

EXPANSION JOINTS IN COAL FIRED POWER PLANT APPLICATIONS INDEX

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HISTORY

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ALSO, REMEMBER US FOR DAMPERS

PICTURE BOILER RH & SH DAMPER

SLIDE #16

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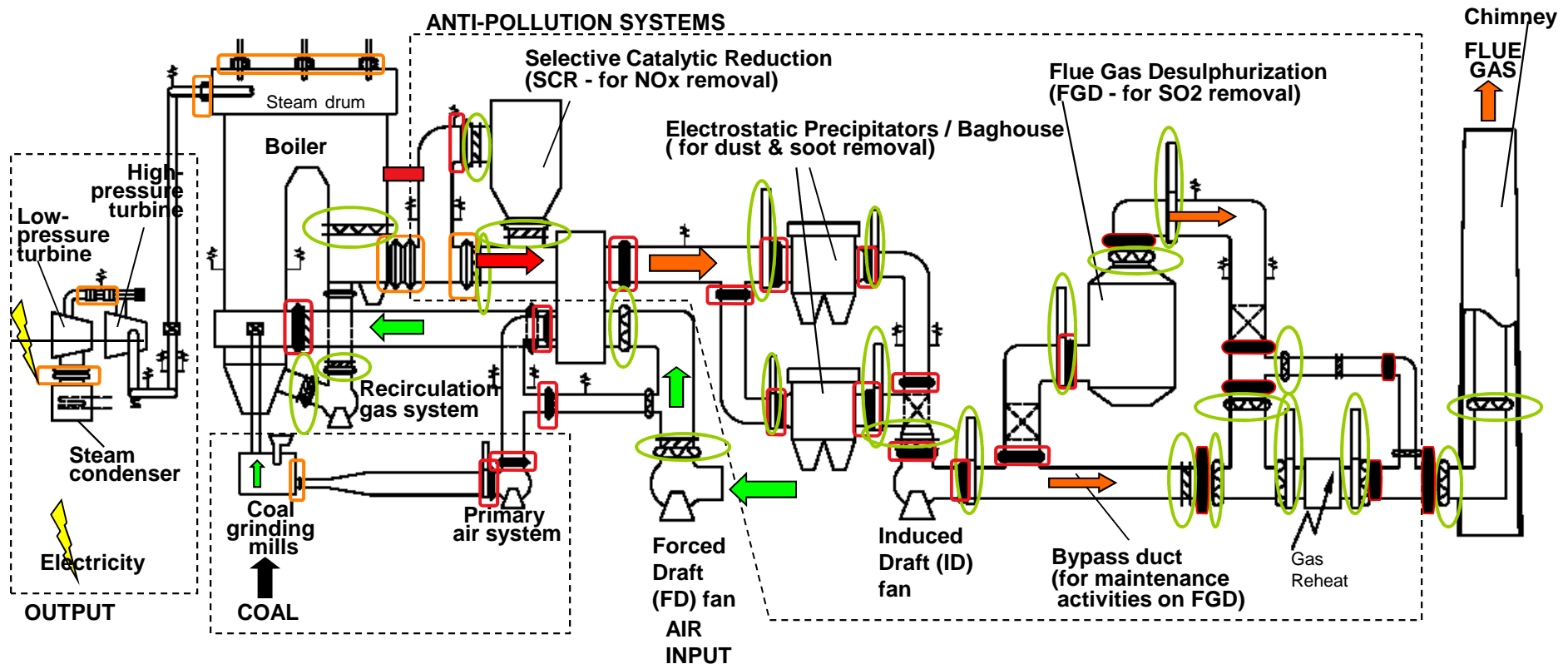
Key elements of coal-fired power station

(schematic, not drawn to scale).

Typical locations for dampers [guillotine or louver].

Typical locations for expansion joints - metal.

Typical locations for expansion joints - fabric.



BACHMANN DAMPJOUNT INC.

Laval, Canada

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www.bachmandampjoint.com

DESIGNS VARY TO SUIT NEEDS

Like the cars in Bachmann Dampjoint's parking lot, the final product often varies in size, and details.



