

# oNeCAT Modules

## **I. Premise for a oNeCAT module**

There is an existing group and standard for operating live catenary in N scale - the NCat group. NCat bases their modules on the NTrak standard and adds two lines for traction operation. While this is a good idea for getting incorporated in train shows, it is not prototypical operation. That is, not many traction lines operated adjacent to a 3 track mainline with double track operation. After seeing Bernard Kempinski's oNeTrak modules for DCC and branch line operation, I thought that the same thing could be done for catenary operations. The modules will share some specifications from both Ntrak and East Penn Traction Club, with some modifications.

## **II. Module Sizes**

As with NTrak or East Penn standards, the modules will be in various standard sizes, though narrower than NTrak. The basic oNeCAT module size is one foot wide by four feet long. Other acceptable size standard modules are the same width and lengths of 2, 6 & 8 feet. While NCat specifies a minimum radius of 10", oNeCAT will use a minimum radius of 6" to allow for closer to prototype curves. Corner modules should be at least 2 feet wide to provide a larger turning radius. Return loop modules need to be at least 18 inches wide to provide edge clearances on the 6" radius turns.

Special junction modules will be needed to bring the oNeCAT line from the NCat modules. If the NCat module has a return loop, the junction module will need to be at least 30" wide.

## **III. General Track Information**

oNeCAT will have a minimum turn radius of 6" as mentioned above. In addition, the trackwork should start 2.5" from the end of the module to allow for Atlas 5" straight snap track to be used to assure proper joining of module track. The track should be straight for at least the first 4" on the module ends (including the Atlas track). There is no limit on switches or crossing in the oNeCAT line. Maximum grade is to be 4% or less, with no grade in the 4" closest to the module end. Code 55 or larger rail should be used on the oNeCAT mainline, Code 80 can be used for the NTrak mains and branch, while Code 40 can be used for sidings.

## **IV. Module Construction**

oNeCAT modules are based on the East Penn construction practices for end joints and a conglomeration of other standards for the framing and trackwork. Modules should be constructed of #2 White Pine (or better grade) 1x3 lumber with a sub-deck of 1/4" Luan or Plywood and a deck of either 1/2" Homasote or 1/2" foam (do not use white foam - the "pebbly" kind). Be certain to use

adequate amounts of glue and square the module during construction. The deck will overhang the frame by  $\frac{3}{8}$ " on each end to allow for leg attachments similar to East Penn (see Fig. 1).

