

# METALLURGICAL WELD EVALUATIONS

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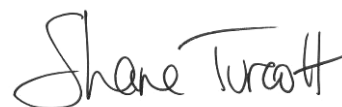
## EXAMPLE REPORT

### OVERVIEW & OUTCOME

To evaluate the set-up parameters on a new automated welding stand, evaluation of three weld sections were conducted. The analysis found the welds to be of passable quality yet recommended setting the parameters to obtain deeper penetration. Several more trials and evaluations were conducted until the user was satisfied with the weld quality.



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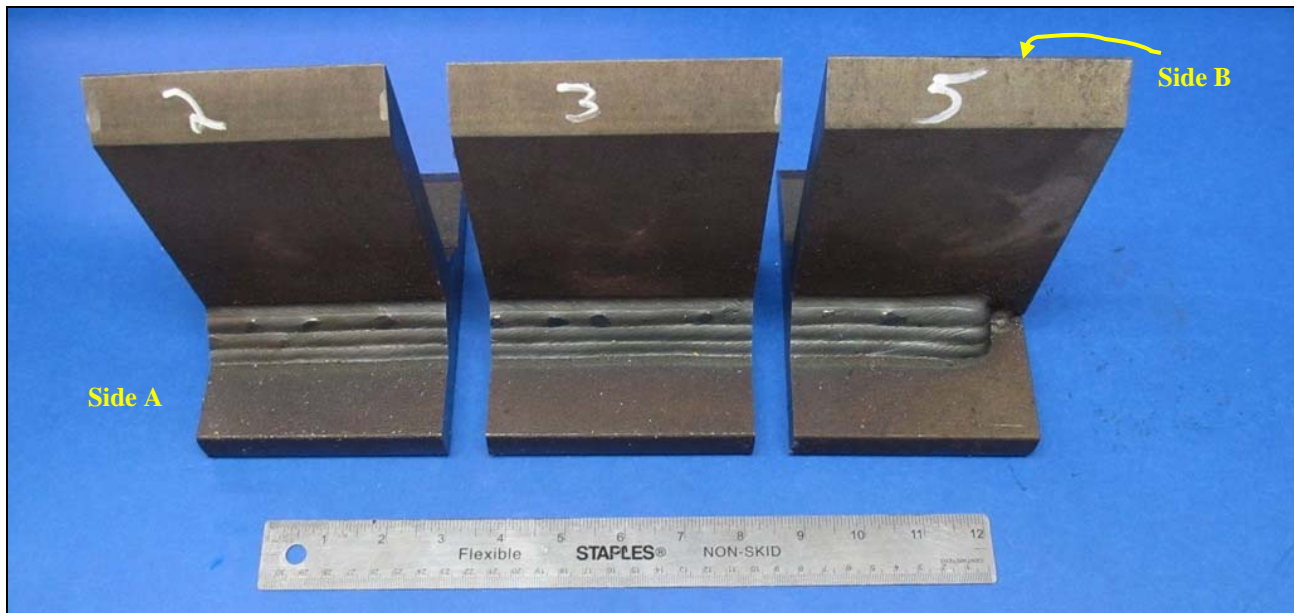
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## METALLURGICAL WELD EVALUATIONS