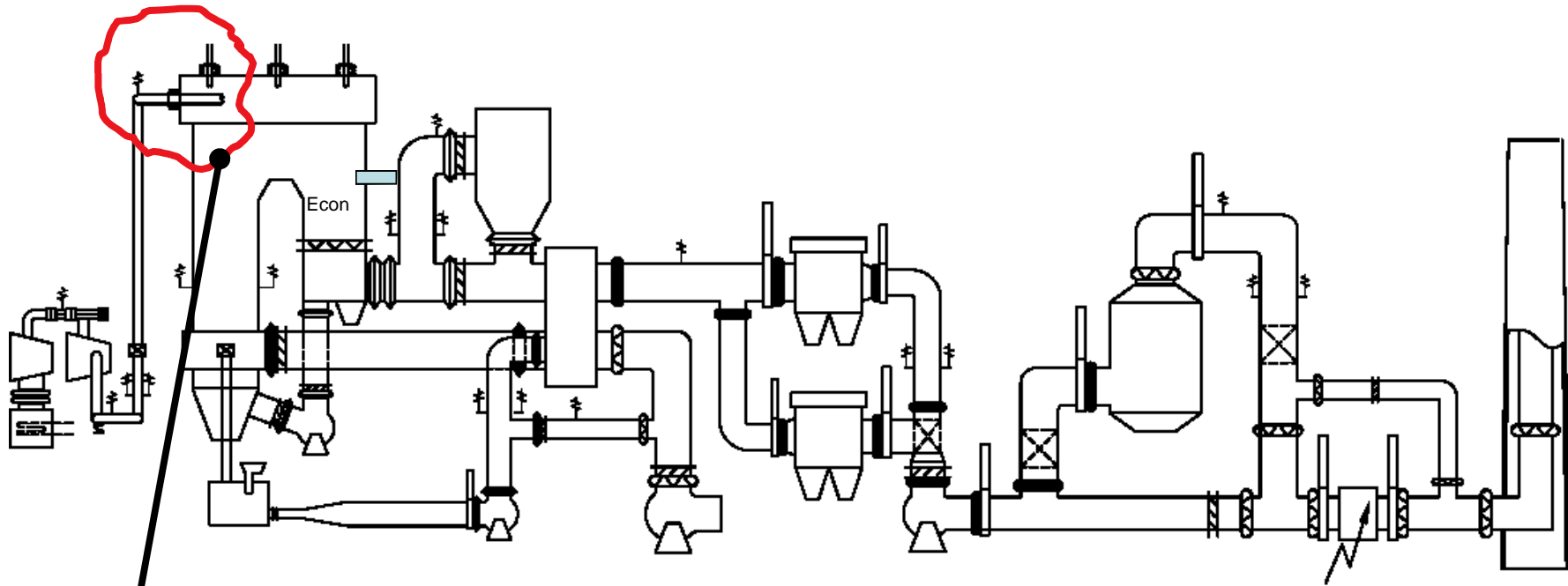


To illustrate the large variation and complexity of Coal Fired Power Plant expansion joint designs and needs, this presentation will detail a few specific EJ applications.

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BOILER AREA

HOT GAS & STEAM AREAS



● BOILER ENCLOSURE **PENETRATION** EXPANSION JOINTS.
DESIGNED TO ALLOW MOVEMENT AND PREVENT LEAKAGE AT PENETRATION.

PENETRATIONS INCLUDE STEAM PIPES; SUPPORT STRUCTURES; HEADER ENCLOSURES; ROOF HANGERS; AND PENTHOUSE ROOF ITSELF.

SOLUTIONS VARY - METAL TO FABRIC CIRCULAR TO RECTANGULAR.
LARGE TO SMALL BUT ALL REQUIRE
A FIELD SPLICE ABILITY and
ALL ARE CUSTOM DESIGNED TO THE SITUATION.



