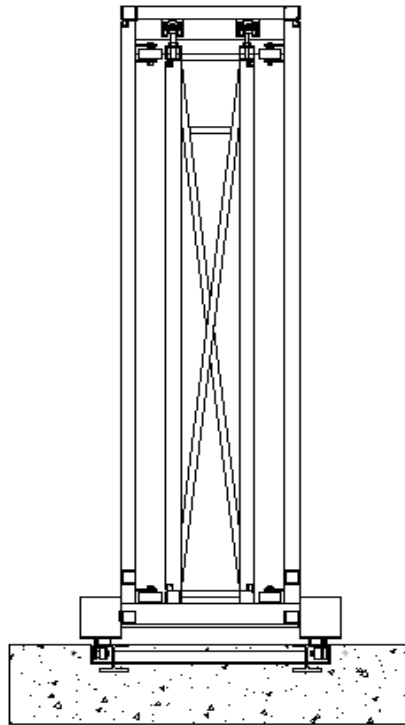
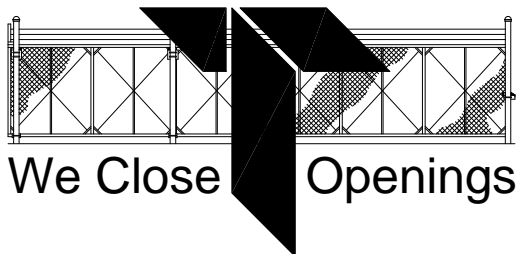


INSTALLATION AND MAINTENANCE INSTRUCTIONS

The Fortress Telescoping Manual Roller Gate



US Patent No.: US 8,181,689 B2



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FORTRESS TELESCOPING ROLLER GATE SYSTEM INSTALLATION INSTRUCTIONS

(TO BE USED IN CONJUNCTION WITH FORTRESS GATE SUBMITTAL DRAWINGS)

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1. Construct the Track Assembly

1.1. Concrete Track Footing

1.1.1. Tymetal recommends that a local professional engineer design the track footing. The concrete footing as shown in the submittal drawing depicts the minimum dimensions required and may vary depending on local conditions.

1.2. Post set

Set the posts in the foundation according to the gate submittal drawings for your gate. Set any bollards called out on the submittal drawings.

1.3. W4 x 13 Track Members

1.3.1. If Tymetal is not supplying track, the construction of the track assembly is the responsibility of the owner and should be completed in accordance with the following criteria:

- ✓ The finished grade of the track shall not exceed a 1.2% slope along its length.
- ✓ The finished grade of the track shall not exceed a 0.5% slope along its width.
- ✓ The track members shall be installed in parallel and shall be spaced at a width of 2'-6" (+/-1/8") along their entire length. See Diagram 1.3.1.
- ✓ A void space shall remain on the outside of each track member along the entire length. See Diagram 1.3.1. **Note: Allow access to each end of the void space for track cleaning and safety clip installation.**

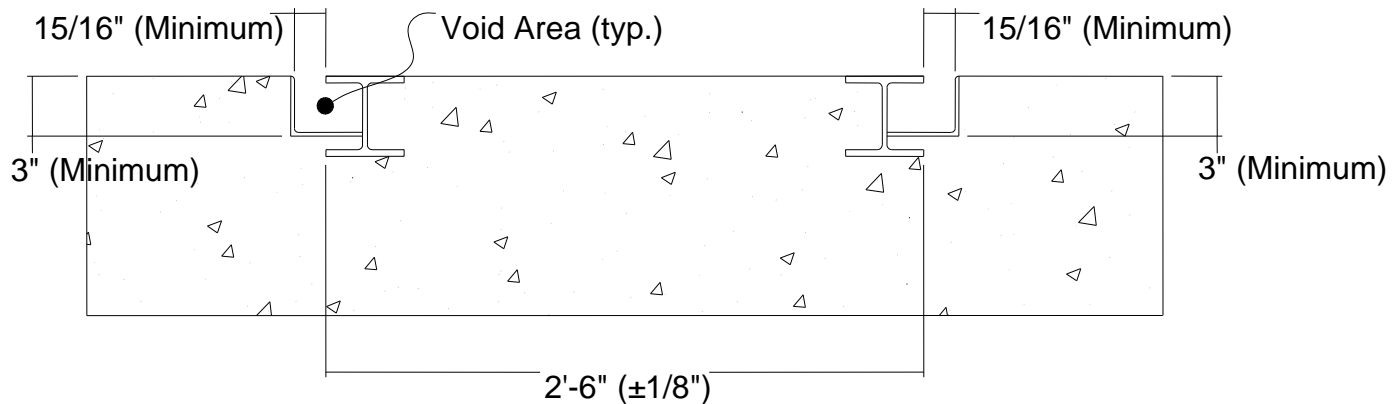
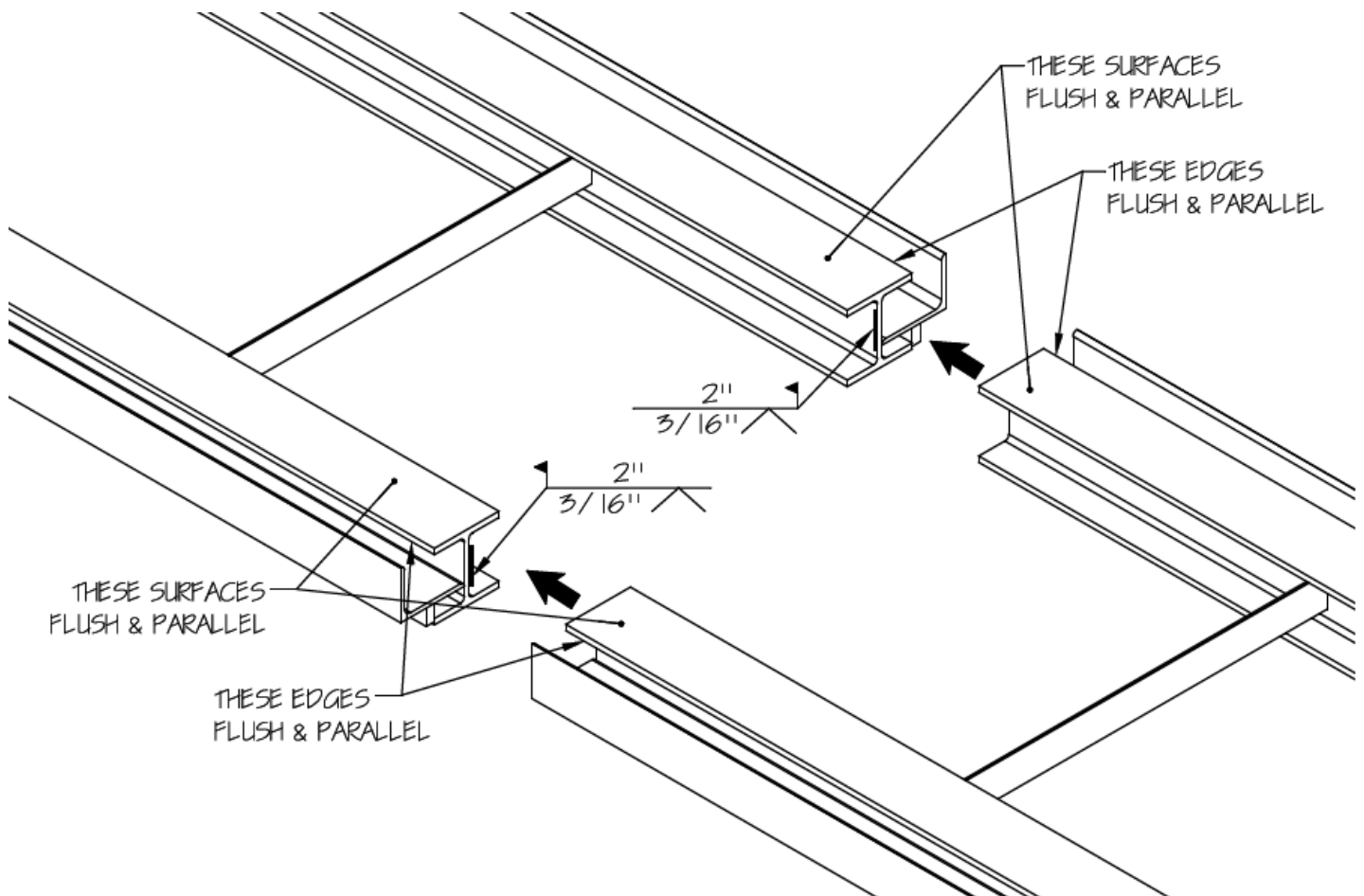


