

Benchmark and Roadbed

Considerations
and
Suggestions

Topics to discuss

- Different types of benchwork
- Styles of sub-roadbed
- What type of lumber? dimensional or plywood?
- Explaining different types of plywood
- Making connections/pilot bits
- Minimizing the effects of moisture
- Easy method of laying track with super-elevation

Styles of benchwork

- Open grid
- L Girder
- Modular
- Cantilevered
- Multi-deck
- Commercial
 - Sievers
 - Mianne
 - Kam-Konnect



Types of sub-roadbed

Plywood/cookie cutter

- Very flexible
- Fairly quick
- Great for multi-track and large areas such as yards



Types of sub-roadbed

Masonite® spline

- Very strong
- More time consuming
- Natural curve easements
- May also use 1/4" luan plywood



Types of sub-roadbed

Rigid foam

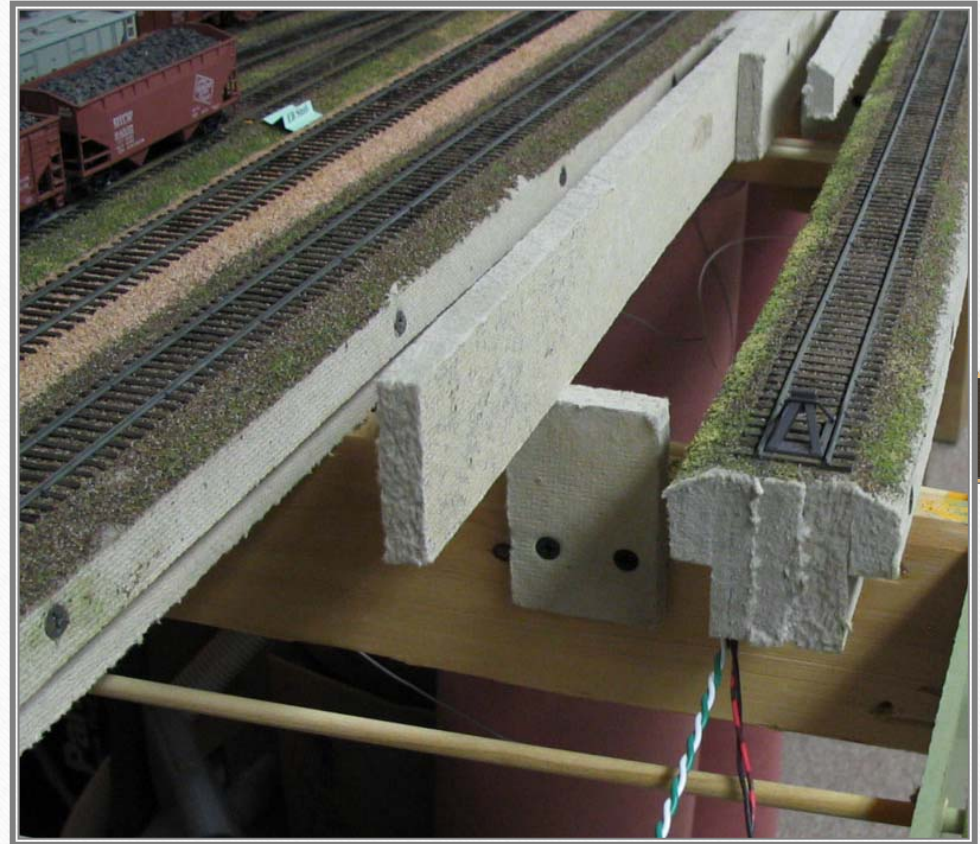
- Very lightweight
- Great for portable layouts
- Very stable
- More difficult mounting
switch controls and wiring



Types of sub-roadbed

Homasote[®] spline

- Produces sub-roadbed and
- Roadbed in 1 step
- Very quiet
- Cons
- Cutting is very messy
- Very thick



What type of lumber to use?