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- ALMOST ALL PENETRATION EJ's REQUIRE AN EASY WELD SPLICE -
- ONE POSSIBLE SOLUTION IS WITH HIGH CONVOLUTION METAL BELLOWS



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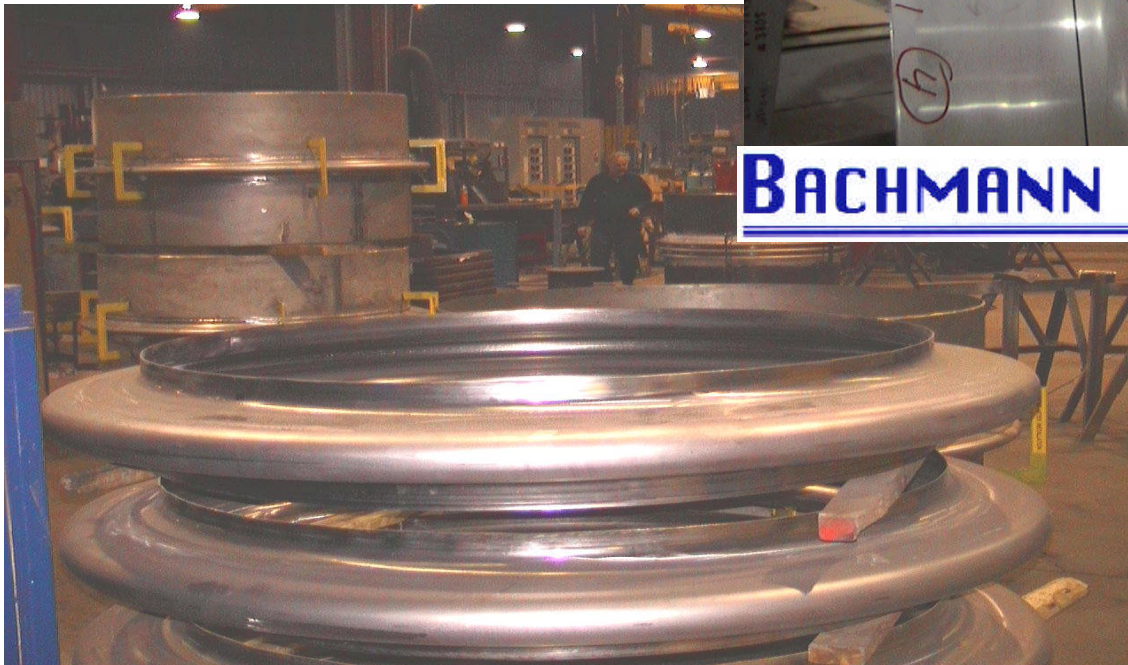
CIRCULAR METAL EJs