Diagram 1.3.1

Track Alignment Welding Detail

See Section 9 for Additional Track Installation Requirements



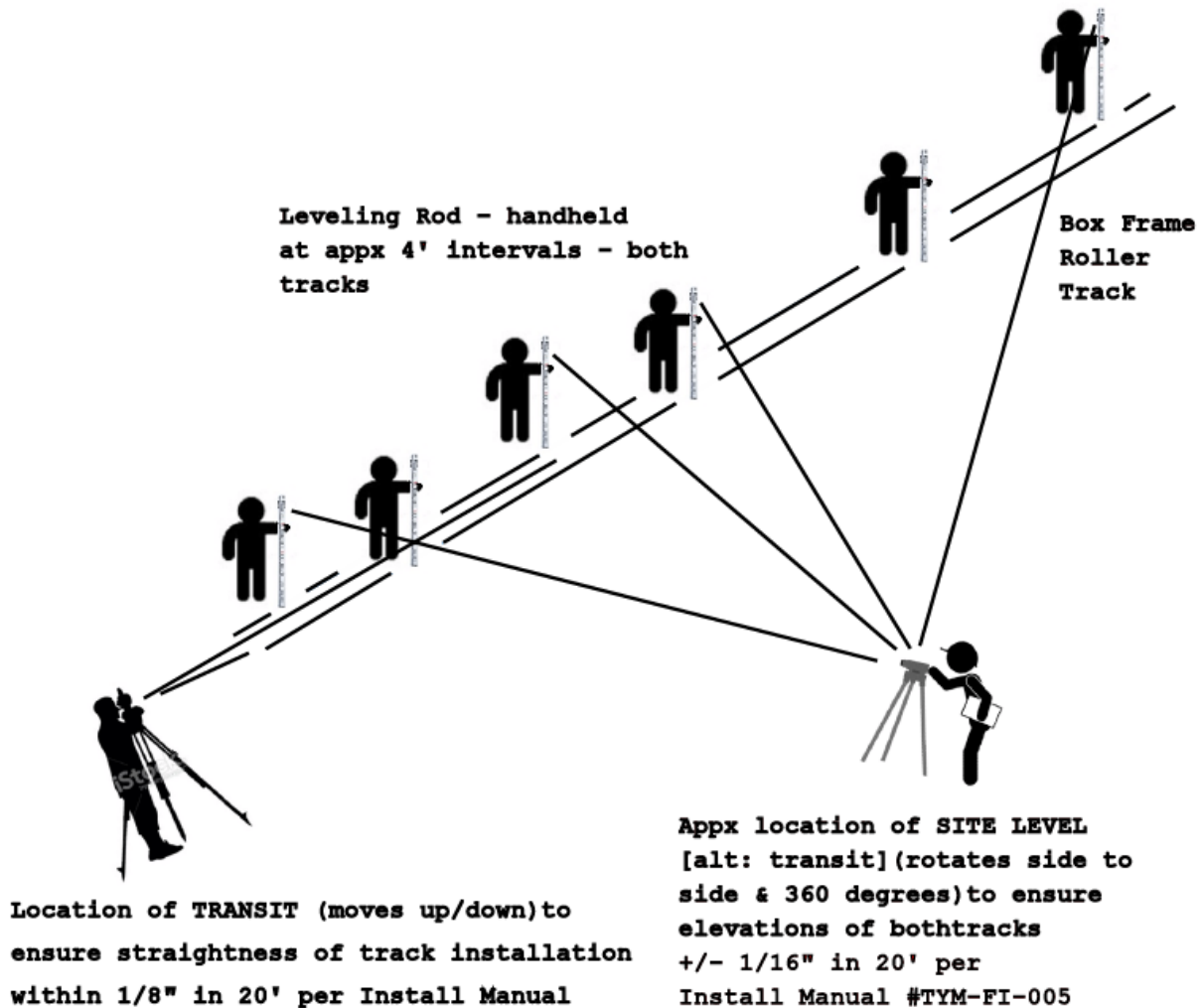
Track Ends are Welded Together as Shown Above

- Clamp track as required to maintain alignment for welding
- Steel may vary in cross section
- Other features at joint are not critical

Track Leveling Method

Note: Track should be leveled using transit or site level.

INSTALLATION ILLUSTRATION - Transit & Site Level Box Frame Roller Track



1.4 Recommended Methods of Install- Wooden Track Supports

Note: The foundation required for your installation may vary from the following examples. Refer to project specific drawings.

- 1.4.1 Construct the following track supports out of wooden members as shown in Diagram 1.4.1. Track supports are needed approximately every 5' along the entire length of the track. Review submittal drawings for track details.

