INTRODUCTION TO SEASPAN WELDING CENTRE OF EXCELLENCE

Hassan Saghafifar, Welding Inspection Supervisor

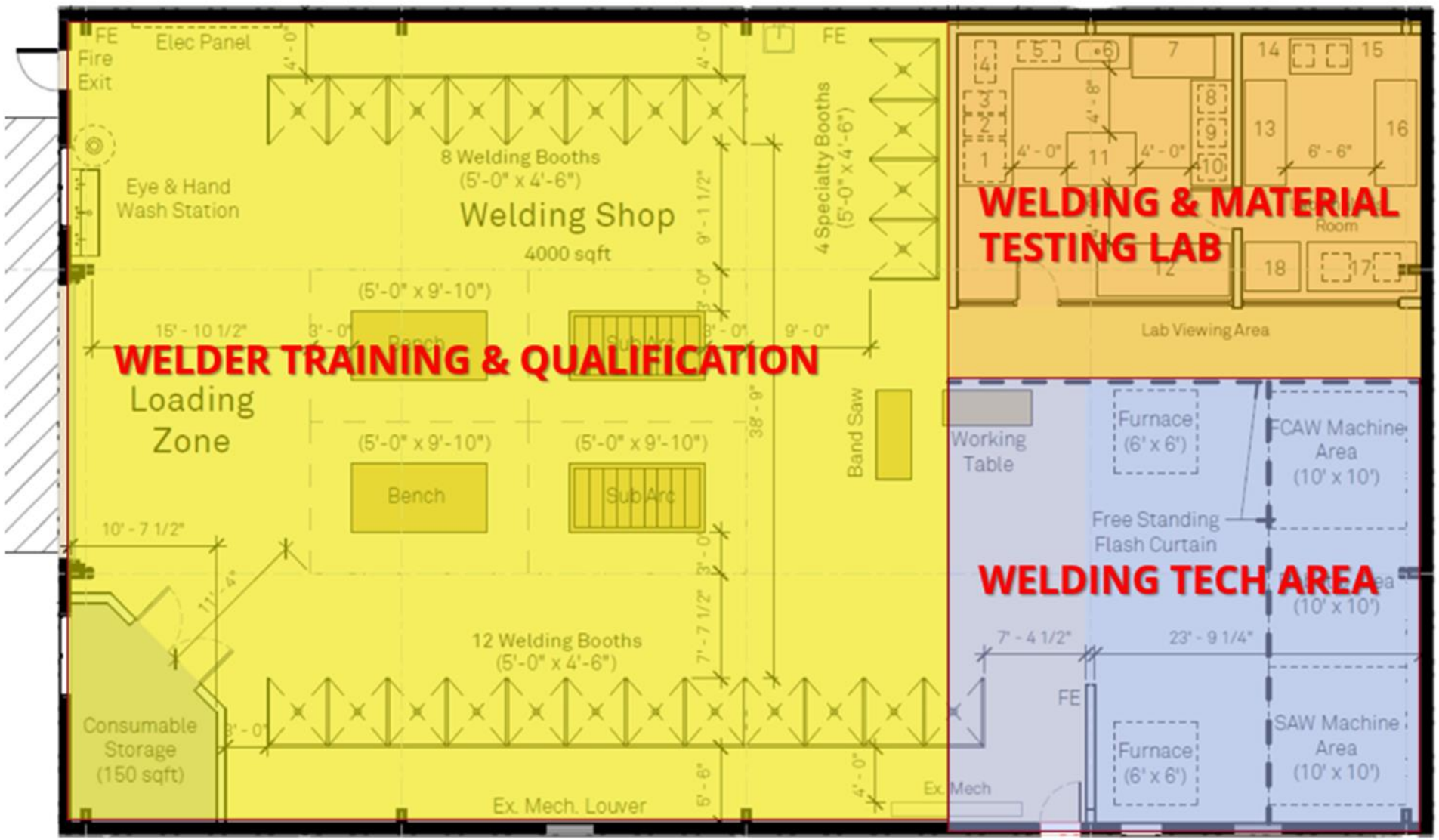
June 2024

Seaspan's Welding Centre of Excellence Location

$3.1M
INVESTMENT IN
WELDING CENTRE OF EXCELLENCE

1. Panel Shop
2. Block Assembly Shop
3. Operation Center
4. Paint Shop
5. 300T Gantry Crane
6. Welding COE

Welding Centre of Excellence (COE) Floor Plan – 3 Sections



COE – Welder Training and Qualification Area

- Competitive recruitment market confirmed that developing our workforce is as important as hiring for experience – a blend of the two approaches will support our success.
- 24 Welding Booths including 4 SS welding Booths.
- CWB Certified Centre for Welder Qualification.