HIGH PROFILE VS LOW PROFILE

**RIGHT
LOW PROFILE
[MORE MODERN]
1" TO 3" HIGH CONVOLUTION**

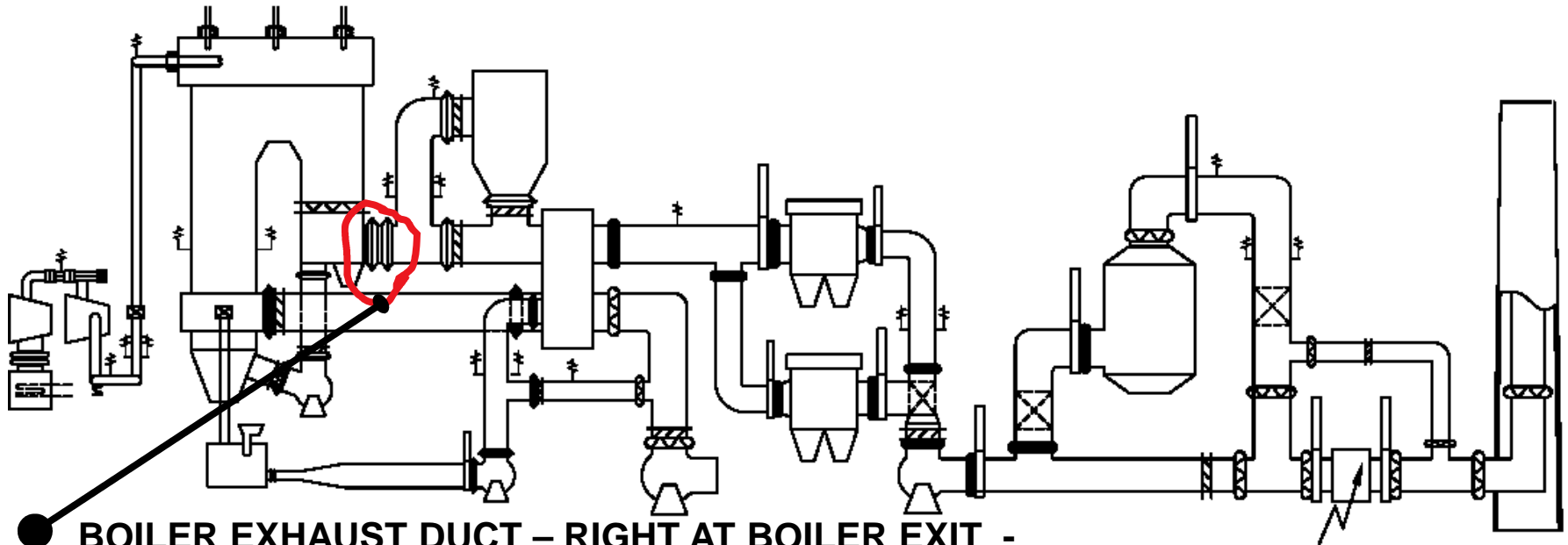


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**LEFT
HIGH PROFILE
[OLD EUROPEAN DESIGN]
6" TO 9" HIGH CONVOLUTION**

BOILER EXHAUST DUCTING AREA



● BOILER EXHAUST DUCT – RIGHT AT BOILER EXIT -

-CONTAINS THE TOUGHEST EJ IN DUCTING

-TOUGH BECAUSE LATERAL MOVEMENTS ARE BIG.
-MOVEMENT DUE TO [6" TO 8"] DOWNWARD BOILER GROWTH, AS WELL AS SIGNIFICANT OTHER MOVEMENTS; AND DUSTY FLUE GAS.