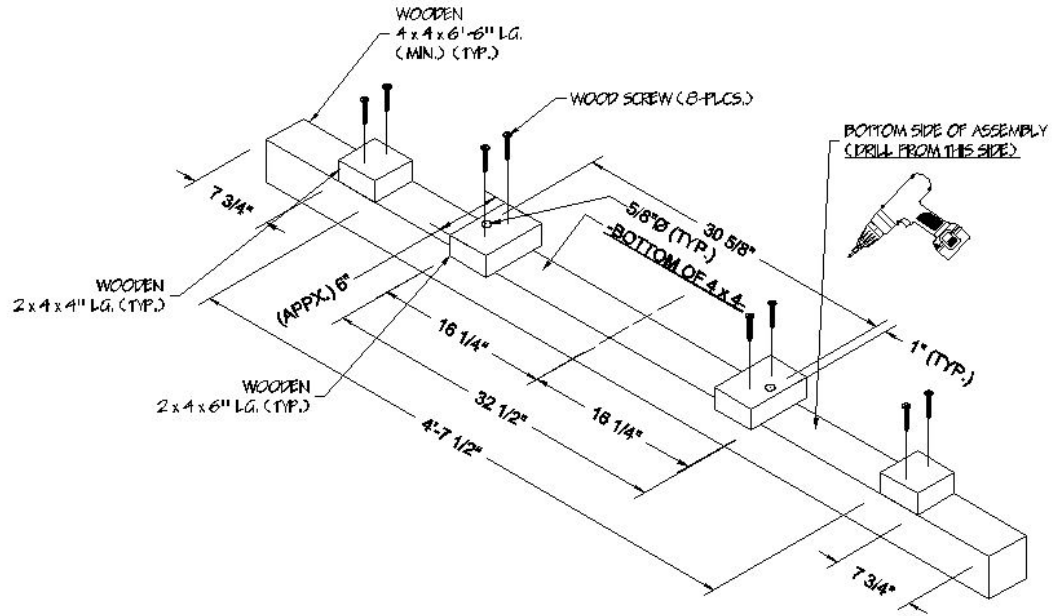


Diagram 1.4.1

- 1.4.2 Install 1/2" threaded rod thru the 5/8" Ø holes drilled in step 1.4.1. Tack weld the lower nut to washer (2 places).

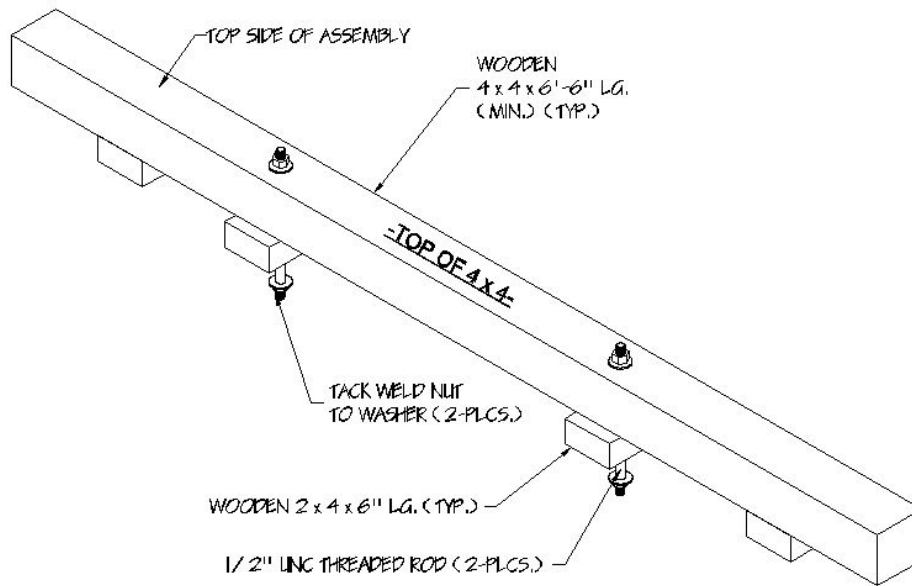


Diagram 1.4.2

1.4.3 Install anchors (if required) in the track. Fasten track to the lower side of the support brace using the threaded rod.

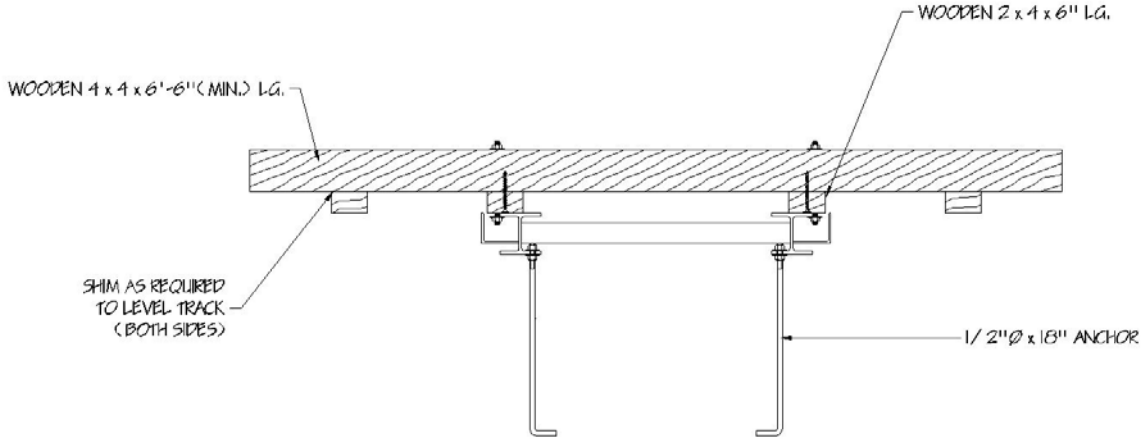


Diagram 1.4.3

1.4.4 Install rebar (if required) in the trench as shown.

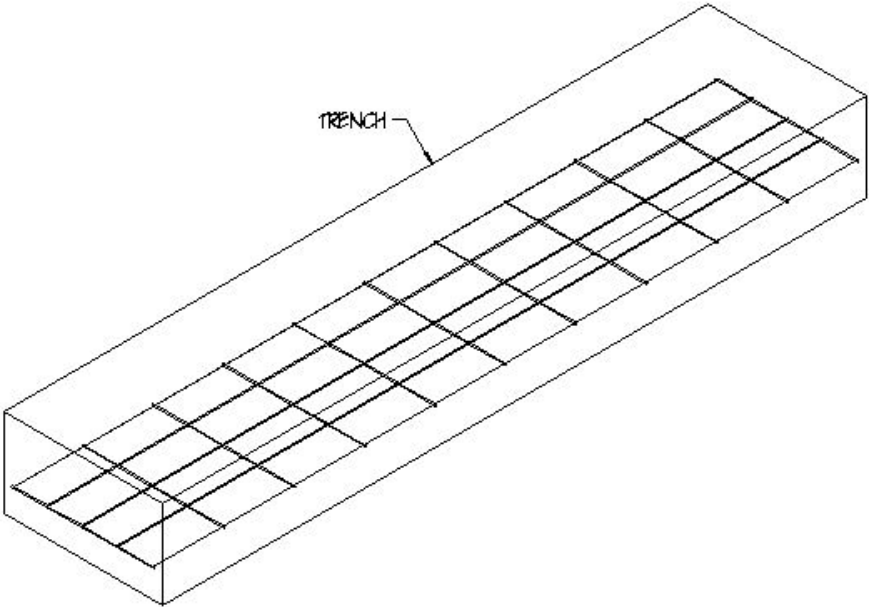


Diagram 1.4.4

- 1.4.5 Set form boards along the length of the trench and level with a transit. After level and within requirements called out in 1.3.1 and Section 9, place track supports every 5' along the length of the trench. Stake as shown.