### SUMMARY

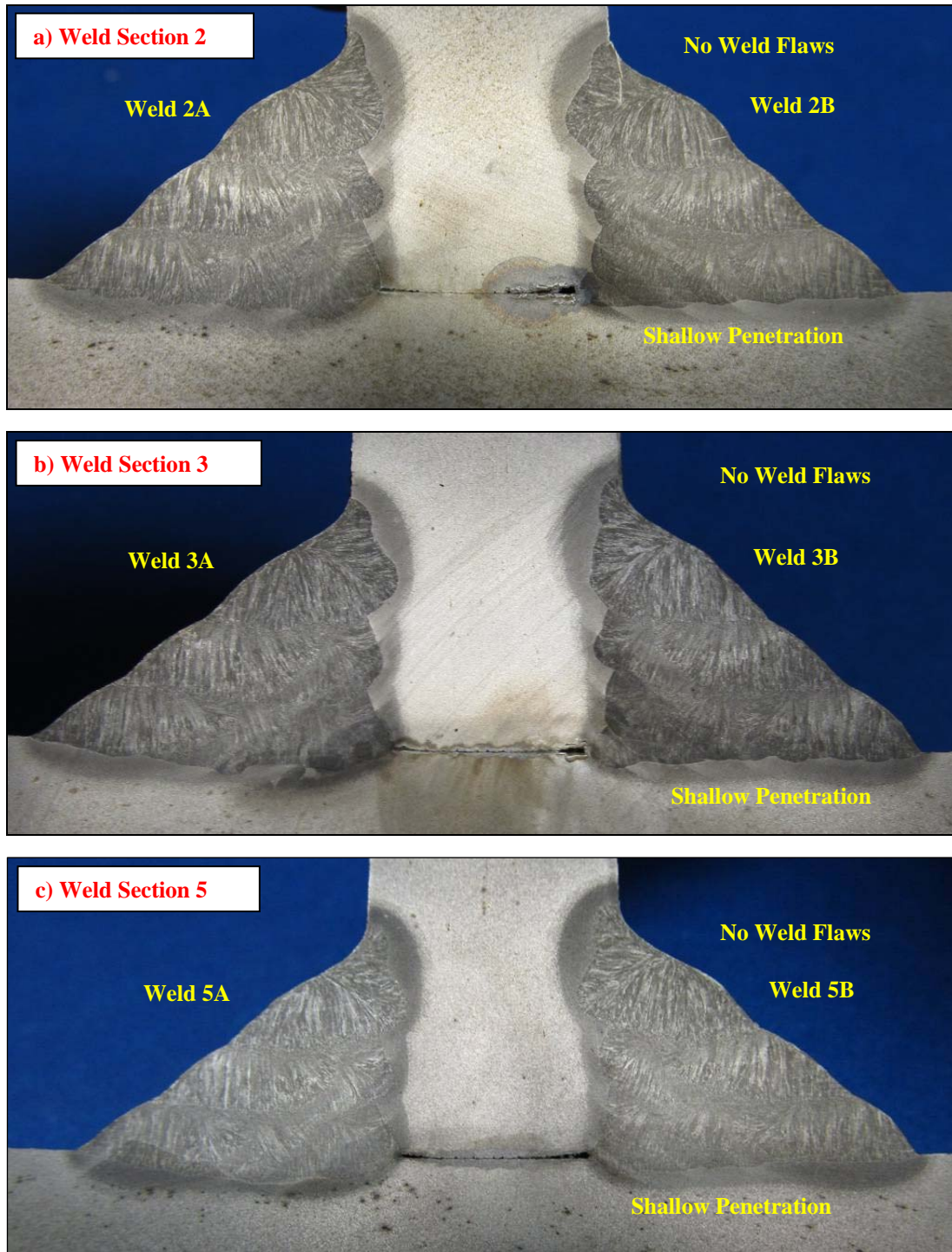
In order to verify the set-up of a new welding robot, three fillet welds were submitted for evaluation. (**Figure 1**). These samples were labeled as Sections #2, #3 and #5. The welds were cross-sectioned, ground, macro-etched and examined. No weld flaws were observed on the six welds at 10x magnification. **Figure 2** displays the weld cross-sections.

Although not deemed as a weld flaw, the welds tended to exhibit shallow penetration on one side of the fillet, Side B. The depth of penetration ranged between 0.5 to 1.6mm. **Figure 3** displays an example of the shallow penetration. It is recommended that the welder consider adjusting the parameters to obtain deeper penetration into the bottom substrate.