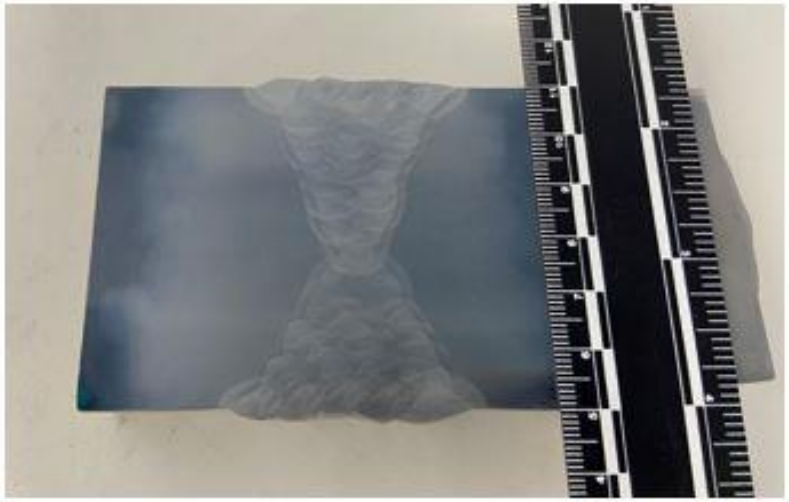
OVER **160** ACTIVE **APPRENTICES** of which approximately **13%** were Female and **11%** were Indigenous

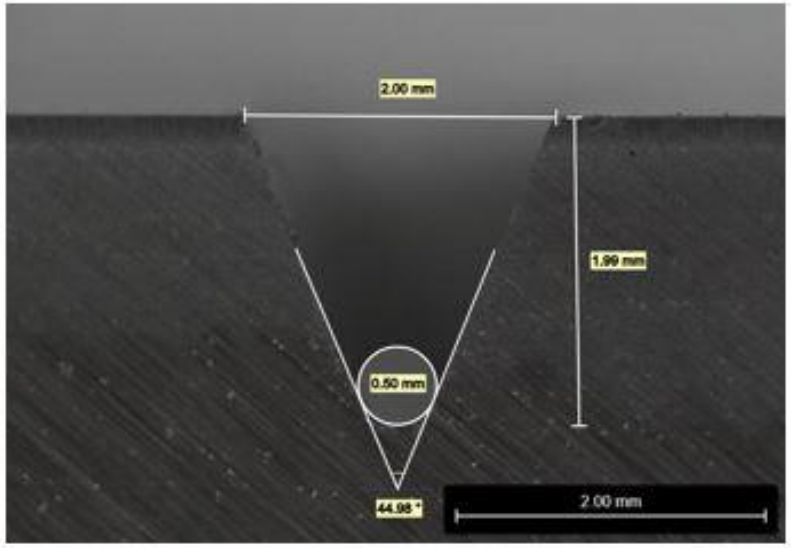
COE – Welding Tech Area

- Performing welding procedure qualification test without interrupting production with cutting edge equipment.
- Simulating production welding processes (manual and automatic) to conduct parameter development and welder/operator training.
- Controlled and monitored shop environment for running research and development projects.

seaspan SHIPYARDS

COE – Welding and Material Testing Lab





seaspan SHIPYARDS

COE – Welding and Material Testing Lab Professional Team

Name	CWB Reg #	W178.2 Level	W178.2 Code	Position	Other Designation
Payman Babaghorbani	17627	Level 2	W47.1/W59 ASME VIII & IX	Senior Manager, Welding Eng. & Welding Quality	Ph.D. , P.Eng., CWI
Hassan Saghafifar	18270	WIS – Level 3	W47.1/W59 ASME B31.3 ASME VIII & IX	Welding Inspection Supervisor	Ph.D. , P.Eng.
Ali Moallem	19431	Level 3	W47.1/W59 ASME B31.3 ABS	NDE Supervisor	M.Sc., P.Eng., CGSB – MT/PT/UT
Pilsun Song	-	Level 1 in progress	-	Lab Technician	AScT, XRF