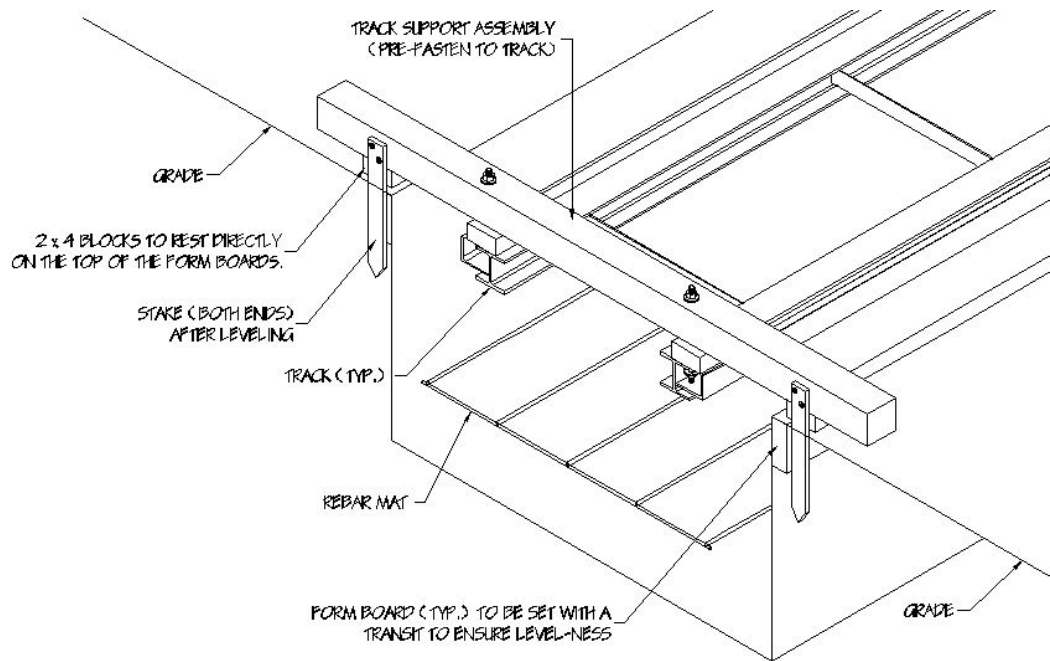


Diagram 1.4.5

- 1.4.6 Lift the rebar mat and suspend using the lower bend of the anchors. Verify levelness of the system; refer to Section 9. Pour concrete.

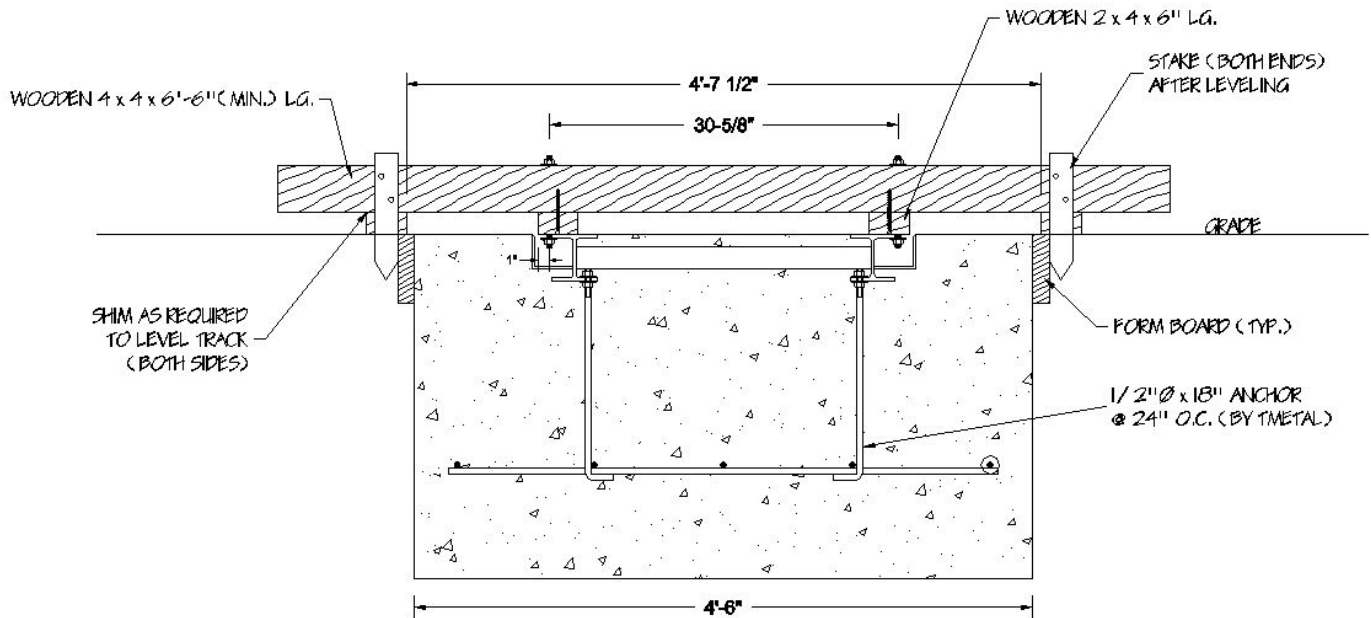


Diagram 1.4.6

1.5 Recommended Methods of Install- 2-Step Pour

- 1.5.1 Complete an initial concrete pour. Using holes in the track cross members as a guide, drill in the sub-pad along the entire length of the track. Epoxy ½" Jack screws in place.
- 1.5.2 Install the track. Use Nuts to level the track to requirements specified in sections 1.3.1 and 9. Complete the final pour.

