

Begin with the end in mind

1. Have an idea as to what you want to accomplish before you start building the layout.
2. What do you like? (ex. operation, scenery, prototype scenes, etc.)
3. What does your railroad do? Have a reason for building the railroad.
4. How long will the layout be assembled at this location (permanent or mobile)?
5. Have a plan!

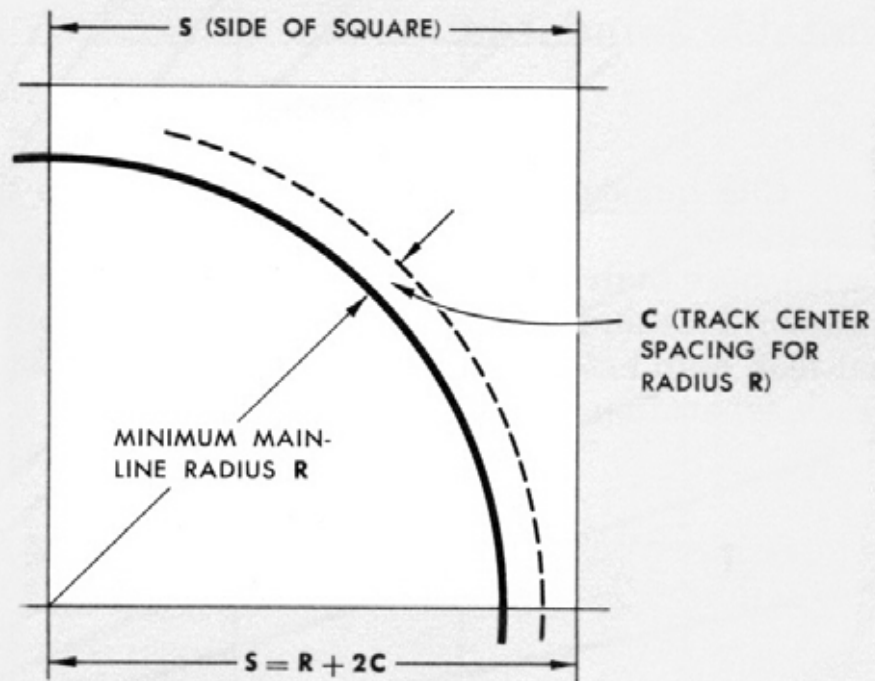
Developing a plan

1. Measure your layout space. Draw your room (to scale) and include all obstacles on the drawing. Make copies of the room layout to sketch your track plan.
2. Select a minimum radius for the mainline.
3. Sketch out the basic flow and shapes of the layout.
4. Use the Square Method to sketch your layout. A square equals the minimum radius plus 2x the track center-to-center spacing (ex. 24" (min. radius) + 2 x 2.5" (track c-to-c) = 29" square). For track spacing in your scale visit <http://www.nmra.org/standards/>
5. Establish the minimum and maximum track height.
6. Don't forget passing sidings and industries.
7. Comfortable reach is 24". Maximum reach is 30". Over 30" requires another method of access.
8. Plan the layout lighting.
9. Plan aisle width of 30-36" (24" min.). Short distances can be 18" wide but most people, especially model railroaders, will have to turn sideways to get through it.
10. Review the plan with your friends. They have great ideas... sometimes!
11. Use a CAD program to design the track plan. You can cheat with a pencil but you can't cheat with CAD.
12. Build a scale model of your plan... just kidding!
13. Plenty of great plans/ideas published.
Track Planning for Realistic Operation By: John Armstrong

Tips and suggestions

1. Everything works on paper. Don't be afraid to modify your plan when you start construction.
2. Pretend your room is smaller. When drawing your plan, reduce the layout area 6" for 20' rooms and below and 12" for rooms above 20'. This will allow some room for planning mistakes.
3. Eliminate duck-unders and crawl-unders that must be used to operate. Crawl space clearance on all fours is 30" min. Anything below 30" will require you to crawl on your belly!
4. Minimize grades. Double head trains because you like it not because you have too
5. Provide the ability to continuous running or at least a way to turn around. Point-to-point is great for operating but when you want to just turn on the trains and watch them run it is a pain.
6. Make areas where cars are uncoupled as level as possible.
7. Have a dedicated circuit breaker for the "trains" (DCC, switch machines, etc.). Use a switch to turn the layout power on and off.
8. Install electrical outlets around the layout. Use a switch to turn them on and off. You can minimize the amount of extension cords and turn everything off when you leave the room.
9. Establish how benchwork will be constructed. Use at least 5 ply (5/8" now 19/32") plywood for sub-roadbed. I use Micor 300 (US Gypsum product) for roadbed.
10. Incorporate hidden storage or staging yards to hold additional equipment.
11. Make paper dolls of turnouts. Use the paper dolls and flex-track to layout switching and clearances. Free templates are available at: www.handlaidtrack.com
12. Make mock-ups of structures.
13. Establish location of control panels.
14. Diffuse the lighting with a valance. Use color correct fluorescent bulbs.
15. Place a toe-kick under scenery that goes to the floor.
16. Design areas for storage under the layout.
17. Use a mobile toolbox to store your tools.
18. Have a workbench in the "train" room.
19. Install compressed air line into layout area to power airbrush, nail gun, etc.
20. HAVE FUN... That's the whole objective for having a hobby!!!

