

CWR Specifications
General Information:

The RAILROAD shall have the right to make any subsequent changes in the nature of the Scope of Work for this Project, either before or after it commences, and such changes shall in no way affect or negate the obligations of this Contract. If such changes appreciably affect the cost of material to the SUPPLIER, it shall so notify the RAILROAD in writing before proceeding with the transportation of materials, and the cost shall be equitably adjusted by the RAILROAD.

The Contractor(s) are responsible to work with Rail Signal Contractor (CDL) to provide adequate coverage for any signal disruption, as well as replacing bond wires, or placing signals out/in service. Any additional cost associated with CDL work, will be bore by the Contractor(s).

The Contractor(s) is required to conduct a follow-up inspection of the quality of work at the end of each day. Contractor(s) will be responsible for immediate repairs to the following: broken joint bars, kinked rail, broken bond wires, down ties, broken rail, high spikes, etc.)

Refer to Watco's CWR Policy for additional information regarding CWR Installation and its Procedures. SKOL Railroad CWR Procedures (Installation, in part):

Chapter 1 CWR Installation Procedures:


Rail length that exceeds 400 feet is considered CWR. Rail installed as CWR remains CWR, regardless of whether a joint or plug is installed into the rail at a later time.

1.1 Desired Rail Neutral Temperature

Rail neutral temperature is the temperature at which a rail is neither in tension nor compression. Designated rail laying temperatures have been established to provide a high rail neutral temperature to prevent track buckling. When laying or adjusting CWR use the rail laying temperatures shown in Table 7- J. (Refer to Watco CWR Policy & Procedures) Per the SKOL Railroads requirements, all rail is to be heated to a minimum of 105 °F before installation may begin. Per Watco's CWR Policy, at MP 23 the Rail Neutral Temperature shall be heated to a minimum of 110°F.

1.2 Temperature Differential

The difference between the designated rail laying temperature and the actual rail temperature taken at the time of installation is called the temperature differential. CWR laying and adjusting procedures have been established to compensate for this temperature difference.

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1.3 Installing CWR

Follow these general requirements when installing CWR:

Take the rail temperature and calculate the expansion required before making adjustments using the following formula: length (in feet) X temp. differential X 0.000078 or length (in inches) X temp. differential X 0.000067.

Record the rail laying temperature, location and date on approved forms. These records may be retained in an electronic format per 213.241. (Refer to Record of Heat Control.)

Rail does not need to be adjusted when the actual rail temperature exceeds the designated rail laying temperature.

Use rail heaters or rail expanders to adjust the rail to the correct length when the actual rail temperature is less than the designated rail laying temperature. Heat the rail evenly and uniformly so that the rail expansion occurs evenly and uniformly throughout its length. If rail is laid at a temperature more than 40⁰ F below the designated rail laying temperature, rail must be adjusted, or a speed restriction of 25 mph must be placed prior to rail temperature above designated rail laying temperature. When tight rail conditions exist, be governed by Chapter 7.1.

Chapter 2 Rail Anchoring Requirements:

Where the anchoring function is otherwise provided, rail anchors may be omitted. Anchors may not be applied where they will interfere with signal or other track appliances, where they are inaccessible for adjustment or inspection or on rail opposite a joint. Anchor pattern may be varied as reasonable to avoid placing anchors against deteriorated ties.

Installation:

The following anchoring requirements apply to CWR installation on all main tracks and sidings. These anchoring requirements also apply to all tracks other than main tracks or sidings operating at speeds above Class I which contain CWR.


2.1 Standard Box Pattern

When installing CWR, box anchor every other tie except as outlined in Section 2.2.

2.2 Solid Box Pattern

When installing CWR, box anchor every effective tie at specific locations listed below to provide additional restraint against rail movement.

For these conditions: Turnouts, Rail crossings and joints where CWR abuts jointed rail anchor every tie for 195' in each direction.

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Insulated joints must be anchored every tie for 195' in each direction. (Change in CWR Procedures)

2.3 Bridge Pattern

When installing CWR, follow these bridge anchoring requirements:

1. Ballast deck bridges should be anchored with the same pattern as in Section 2.1 and Section 2.2.
2. Open deck bridges should be anchored according to (Standard Drawing 0461 C)

Additional CWR Specifications:

New wood tie plugs shall conform to AREMA Manual of Railway Engineering Volume 1, Chapter 30, Part 3 — Solid Sawn Timber Ties, or plugging compound equivalent.

New track spikes must conform to the AREMA Manual for Railway Engineering, Chapter 5, Part 2, Track Spikes.

New rail anchors shall fit the rail section specified shall conform to AREMA Manual for Railway Engineering, Volume 1, Chapter 5, Part 7 — Rail Anchors.

For end of the day tie-in compromise joint bars shall have matched bars, i.e. LH/RH and shall be a minimum of 30" in length and be of sound design and dimensions to match rail section.

Other OTM:

Track bolts and nuts shall conform to the AREMA Manual for Railway Engineering, Chapter 4, Part 3 Joining of Rail.


Spring washers shall be 3/8-inch heavy duty carbon steel for the supplied bolts and shall conform to both the AREMA Manual for Railway Engineering, Chapter 4, Part 3 — Joining of Rail.

The use of a torch is strictly prohibited for cutting rails and blowing bolt holes.