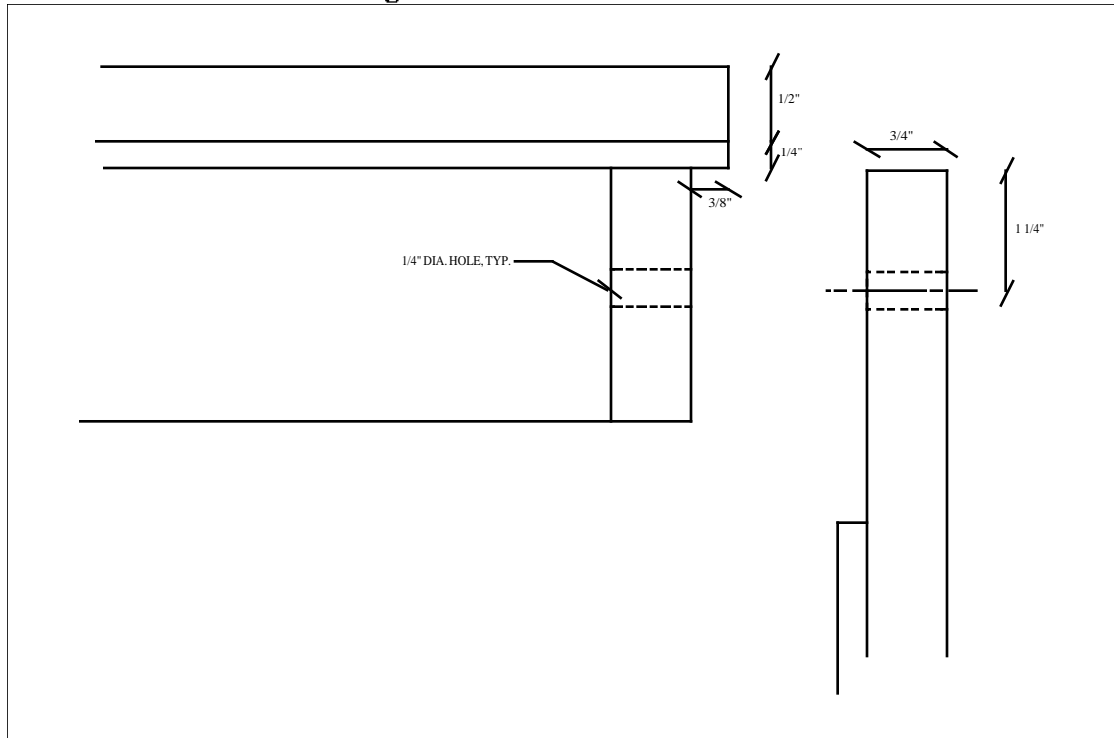


Fig. 1 Module End

Modules that will adjoin N Cat or other N Scale modules should be built to the above standards. Adapter legs with a  $\frac{3}{8}$ " setback will be used for these junctions (see Fig 2.). Bolts holes must be drilled through the N Cat (or other) modules.

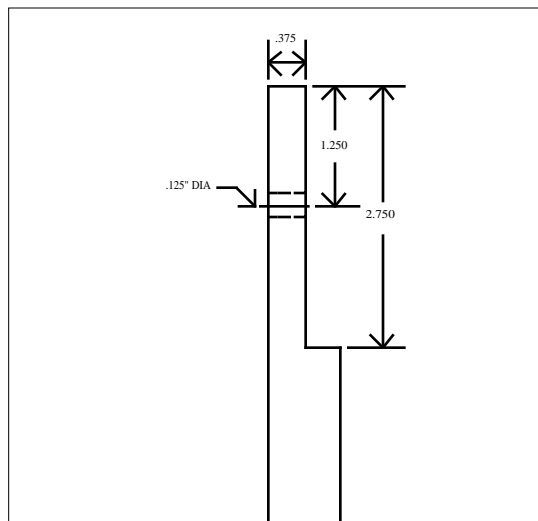


Fig. 2 Adapter Leg

The legs themselves will be stand alone units that can be mass produced in a jig (see Fig. 3).