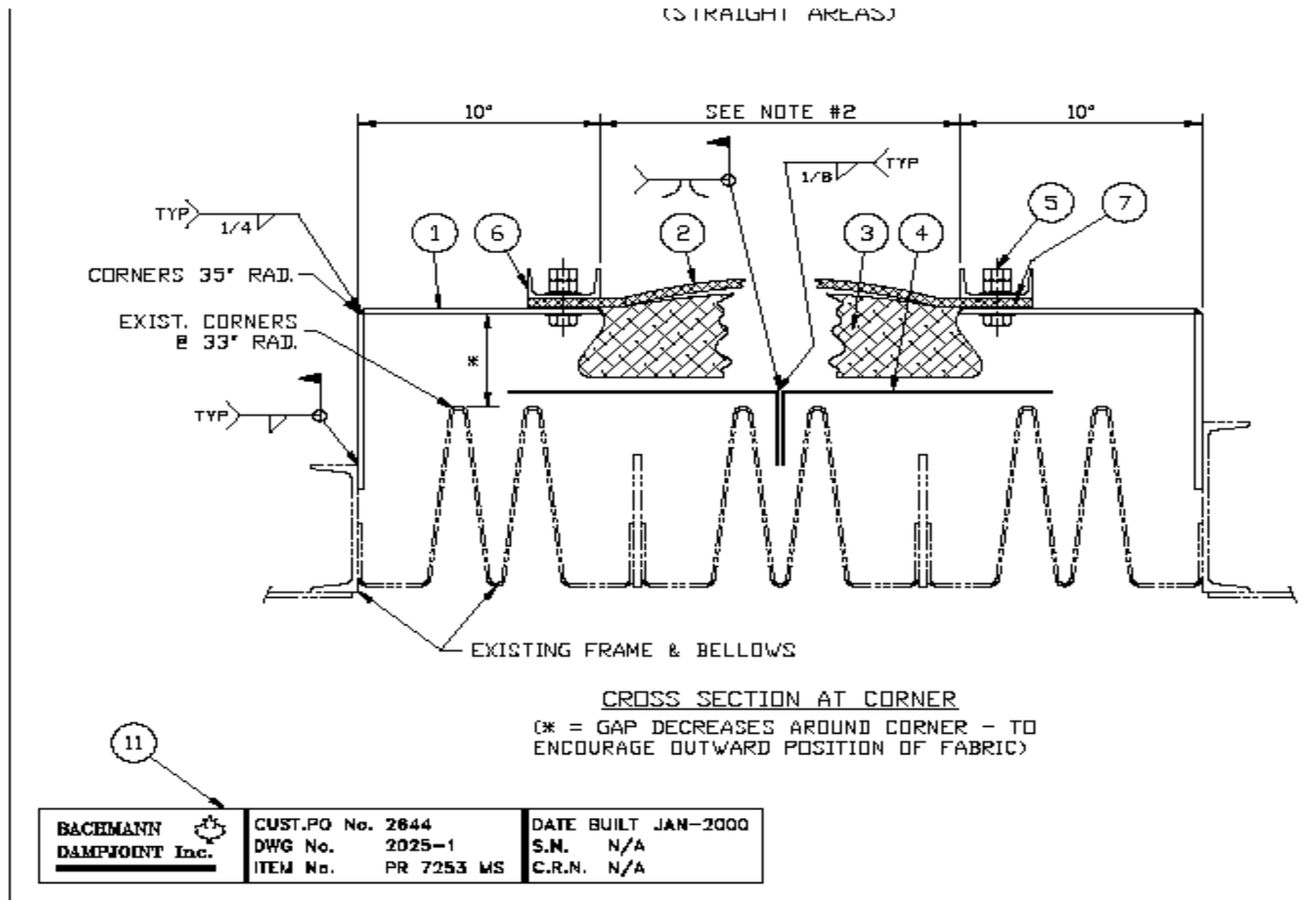
DUCT IS LARGE – 40 FT BY 15FT

ORIGINAL SOLUTION WERE TANDEM METAL EJS

FAILURE MODES VARY – SOLVE PROBLEM.

LITTLE SPACE EXISTS TO REMOVE OLD METAL EJ; NOR TO REPLACE WITH A NEW METAL EJ.

RATHER THAN **REPLACE** A METAL EJ WITH A FABRIC EJ -- SAVE THE EXISTING METAL EJ, USE IT AS A DUST LINER, AND JUST ADD A FABRIC EJ OVER AN EXISTING METAL EJ. SAVES DIFFICULT REMOVAL COSTS OF PRESENT EJ