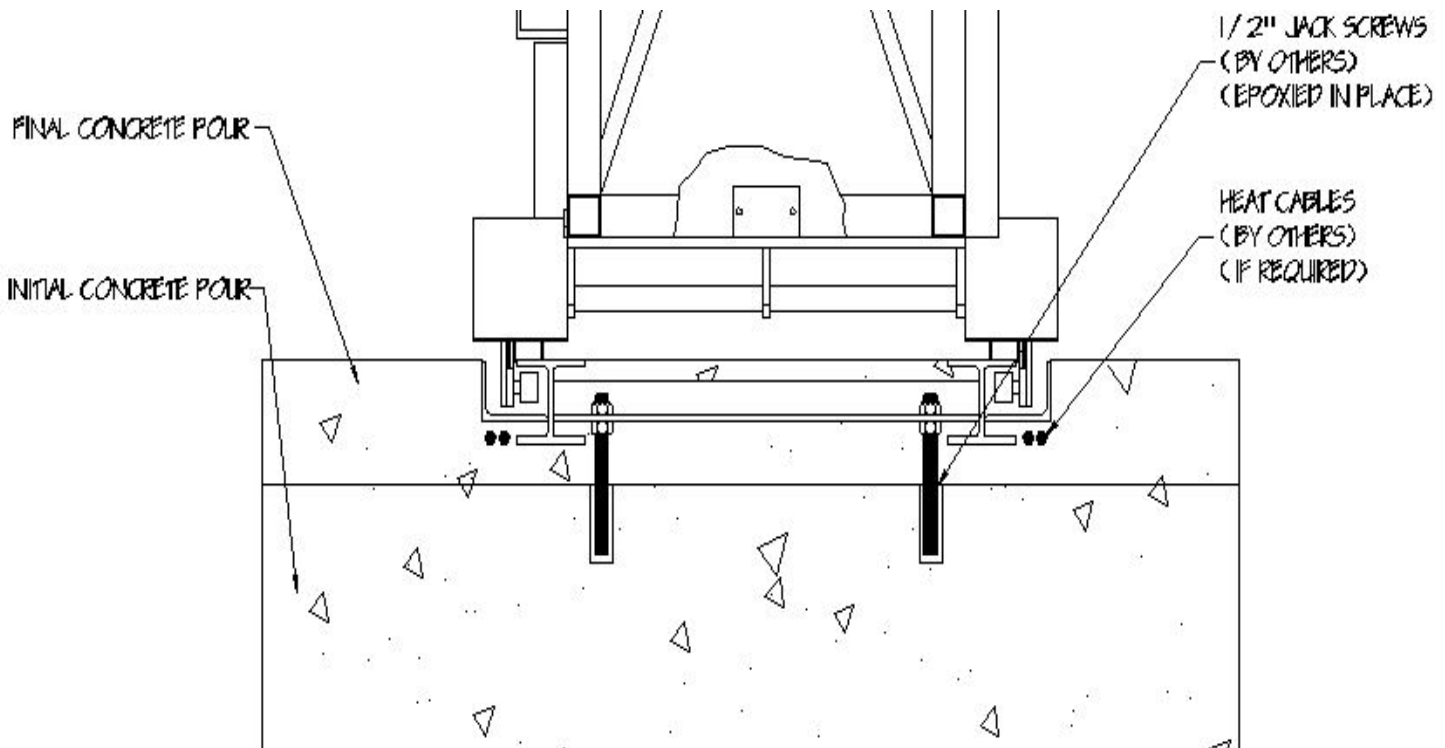


Diagram 1.5.2

2. Prepare the Gate Frame

2.1. Required equipment/tools:

- ✓ Forklift or equivalent equipment with a minimum lifting capacity of 3000 pounds.
- ✓ 1 1/2" open-end wrench.
- ✓ 3/4" open end wrench (2)
- ✓ 9/16" open end wrench (2)
- ✓ 1/2" open end wrench (2)
- ✓ 7/16" open end wrench
- ✓ Standard Pliers
- ✓ Locking Pliers
- ✓ 8" C-Clamps (8)

2.2. Required Materials (If chain link fabric is to be installed on the frame)

- ✓ Fabric to match the adjoining fence, if not supplied with your order (Refer to section 3.1 for fabric size requirements)
- ✓ Two (2) tension bars per gate section, if fabric is not being supplied (1' shorter than the nominal gate height)
- ✓ #14 and #16 aluminum fabric ties, if fabric is not being supplied.

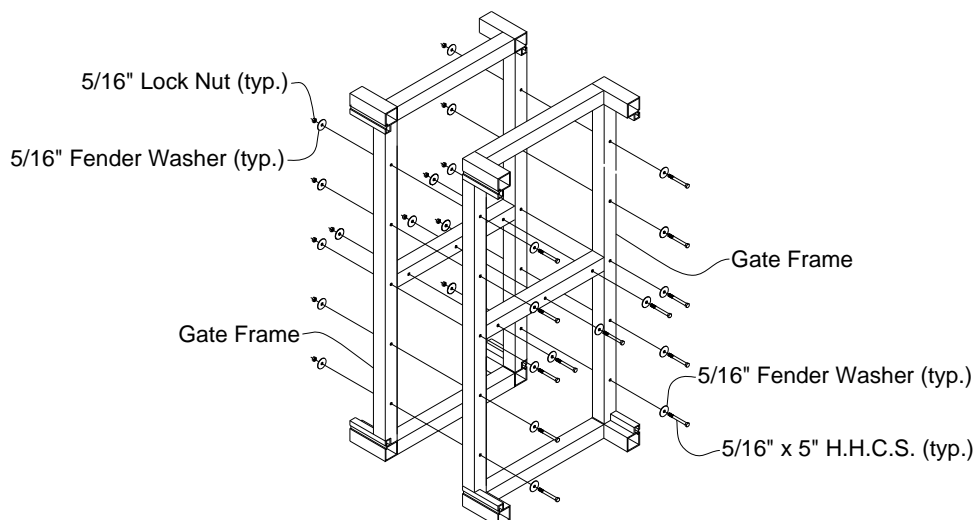
2.3. Check Hardware Box

2.3.1. Check the packing list to be certain that all required parts are enclosed.

2.4. Unload and arrange materials

2.5. Find a clean area along side the track to lay the gate out, and check to see that all components have been included. Be sure the gate panels are laid out in order, with the fabric side up.

2.6. If the panels for your gate are made up from multiple pieces, bolt together the pieces with the splice bolts supplied.



3. Install the Fabric (if required)

- 3.1. If the gate requires fabric, now is the time to install it using the fabric hardware kit provided in your hardware box along with tension bars and tie wires from your own stock. The height of each piece will be equal to 1'-0" less than the nominal gate height. For example: If the nominal gate height is 5'-0", then the fabric height shall be 4'-0".
- 3.2. Using the fabric hardware kit provided and a standard tension bar, secure each end of the fabric to the respective end vertical member on each gate section.
- 3.3. Tie the fabric to each intermediate vertical member using a minimum of three (3) aluminum tie wires on each.

4. Assemble/Install the Gate Frame

- 4.1. Locate and install the trolley assemblies on the gate panels.
See Diagram 4.1.



Diagram 4.1

- 4.2. Lift the outer gate panel with three trolley assemblies mounted on it and lift it into position on the track assembly.

CAUTION! Be careful not to damage the threads on the ends of the trolley axles when lifting the panels.

- 4.3. Block all six wheels to prevent any gate movement.
- 4.4. Install the safety clips at the pre-drilled locations on the bottom of the gate panel. Safety clips must be installed from the ends of the ground track.
See Diagram 4.4.