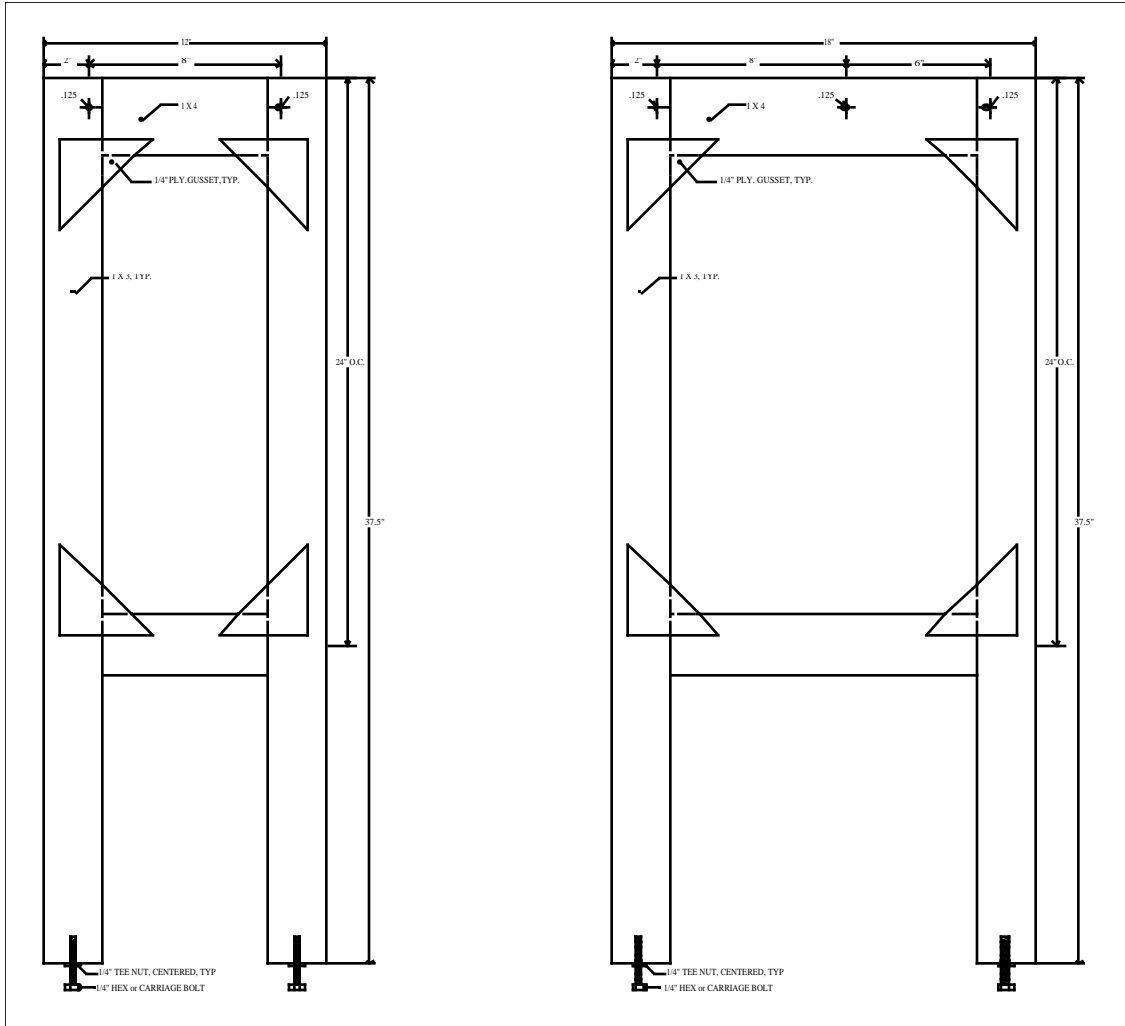


Fig. 3 Leg Units

Leg units are 12 inches wide and 37.5" long for standard modules. Bolt holes are 1/4" diameter and they are located 1.25" down from the top of the legs and 2" in from the sides of the legs (8" between centers). Legs for return loop modules are 18" wide and have mounting holes located at 2", 10", & 16" from one side. Be certain to drill matching holes in the return loop modules. Plywood gussets should be used at all joints.

## V. Track Specifics

oNeCAT track specifics are based on several standards, but are fairly open to creative geometry. Standard spacing of track from the edge of the modules is 5". Any special geometry on the main tracks must be able to accommodate 50' cars with ease. NMRA clearances should be adhered to, but height limits can set to accommodate catenary at 18 to 23 feet above the rail. Track will be held back from the end of the module by 2.5" following NTrak standards. oNeCAT will use Atlas 5" Straight Track to join track between modules. The first 1.5" of track on each module must be flat and straight. Any number of crossings and

switches can be used on the main. Sidings have no limits. Grades should be kept to 4% max on the main line, no limits on non-main tracks. Minimum radius on the main is 6" while non-main tracks can be tighter.

## **VI. Catenary Specifics**

oNeCAT catenary follows NCat standards. All frogs on the main should be manufactured to allow both pole and pantograph operation. I have found that some HO frogs will provide suitable operation of N scale shoes. Catenary at the module ends should be terminated with a 00-90 brass washer approximately one half inch from the end of the module. A piece of .020" brass wire is bent in a U shape to connect between modules. This connector is also used to tension the wire. Catenary height should be in the range of 18' - 23' above the railhead.

## **VII. Wiring Specifics**

oNeCAT wiring is based on both NCat and NTrak specs. Provide 110VAC outlets and 12VDC wiring under the modules following NTrak standards. Track and catenary wiring follows NCat standards, using Cinch-Jones 4 pin connectors. Throttles and power supplies from the NTrak handbooks can be used. It is not recommended to use DCC controls. Research will be done to see if DCC can be made compatible with oNeCAT. Using NCat wiring, three different circuits can be used on oNeCAT track, with engines running on two of those circuits at any one time. It is recommended that both rails be wired together and the modules be controlled with blocks if operation does not include running two rail engines (steam, diesel, or non-converted traction). Under table wiring should be 16ga for 12VDC wiring and 18ga for track wiring.

## **VIII. Scenery and Paint Specifics**

No limits on scenery or paint. Any tunnel sections must be accessible for re-railing or re-wiring trains.