A string of CWR should not end on the deck of an open-deck bridge nor may it be less than a minimum distance specified by the railroad from the face of the backwall on the at-grade side.

Tie plates shall have a full and uniform bearing on ties and the bearings on each tie shall be in the same plane. Adzing shall be done where necessary to fulfill these requirements. All spike holes shall be plugged with treated tie plugs or equivalent, after the old spikes and tie plates have been removed. Creosote oil, heated when necessary, shall be applied to the ties after adzing.

Where new rail is to be laid, the track shall be fully tie plated. Where possible, plates shall be applied after preparation of tie plate beds and before the placing of the new rail.

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All spikes shall be started and driven vertically and square with the rail. In no case shall the spikes be overdriven or straightened while being driven. No spikes shall be driven against the ends of joint bars.

The full quota of rail anchors shall be applied prior to the passage of a train over the new rail.

CWR should not be laid across long open deck bridges without special consideration. The end of a string should terminate a sufficient distance from the end of a bridge to allow proper anchorage. Rail anchors should not be used on an open deck bridge without special precaution. If structural stresses are significant on bridge, CWR can be laid stress-free by using sliding rail joints. If rail cannot be laid stress-free, a structure analysis should be made to avoid damage.

Prior to the laying of CWR, the maximum and minimum rail temperatures experienced in the area should be determined and recorded, as laying procedures are dependent on the total range of temperature to be experienced by the rail.

CWR, when unloaded on open deck bridges, should be secured to prevent lateral movement. When CWR is unloaded across open deck bridges, it is generally necessary to provide some type of support for the rail on each side of the bridge. These supports are usually timber or pieces of lightweight rail securely fastened in the spaces between the bridge ties and under the guard rails so that the CWR will be on a level approximately even with the top of the bridge ties. The spacing of these supports should not exceed 20 to 30 feet center to center, depending on the rail section stiffness. When rail is unloaded across ballasted-deck bridges, it is generally the practice to unload it in the same manner as on regular track, except caution should be taken to retain the rail on the bridge and allow for proper clearance for traffic.

Before CWR is unloaded over open deck bridges, all hook bolts, spacers, and other fastenings should be checked, and all replacements, additions, and tightening that are required should be done. In addition:

Distribute tie plates at the end of the ties as the rail handling procedure dictates.

Material should be distributed ahead of laying operation, but such may be done within the laying organization.

Remove anchors, put to one side of track or load and dump in piles.

Remove joint bolts unless bolted track is to be removed in strings. (Use of machine(s) recommended.)

Remove frozen bolts by burning or cutting.


Remove old joint material from laying area.

Remove spikes (use of machine(s) required), load scrap and dump in piles on one side of track.

Set old rail out.

Throw out old plates on opposite side of track from scrap.

Remove sufficient ballast from cribs for adzing and anchor application. (Use of machine(s) required.)

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Drive spike stubs.

Place plates on ties in proper location with cant in proper direction. Double-shoulder tie plates should be used for all CWR laid. Every fourth tie should be drilled and a gage plug inserted to hold plate to gage. (Use of machine(s) recommended.) The rail should be laid at 56-1/2 inches gage unless specifically changed by railroad.

The welded rail should be placed onto the plates by use of machine with a threader or tongs. When laying CWR, the rail ends should be laid without expansion gap.

NOTE: Where it is necessary to move strings longitudinally, they should be pulled into position to maintain rail in a state of tension. Bumping CWR into position is not recommended.

Final location of field welds shall be within the tie-crib area. Ties may require relocation and spacing to accommodate the welds.

Upon the conclusion of the CWR Installation, the welds shall be ultrasonically tested, by an independent contractor for internal defects and written results provided to a SKOL Manager before they are accepted. Defective welds found shall be removed and another weld installed, tested and written results provided at the Contractors expense.

To provide effective anchoring to resist temperature induced stresses and longitudinal stresses due to train movement in CWR territory, every other tie should be box anchored throughout the full length of the welded rail string. Whenever any discontinuity in the CWR is encountered such as rail joints, turnouts, grade crossings, and railroad crossings, all ties should be box anchored for 195 feet in both directions. On those railroads that consider a field weld without safety straps to be a discontinuity, all such ties should be similarly box anchored for 195 feet in each direction.

Where CWR joins conventional jointed rail, all ties except those supporting the rail joint should be box anchored for 195 feet in each direction.


On curves, additional rail anchors may be required.

When Unloading Rail:

Rail shall be unloaded opposite the locations in which they are to be placed in the track, with suitable gaps being allowed for short lengths. Rails shall be placed so that the joints in each line of rail shall be not more than 30 inches from the centers of the opposite rails and preferably not more than 18 inches. Locations of joints can be best determined with a steel tape.

Proper lengths of rail for road crossings, station platforms, bridges and other special locations shall be unloaded in a safe and convenient location, where they will not constitute an obstruction.

To minimize the cutting of new full-length rails, short rails shall also be distributed in proper places to provide for proper spacing at insulated joints and for connections to switches.

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Rail/OTM Removal:

All Rail and OTM removed from the CWR Scope of Work will be discussed in detail at the Pre-Bid Meeting. The Removal Specifications regarding Rail and OTM will be based upon the SKOL's discretion.

All packaging materials I.E.: spike kegs, anchor bags, tie banding, pallets, etc., shall be picked up from ROW and discarded of properly in accordance with local, State and Federal laws.

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