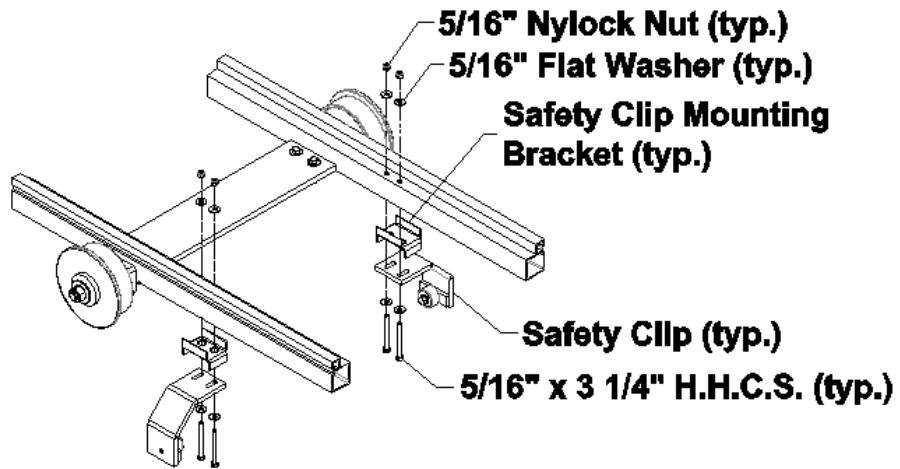


Diagram 4.4

4.5. Install all wheel covers. See Diagram 4.5.

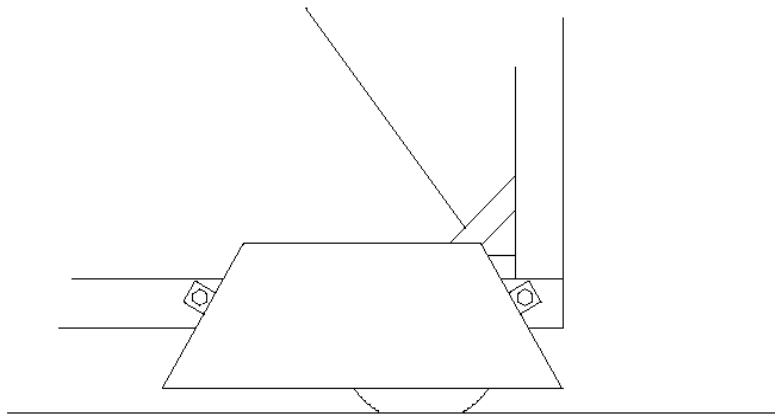
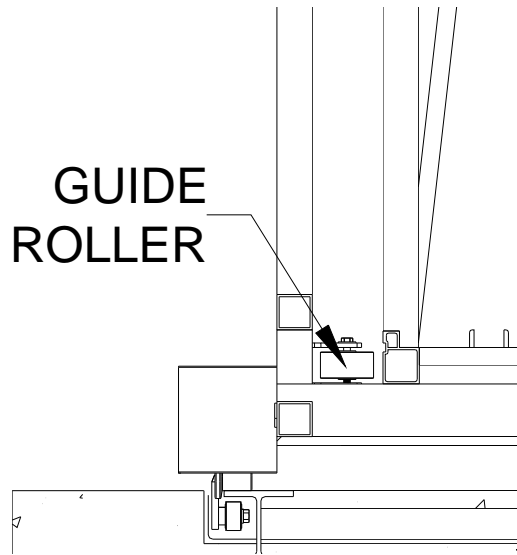
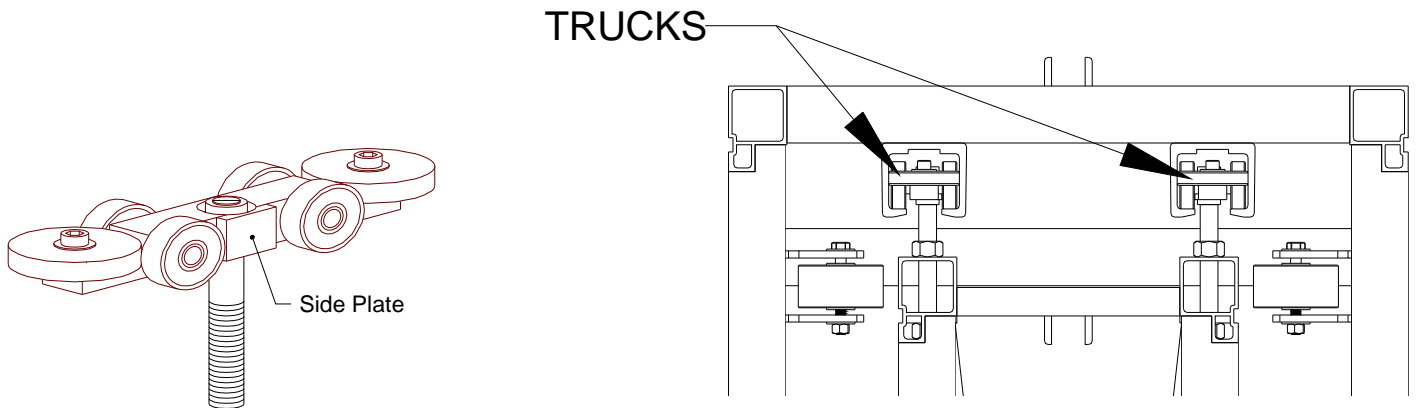


Diagram 4.5

- 4.6. If your gate was powder coated install Guide rollers in top and bottom of outer panel.



- 4.7. If your gate was powder coated install the trucks into the top rear section of the inner panel. **Note that trucks are NOT symmetrical and should be installed "Side Plate" in as shown.**

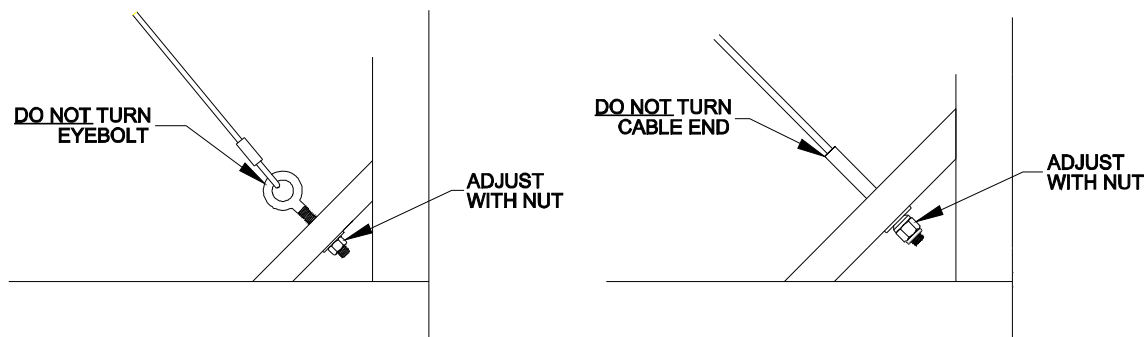


- 4.8. Push the inner panel all the way into the outer panel. Install stop bolts in the upper tracks of the outer panel. Adjust truck bolts so that the inner panel hangs plumb. The space between the bottom guide rollers on the outer panel and the inner panel should be equal on both sides. Push both panels back until the inner panel is flush with the edge of the opening with the gate in the open position.
- 4.9. Remove all previously installed wheel blocks.
- 4.10. Test roll the gate by pushing on the outer panel only. The gate should roll smoothly and not bind. Check for full stroke of the gate system.
- 4.11. Install gap protectors to the front end of the outer panel.