Dimensional lumber

Vs

Plywood

-
- Easy to get
 - Easy to work with
 - Straight????
 - Stable??????
 - Consistent??????
 - 104 lineal ft 13-8ft @ \$ 65.00
- Less manageable until cut to size
 - Stronger
 - More stable/less shrinkage
 - Can be sized for different needs
 - Cheaper per linear foot 104 lin ft of 1x4" per sheet(13-8ft) @ \$36.00

Understanding different plywood types

- **Letters are the grading quality with “A” being highest**
- **Exterior grade sheathing(CDX)**
 - Voids in plies from knot holes when milling
 - Stronger adhesives used(weather resistant) “X”
- **Interior grade plywood AB/BC, Sand ply**
 - Knot holes filled in “plugged & sanded”
 - Smooth surface
- **Cabinet grade finished plywood**
 - Thin veneer of finished wood over core plies, may de-laminate if exposed to water/moisture/ “clean” to work with
- **Underlayment**
 - Hybrid of interior grade with exterior adhesives/ little or no voids

Plywood types cont.

- **Baltic birch** - very high grade, all plies are solid birch veneer
- **MDF** - **Medium density fiberboard**
very smooth, easily damaged by moisture
little structural strength between supports
- **MDO** - **Medium density overlay ******
high quality, *very* dense laminations, no voids
glued under high pressure, exterior rated adhesives
finished with a phenolic resin paper bonded with heat and
pressure, high moisture resistance
- **OSB** - **Oriented strand board**
exterior grade sheathing of large shavings of wood glued under
pressure

Making connections

- Pre-drill pilot holes before screwing especially into the edge of plywood
- If it doesn't split now....it will later
- Very weak joint prone to failure



With and without pilot hole

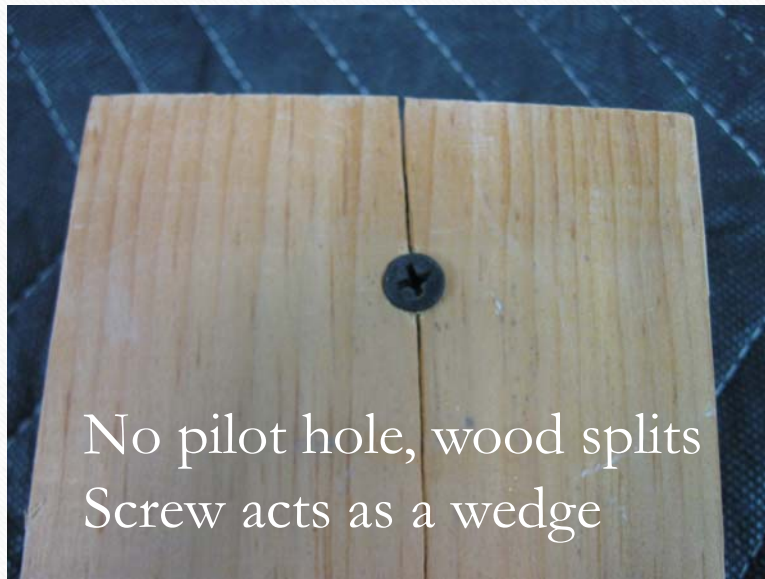


Strong joint



Very weak joint

Let me repeat



Controlling the effects of moisture

It is **impossible** to stop wood movement caused by environmental changes.
But, we can minimize it as much as possible by:

- Stabilizing the climate in the train room/running dehumidifier
- Using quality materials
- Sealing the wood with Shellac or shellac based sealer (BIN)



ZINSSER
QUALITY SINCE 1849

BIN

Shellac-Base • Interior & Spot Exterior

PRIMER
ULTIMATE STAIN BLOCKER

• STICKS TO ALL SURFACES • SEALS KNOTS
• DRIES IN 45 MINUTES • BLOCKS ODORS

PINTURA BASE A BASE DE LACA
SELLADOR • BLOQUEADOR DE MANCHAS

WHITE TINTABLE

1 QUART (946 ml)

WARNING: FLAMMABLE LIQUID AND VAPOR. CAUSES EYE IRRITATION. See other cautions on this product.
¡ADVERTENCIA! LÍQUIDO Y VAPOR INFLAMABLES. CAUSA IRRITACIÓN AL OJO. Lea los demás advertencias en el paquete.