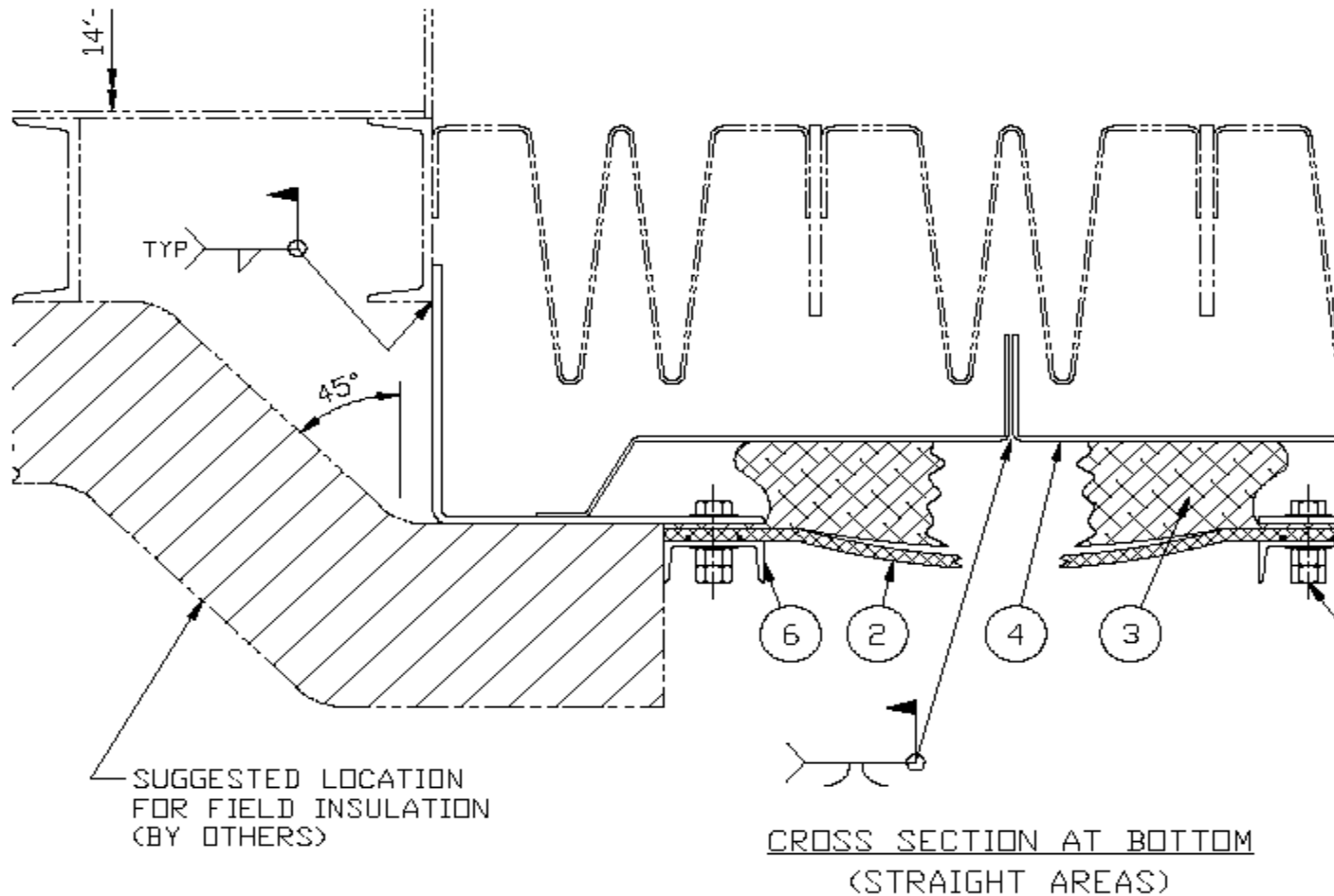


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KEY IS PROPER INSULATION – **OVER STIFFENERS** – TO PREVENT BOWING, BY KEEPING ALL METAL UNIFORM IN TEMPERATURE.