5. Fine Tune the Gate

All gate panels are shipped with the cables pre-tensioned. However, through shipping and over time, the cables may stretch causing a sag in the frame. If the frame is sagging it may cause the gate panels to rub and bind. Use the following guidelines to adjust the gate as required.

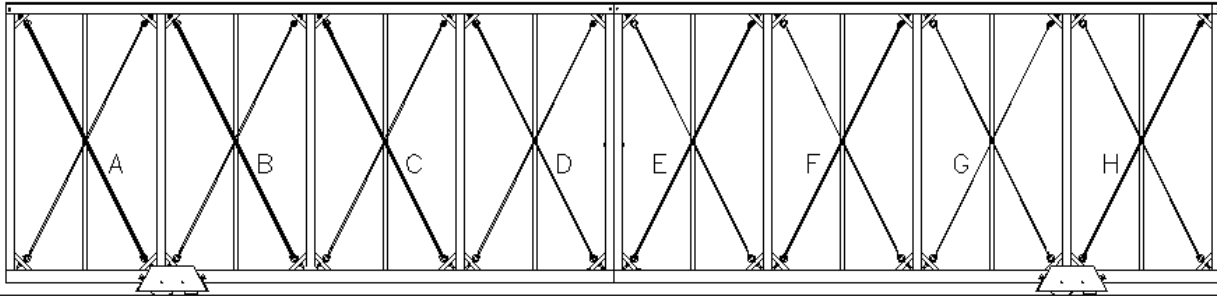
Note: When adjusting cables, do not adjust by turning the eye-bolts or cable end fittings! The cables will be twisted and damaged. Adjust by turning the nut only. To prevent galling of the threads when adjusting older gates, the threads may be lubricated with motor oil.



5.1. If the frame is sagging, tighten cables A – H as shown below

- 5.1.1. The gate should be made level across the top of the panel – use a string, laser, transit, or sight level to establish a straight line above the track at the top of the gate.
- 5.1.2. Start at the ends and work towards the middle of the gate and tighten cables A&H, B&G, C&F and D&E until the top of the panel is level. Be sure to tighten both the inner and outer cable pairs the same amount or the gate panel may be pulled sideways.

If your gate is larger or smaller than shown here, start at the ends and work towards the middle.

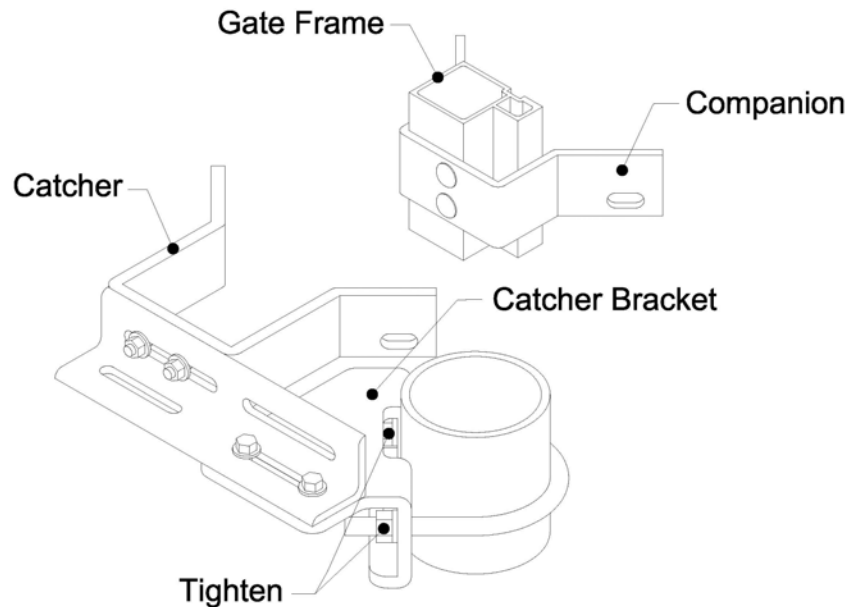


The number of cables varies with gate size.

- 5.1.3. **NOTE:** It may be necessary to loosen the opposing cables in each bay if the cable tension in cables A-H becomes excessive.

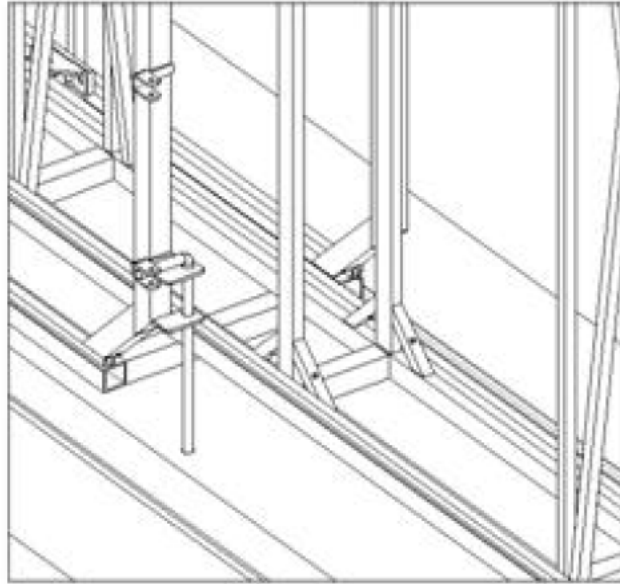
6. Install Catch Assembly

- 6.1. Set catch post/posts to match the gate inner panel in the closed position. Install the catch post assembly.



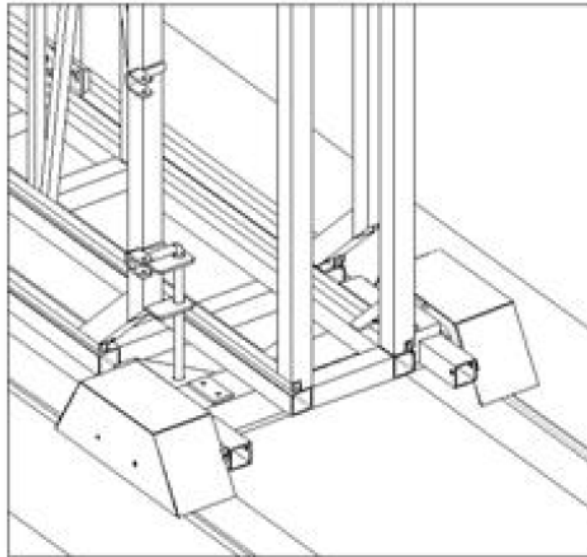
7. Install Drop Rods

- 7.1. Move the gate panels to the closed position. The inner panel should be stopped by the catch assembly on the catch post. Secure with a padlock.
- 7.2. If not installed, Install drop rod assembly to the outer gate panel. Drill into the track/ground for the drop rods as required.



