NCE vs Digitrax, CinchJones vs. PowerPlug wiring is an optional part of the standard.

A provision for providing one or two 12 gauge or 14 gauge, twisted pair, lamp cord, or knob and tube power busses carrying DCC, AC, or Variable DC Power shall be allowed, although no electrical connection should be made between modules.

Equipment

Rolling stock wheels, trucks and weight shall meet or exceed NMRA Standards and Recommended Practices. As there is no active mainline or rail, equipment should be heavily weathered and should not run.

Revision History
Rev 1, 1 April 2014, Initial Revision, created by Railnerd