ZINSSER
QUALITY SINCE 1849

Bulls Eye
Shellac

Traditional Finish & Sealer
Acabado Tradicional y Sellador

Easy to Apply
Dries in Minutes

Fácil de aplicar • Se seca en minutos

CLEAR
TRANSPARENTE

Natural Beauty

WARNING: FLAMMABLE LIQUID AND VAPOR. CAUSES EYE IRRITATION. See other cautions on this product.
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Superelevation

Why the big boys use it

- distribute loads across both rails
- minimize wheel and rail wear
- attain higher speeds
- passenger comfort

Why we use it

- **It looks good!!**



Fast and easy superelevation

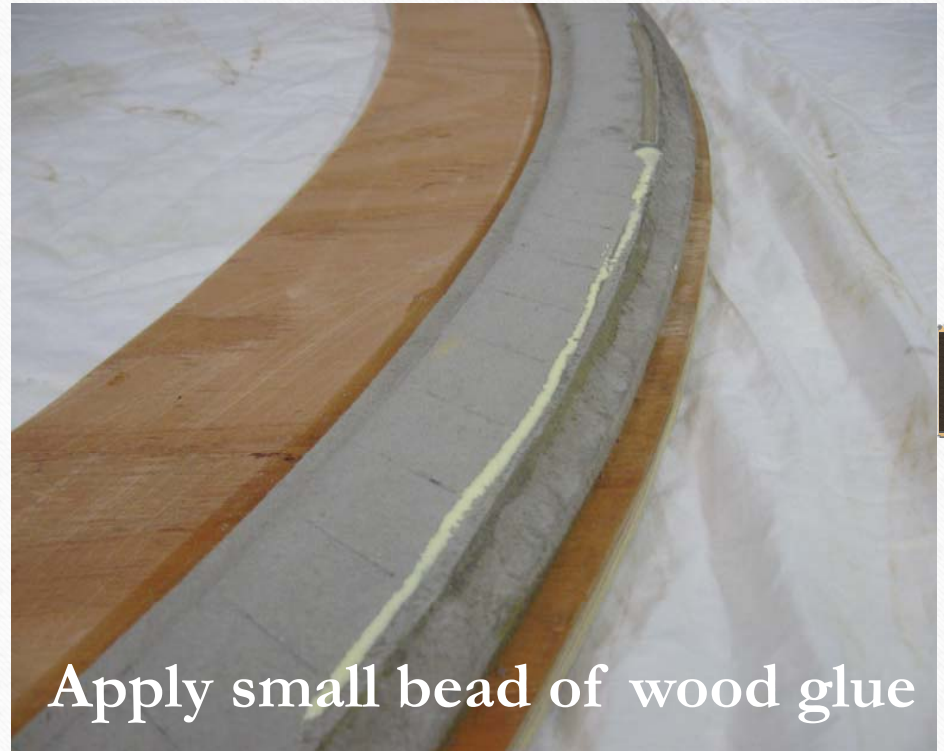
Supplies needed:

- Cardboard strips
- Carpenters glue
- Adhesive caulk(clear)
- Putty knife
- Push pins
- 80 grit sandpaper/block





Roadbed is ready



Apply small bead of wood glue



Apply glue to cardboard strip also, and let soak in to soften cardboard to make it pliable.

Place cardboard strip on glue bead on roadbed, bending it around curve, and press down by running finger down strip.



With light pressure, sand cardboard strip to taper down to nothing when transitioning to straight track. The cardboard will “roll-up” so sand in one direction.



Apply two beads of adhesive caulk, one on the cardboard strip, the other under the opposite rail.



Dynaflex 230 CLEAR caulk



**Spread caulk evenly
with putty knife.**



**Press track into
caulking, and pin
in place.**

**Wait about 5 min.
remove pins, clean
rails and run
trains.**

That's it!!!

Who wants to try?

Any questions?

Thanks

Lets go to Chuck's