Gate Fully Closed

- 7.3. Move both gate panels to the open position. The drop rod should pass through the hole in the inner panel. Drill into the track/ground for the drop rod as required. In the open position the drop rod should hold both panels in place.



Gate Fully Open

8. Recommended Maintenance Schedule

CRITICAL!!! To insure proper gate operation and avoid damaging the gate, it is essential that the void areas on each side of the track be kept free of any blockage at all times.

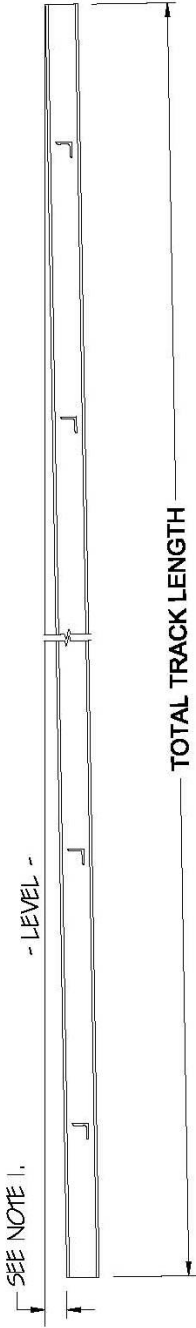
8.1. Gate Frame

- 8.1.1. Inspect the void areas along the length of the track and remove any build-up immediately after any storm or snowfall.
- 8.1.2. Inspect and remove any debris in the void areas along the length of the track daily.
- 8.1.3. Inspect all trolley connections monthly.
- 8.1.4. Inspect all bolted connections monthly.

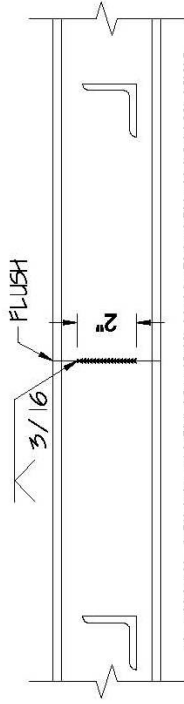
8.2. Wheels and Bearings

- 8.2.1. Visually inspect the wheels daily.
On a bi-annual basis the following wheel maintenance is required:
- 8.2.2. Grease the ground wheel bearings with a grease gun using NLGI #2 wheel bearing grease.

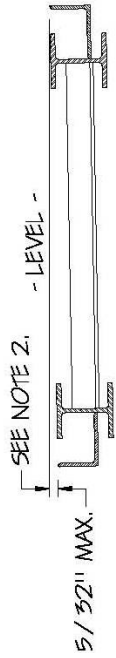
NOTE:
TO INSURE PROPER GATE FUNCTION, USING A TRANSIT, SET THE TRACK RAILS AS STRAIGHT AND LEVEL AS POSSIBLE.



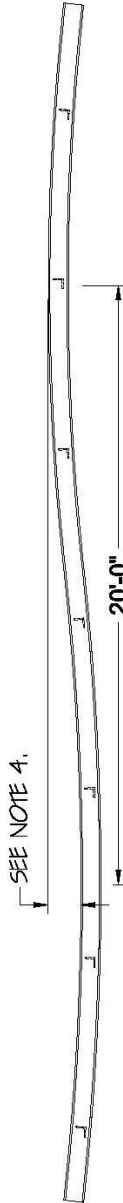
1. THE FINISHED GRADE OF THE TRACK SHALL NOT EXCEED $1/2''/10'$ SLOPE ALONG ITS LENGTH.
* A MINIMAL SLOPE WILL ALLOW WATER TO DRAIN.



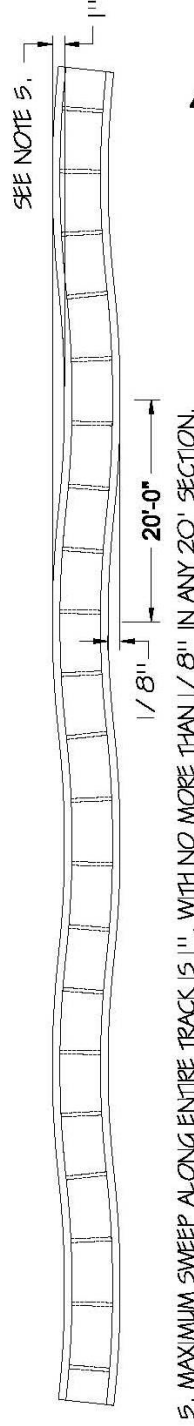
3. TRACK JOINTS SHOULD BE FLUSH ON TOP AND WELDED AS SHOWN BEFORE CONCRETE FOUNDATION IS POURED.



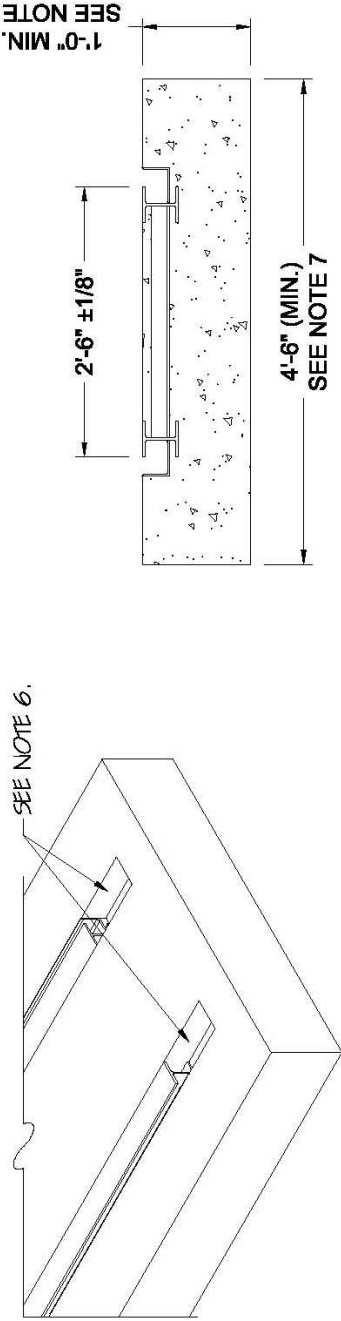
2. THE FINISHED GRADE OF THE TRACK SHALL NOT EXCEED THE SLOPE SHOWN ALONG ITS WIDTH.



4. TRACK GRADE SHALL BE STRAIGHT WITHIN $+/- 1/16''$ IN 20', CHECK WITH A TRANSIT EVERY 4' EACH SIDE.



5. MAXIMUM SWEEP ALONG ENTIRE TRACK IS $1''$, WITH NO MORE THAN $1/8''$ IN ANY 20' SECTION.



6. ALLOW FOR OPENINGS AT EACH END OF TRACKS FOR CLEANING, DRAINAGE AND SAFETY CLIP INSTALLATION.

7. CONCRETE FOOTING SHALL BE SIZED AS REQUIRED BY A LOCAL ENGINEER IN ACCORDANCE WITH JOB SPECIFICATIONS AND SITE CONDITIONS.

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