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NEWSLETTER

Some Bid Results

Double Track, Hampton Roads

1. Skanska USA 41,157,300
2. EV Williams Inc 49,549,200

Railroad Bridge Deck Replacement

1. Herzog 2,476,600
2. FCI Constructors 2,520,700
3. Kiewit Pacific 2,539,000

RR Maintenance, Norfolk Shipyard

1. GW Peoples 6,396,600

Rehab, LRT, Baltimore

1. Railroad Constructors 1,729,200
2. Rhinehart RR Const. 1,813,700
3. Atlas Railroad Const. 1,848,900

Track Guy Consultants

We finished our 50-day fall Training Tour Extravaganza and it was a huge success. We had over 300 attendees in 14 seminars. 5 of the 14 were special programs that were requested along the way. While we were in San Francisco we were honored with our 1,000th person that has attended our seminars over the last two and a half years. That person was Mary Moran, a Track Designer from David Evans Assoc. We gave Mary a plaque to celebrate her attendance. We also raffled off 20 pieces of pear shaped rail rolled in 1855 as well as some stock certificates from the Montour Railroad Company donated by Rich Zemencik, Associate Publisher (retired?) of Progressive Railroading magazine. We had a great time visiting with old friends and making new friends. What a joy it is to be in the Rail Industry. We hit an all time high of 553 people trained in 2007. Thanks to all of you for your attendance and participation. We are starting 2008 with 10 speaking engagements lined up in January and February. We will be setting up our fall 2008 tour in a couple months. We should have the dates and cities lined up by the next Newsletter. I am off to Lima, Peru the end of January to visit with the folks of the Central Railway which has the highest Railroad Station in the world at 16,000 feet above sea level. Oxygen is definitely part of the diet at that altitude. We have a few other assignments lined up and are off to a good start in 2008. I wish all of you a very prosperous 2008. Remember, *it's all in the attitude*



Spotlight: Congestion on the Highways

Back in the early 90's I wrote an article entitled "Showdown at the OK Corridor". It was published in Destination Freedom, which is dedicated to people movers of all sorts. Their conference that year was inspiring. We are on the verge of total national gridlock. Some of the reports I read say that by 2030, you won't be able to move in an Urban area. I just hope we are not too late. Politics are out of control between trucks and rail; between cars and LRT, between high speed and air transportation modes. Local governments are desperately trying to solve the congestion problems. Reports are out that say we waste 2.9 billion gallons of fuel per year due to congestion. The same report from the Texas Transportation Institute says we waste \$78.2 BILLION in lost time due to traffic delays. The average person wastes 40 hours per year in traffic. When I worked in New York City, I would waste 40 hours in 20 days and it really began to affect my quality of life. Did you know that 75% of commuters drive alone? According to the TTI, the worst city for congestion is Los Angeles followed by Atlanta, San Francisco, Washington and Dallas. This country has outgrown the highway system and it will get worse. The only solution is to offer choices for mobility. We will never change the mindset of people like me that enjoy our privacy in our personal automobile, but the focus must be on the next generations. If the infrastructure is not there, then there will be no choices and as a nation we will continue to waste money, pollute the air and road rage will kill more people.

In our Summer 2005 Newsletter we talked about hot cities for transit. Those cities have opened systems already and some have extensions in the works. Local governments have figured out creative ways to generate money for these systems and the public have voted referendums to increase taxes to fund the projects. We must keep going. Look at Salt Lake City. Ever since the Olympics was there, LRT's and Commuters are all around. DART says they will double their system in 8 years. Washington DC built their original 106 miles 30 years ago and stopped. Only the 3 mile Largo extension has been added and now DC is the 4th worst City for congestion. I wonder why they stopped? Money? Politics? The good news is that ridership on LRT is up by 8.9% according to APTA. Commuter increased by 5.4% and Transit by 4%.





ASK THE TRACK



THIS IS WHERE YOU, THE READER GET TO ASK QUESTIONS ABOUT RAILROAD TRACK ENGINEERING, DESIGN, CONSTRUCTION, MAINTENANCE OR ANYTHING TO DO WITH TRACKWORK. SIMPLY WRITE OR E-MAIL A QUESTION AND WE WILL ANSWER IN A TIMELY MANNER. SOME QUESTIONS

Do you need to thermal adjust rail in embedded track?

