DSI ENGINEERING – POWER PLANT

INLET DUCT SUPPORTS ANALYSIS & REINFORCEMENT [W10236]

CHALLENGE: (1) Determine stress impact on existing support steel after flue ducts are reinforced with new liner plates
(2) Design reinforcement to effectively negate the impact of the added liner weight

SOLUTION: Upon calculating added stresses, DSI provided the reinforcement necessary to increase the moment capacity of each affected beam, accommodating the added loads.

Because of substantial wear to the exhaust system's flue ducts, plans were made for the ducts to be lined with new protective liner plates. DSI was tasked with analyzing the effect of this additional weight distributed throughout the existing structural steel support system.

DSI identified the loads of the existing flue ducts and the added weight of the new liner plates. The load path to the main building's columns was traced, and members along this path were analyzed. DSI then determined an acceptable increase in each existing beam's bending stress due to the added load. In any instance in which the added stress was too great, a determination was made for the extent and locations of reinforcement necessary to increase the moment capacity of each beam, effectively negating the impact of the added liner weight.

Appropriate reinforcement schemes for each affected member were successfully implemented without interfering with existing supported walkways, pipe hangers, etc.

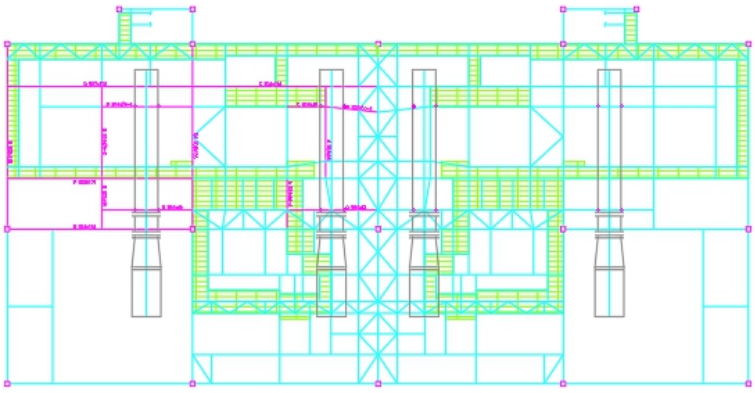

Figure 1: Plan View with Load Paths Highlighted

Figure 2: Examples of Structural Reinforcements

Office: +1 770 423 9895 • Toll free: +1 833 DOS INTL • info@dossantosintl.com

DosSantosIntl.com • 531 Roselane St - Suite 810 • Marietta, GA 30060