

Membraned Wall Corner Tube Failures.

Purpose:

Provide customers information for preventing membraned wall corner tube failures.

Problem:

Boilers with membraned furnace walls are subject to corner tube failures at the buckstay elevations. Large drum type boilers, especially RB and large capacity Stirling boilers, using large diameter furnace wall tubing, are affected. The cause of these failures is due to flexing of the furnace corners during large temperature transients. Such transients take place during start-up and shut-down.

Recommendations:

Recognizing the need for more flexibility at the corners, B&W has revised the design standards. Review the maintenance and operating records to determine if you are experiencing tube failures and/or cracked welds in or near a furnace corner. If the records show failures, inspect the membraned wall corner construction to determine if

the arrangement deviates from current B&W recommendations, which are as follows:

1. No solid thermal barrier plates (T), shown on Figure 1. These should be removed and the thermal barrier re-established using insulation packed into the corner cavity.
2. No buckstay standoffs closer than 18" to the corner. Remove all stand offs closer than the 18" limit. See Figure 2.
3. No tie bar pins closer than 18" to the corner. Remove all pins that are closer than the 18" limit. See Figure 2.
4. No weld between tie bars or tie channels closer than 18" to the corner. Weaken all welds by grinding flush with the bar or channel that are closer than the 18" limit. See Figure 3.
5. On boilers utilizing a paddle tie welded to the membraned wall, an Engineering Review is recommended. Figure 4 shows the paddle bar construction.

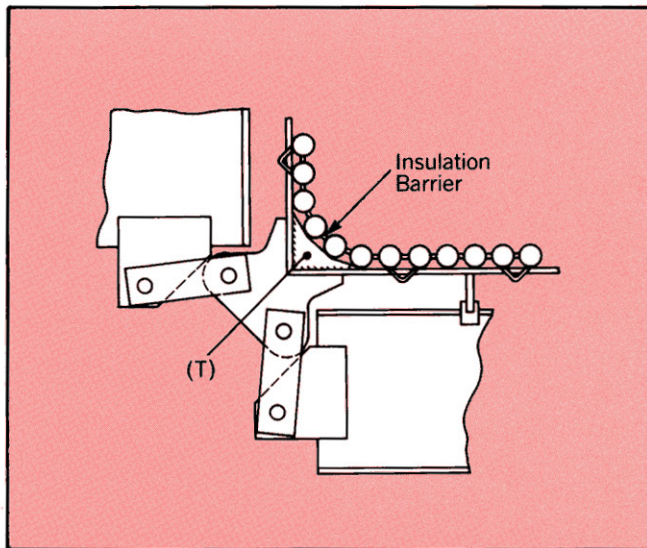


Figure 1 Insulation barrier.

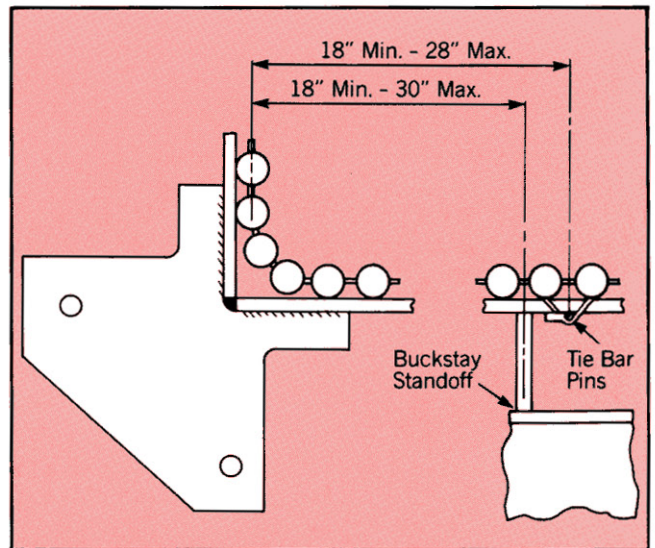


Figure 2 Tie bar pins.

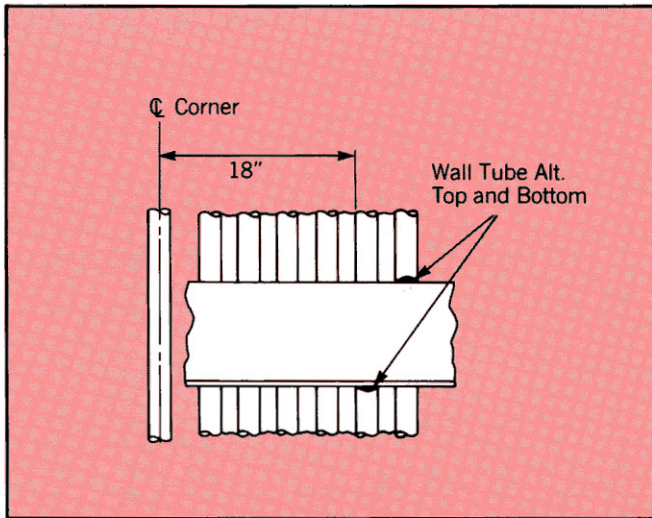


Figure 3 Tie bar or tie channel welds.

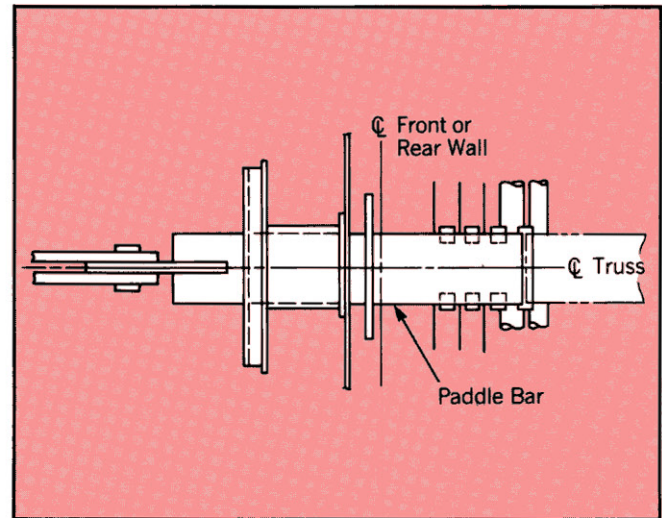


Figure 4 Paddle bar ties.

These changes should be made to minimize the possibility of tube failures.

Customers should include these areas in their annual maintenance inspections and include the above recommendations in their preventative maintenance programs.

Support:

If you have any questions or if you require assistance performing these inspections, please contact Babcock & Wilcox Field Service Engineering.

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