Definition of a square

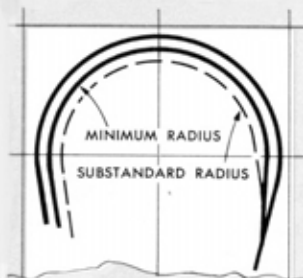


(MINIMUM TRACK CENTER SPACING MAY BE OBTAINED FROM NMRA STANDARD S-8)

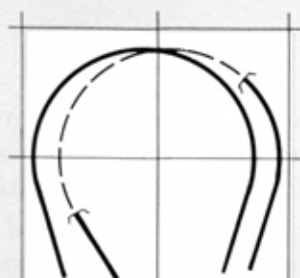
SQUARES ARE OF THE FOLLOWING APPROXIMATE SIZES:

	N	HO	S	O
SHARP CURVES	13"	22"	32"	42"
CONVENTIONAL CURVES	16"	28"	38"	50"
BROAD CURVES	20"	34"	48"	64"

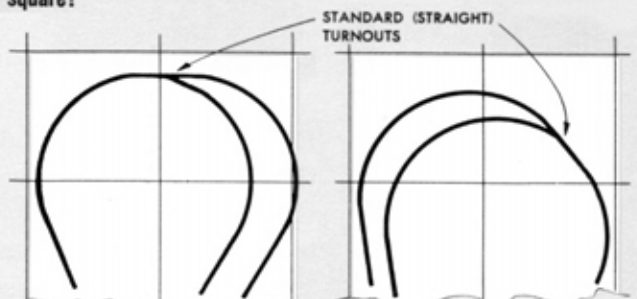
What will go in a square?



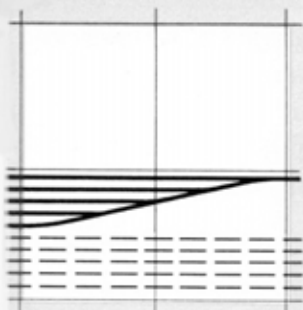
TWO CONCENTRIC SEMICIRCLES OF MINIMUM OR BETTER RADIUS WILL FIT IN A TWO-SQUARE SPACE; A THIRD TRACK WOULD HAVE TO BE OF SUBSTANDARD RADIUS TO FIT.



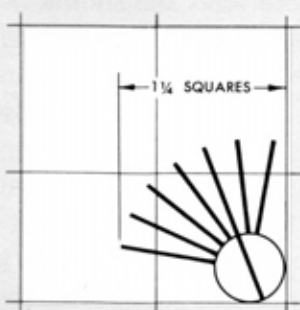
INTERLACED SINGLE-TRACK MAIN LINES WILL FIT QUITE COMFORTABLY IN A TWO-SQUARE WIDTH.



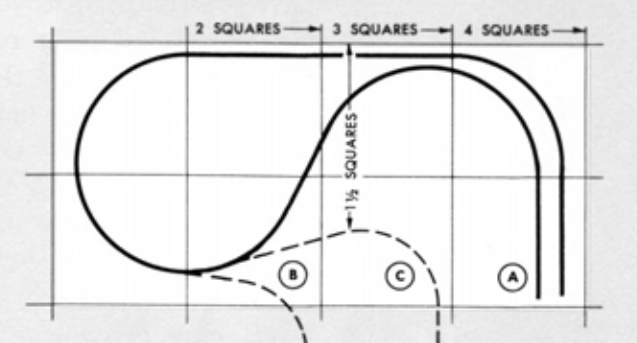
A STANDARD TURNOUT CENTERED IN THE TWO-SQUARE SPACE WILL NOT QUITE FIT; LOCATING IT AT AN ANGLE WILL MAKE THIS ALIGNMENT PRACTICAL.



TEN TRACKS OR MORE WILL FIT SIDE BY SIDE IN ONE SQUARE. HOWEVER, IT TAKES APPROXIMATELY TWO SQUARES OF LENGTH TO CONNECT ONLY FIVE TRACKS WITH A SIMPLE LADDER.



A TURNTABLE AND ROUNDHOUSE OF APPROPRIATE SIZE FOR THE CLASS OF RAILROAD BEING MODELED WILL TAKE A SPACE 1 1/4 SQUARES BY 3/4 TO 1 1/4 SQUARES, DEPENDING UPON THE NUMBER OF STALLS DESIRED.



IN HIGHLY CONVOLUTED ALIGNMENTS, LENGTH IN ONE DIRECTION CAN BE SUBSTITUTED FOR ANOTHER (AND VICE VERSA) TO SOME EXTENT. TO GET THE WASP WAIST OF ALIGNMENT "A," A LENGTH (LEFT TO RIGHT OF DIAGRAM) OF ALMOST FOUR SQUARES IS REQUIRED; IF LENGTH OF ONLY TWO OR THREE SQUARES IS AVAILABLE, EXTRA WIDTH REQUIRED FOR ALIGNMENT "B" OR "C" MUST BE PROVIDED.