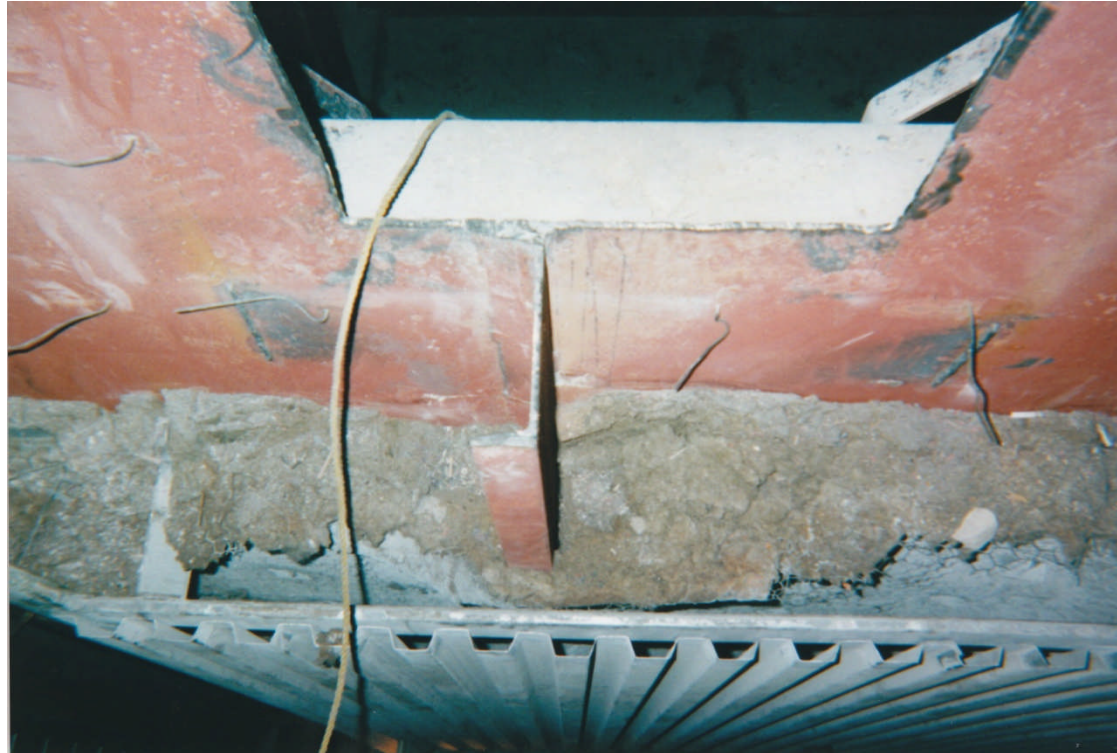


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PHOTO OF WHY SOME ORIGINAL METAL EJ FAILED -- IMPROPER DUCT INSULATION IN AREA WHERE DUCT BOWING CAN CREATE CRACKS / CREASES IN THE NEARBY METAL EJ BELLOWS OR EVEN IN METAL FRAME OF FABRIC EJ.



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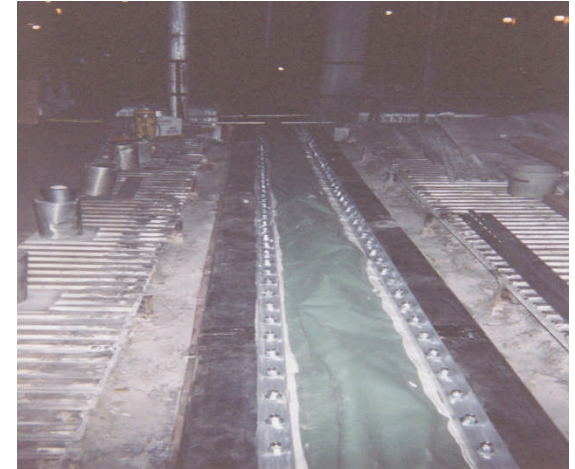
Steps in fabric over metal upgrade



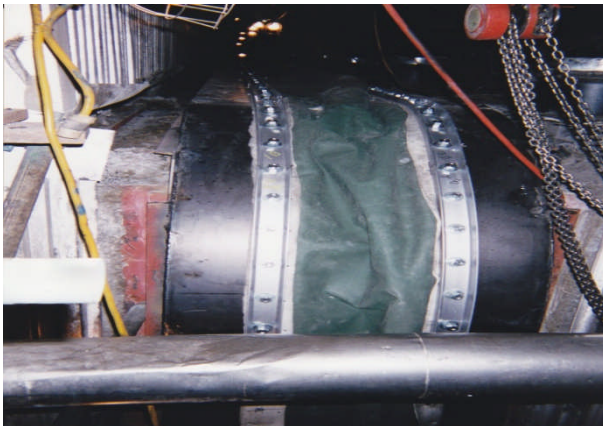
A) Metal frame [studded] welded in place



B) Protective layer installed.



C) Final built-up fabric installed



D) Final radius'd corner – next is critical proper insulation over metal frame.