This is a wonderful question and one that the Light Rail Transit industry and contractors have struggled with for many years. I will present some facts and then offer some *"opinion"*. Notice how I used every font function available on the operative word. When rail is embedded in concrete it should always use a rubber boot to absorb dynamic forces before they are transferred to the concrete. Rubber boot also helps to control stray current and if the construction is monitored properly, a safe reliable system will be produced. When we talk about thermal forces, we need to determine the potential force that is generated when a piece of rail changes temperature with respect to the temperature it was locked into position. On ballasted track we really need to pay attention to this. Direct fixation track also needs attention but not to the degree of ballasted track. Embedded track needs only minor attention and we will prove that the extent of attention is very minimal if at all. We need to establish a few facts first.

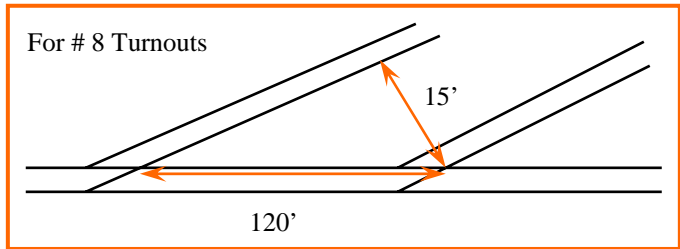
1. In our winter, 2006 Newsletter we showed you how to calculate internal stress for a given temperature change.
2. The lesser the cross sectional area of the rail, the less stress that builds up.
3. A rule of thumb is 2,000 pounds of force builds for every 1° of temperature change.

Now let's take a 1000' long piece of rail embedded in concrete that is restrained at each end. If we do a 100° temperature change we have 200,000 pounds of force in that rail. Let us just say that the rail was clipped every 2' with Pandrol clips. That is 3600 pounds of holding power every 2' or a total of 1.8M pounds of holding power. Our rail is surrounded in a boot that is surrounded in concrete and it is held solid every inch so the rail does not slip through the boot. If we convert the pounds of force to pressure, we need to know the number of square inches on the side of a 1,000' piece of rail. For 115# rail it would be about 7" x 1000' or 84,000 square inches. If the force is evenly spread then it is 2.3 psi. I think concrete can handle that even with a factor of 3 for dynamics. As you can see, this becomes ridiculous and we realize that the rail encased in concrete simply swells ever so slightly. What does this all mean? Well it means that it is ridiculous to thermal adjust rail that is in embedded track. As a matter of opinion we should worry about the low temperatures because the rail will break in extreme cold or if a snow plow nicks the rail and creates a stress riser where a break will occur. We anchor rail in ballasted track on the high side for a very good reason; a train will not navigate a sun kink. In embedded track, there is absolutely 0% risk of a sun kink so why do some insist on heating it up. My OPINION is to let the rules of concrete placement govern for embedded track. We don't pour concrete when it is below freezing nor do we pour concrete when it is too hot either. Well there it is; my 2-cents. I think we have more important things to worry about, don't you?

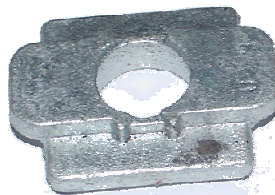


When laying out material for a ladder track with 15' track centers; what is the distance between the point of switches?

It will obviously depend on the number of the turnout. The geometry of a turnout is simple. If you have a #8 frog, then for every 8 feet in length, the offset is 1 foot. A #10 would be for every 10' there is 1 foot of offset. Therefore if you wanted to know the distance between 2 frogs turning out into 15' track centers then it is as simple as multiplying the number of the frog times the track centers. So for 15' track centers it would be $15 \times 8 = 120'$. Since the leads are fixed for a # 8 then the same 120' would apply for the distance between points of switches. This is not 100% accurate but certainly enough for laying out material. If you wanted 20' track centers, then $20 \times 8 = 160'$ from PS to PS or PF to PF. If you had a #10 turnout, then $20 \times 10 = 200'$. Pretty simple but still use your survey layout to be accurate.



Do you have any Indian Tricks for DF Track?



I have many. I share all tricks in our training sessions. It is important to me that know one makes mistakes that may cause an inferior track that my family may ride on. The obvious is use top down construction and DO NOT pour concrete until a final checklist has been completed. When pouring concrete make sure a track guy is watching; he knows that a 1/4" is a major problem. While the rail is set, attach templates to hold other inserts for emergency rail, restraining rail braces etc. it will make life very easy to install the other stuff later instead or core drilling holes through re-bar. Use a non-adjustable serrated washer to center the bolt in the slot of the DFF. Do not push the vibrator under the fastener and hold it there for 10 minutes. There are many more that I will be talking about in other Newsletters.