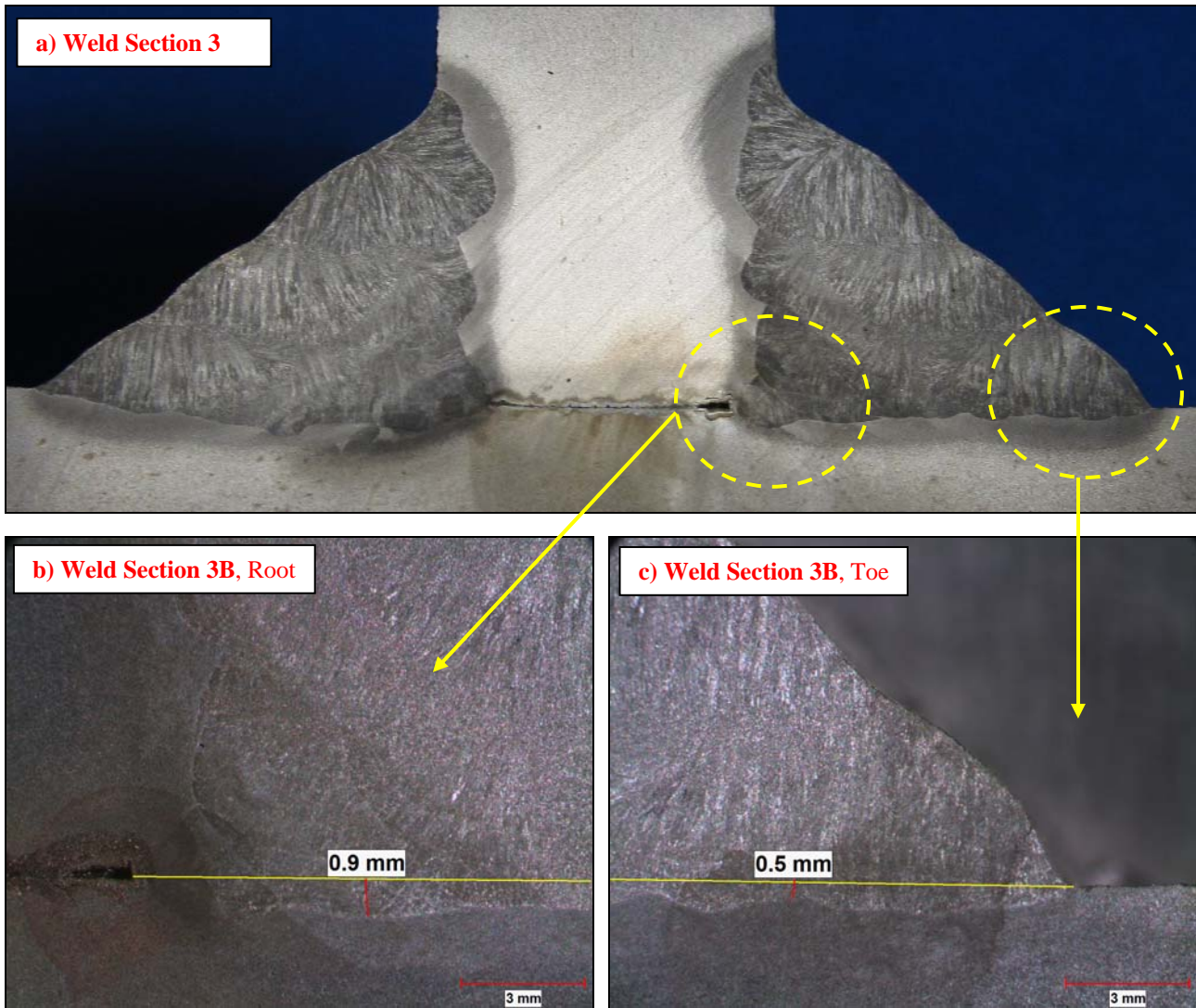
**Figure 1:** Photograph displaying three weld sections submitted for metallurgical weld evaluation.

This visible face was referenced as Side A. The evaluation would find the welds on the back side, Side B, to exhibit relatively shallow penetration.



**Figure 2:** Photographs displaying etched cross-sections of Weld Sections 2, 3 and 5. No weld flaws were present. The welds tended to exhibit shallow penetration on Side B.





**Figure 3:** Photograph and macrographs displaying shallow depth of penetration of Weld 3B. Although not considered a weld flaw, the Welder may consider adjusting the welding parameters to obtain deeper penetration into the base substrate on Side B.