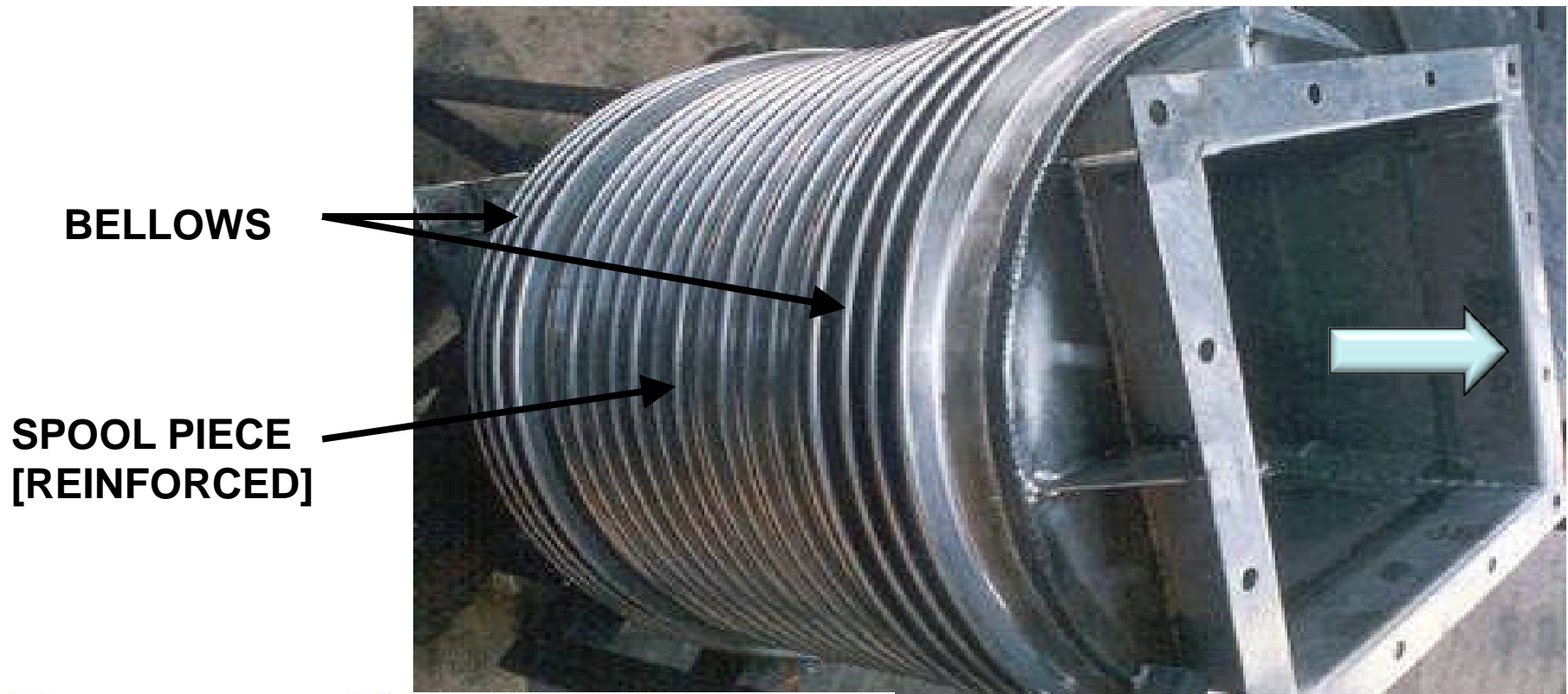


E) Internal liners removed. Old metal EJ becomes new flow liner. Add control rods for increased metal "EJ LINER" life.

THINK OUTSIDE THE BOX

RECTANGULAR DUCT -- NEEDING TANDEM METAL EJ FOR LATERAL AND AXIAL ABILITY --

- DONE **ECONOMICALLY** WITH CIRCULAR GEOMETRY OF TWO TANDEM BELLOWS; AND A SPOOL PIECE STRENGTHENED WITH A CONVOLUTED AREA. ALL WITH RECTANGULAR INTERNAL FLOW LINER.



1972 Original Bachmann company started

1995 Bachmann Dampjoint Inc. Founded

1998 ISO 9001 Registered ; Joined FSA [Fabric EJ]

2001 ASME U Stamp acquired

2003 Bought & Moved to 63,000 sq. ft. Laval plant

2004 Added hi-definition plasma cutting

2007 Founding member of FSA Damper Division

2010 Added sandblast and paint booth in plant

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And, remember that we do dampers as well

SHOP
MANAGER



Boiler exhaust -- SH and RH control damper LAVAL SHOP

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