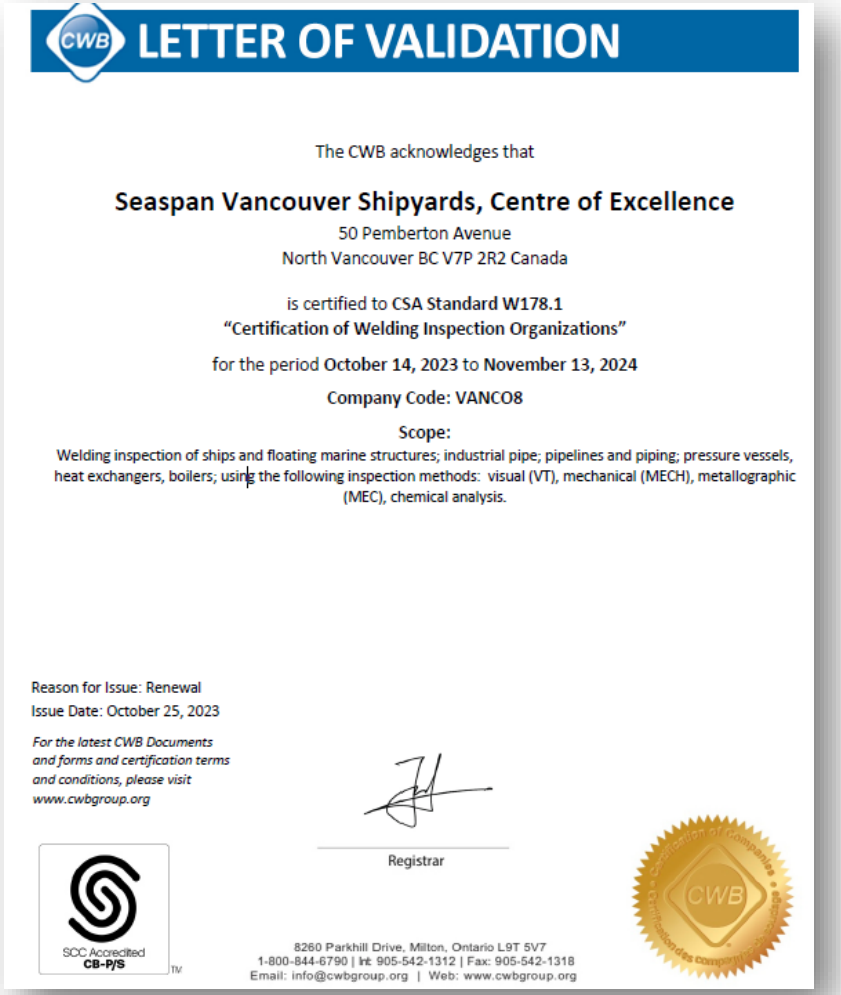
COE – Welding and Material Testing Lab CWB Certification Scope

Performing Welding Inspection for following items:

- Ships and Floating Marine Structures
- Industrial Pipe
- Pipelines and Piping
- Pressure Vessels
- Heat Exchangers
- Boilers

Inspection Methods:

- Visual (VT)
- Mechanical (MECH)
- Metallographic(MEC)
- Chemical Analysis



LETTER OF VALIDATION

The CWB acknowledges that

Seaspan Vancouver Shipyards, Centre of Excellence
50 Pemberton Avenue
North Vancouver BC V7P 2R2 Canada

is certified to **CSA Standard W178.1**
"Certification of Welding Inspection Organizations"

for the period **October 14, 2023** to **November 13, 2024**

Company Code: VANCO8

Scope:
Welding inspection of ships and floating marine structures; industrial pipe; pipelines and piping; pressure vessels, heat exchangers, boilers; using the following inspection methods: visual (VT), mechanical (MECH), metallographic (MEC), chemical analysis.

Reason for Issue: Renewal
Issue Date: October 25, 2023

For the latest CWB Documents and forms and certification terms and conditions, please visit www.cwbgroup.org

Registrar

SCC Accredited CB-P/S

8260 Parkhill Drive, Milton, Ontario L9T 5V7
1-800-844-6790 | Int: 905-542-1312 | Fax: 905-542-1318
Email: info@cwbgroup.org | Web: www.cwbgroup.org

COE – Welding and Material Testing Lab Capabilities

Highly experienced Professional Team along with COE Lab's World Class Equipment for mechanical testing and chemical analysis, enable COE Lab to provide high quality services.

Key points:

- Well Maintained and Calibrated Top-Notch Equipment with **Traceable** Testing Procedures.
- High Quality Specimen Preparation Process Including **Surface Grinding**.
- **CWB** Certification.
- **Turn Around** Time is Less than **10** Business Days.
- **ISO 17025** Accreditation is in Process.
- Offering Services to **External Customers**.

Metallography

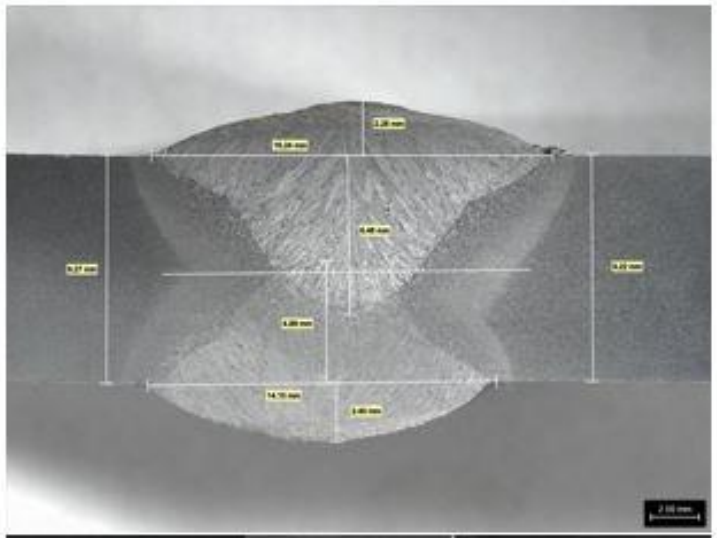
Impact Testing & Cooling Bath

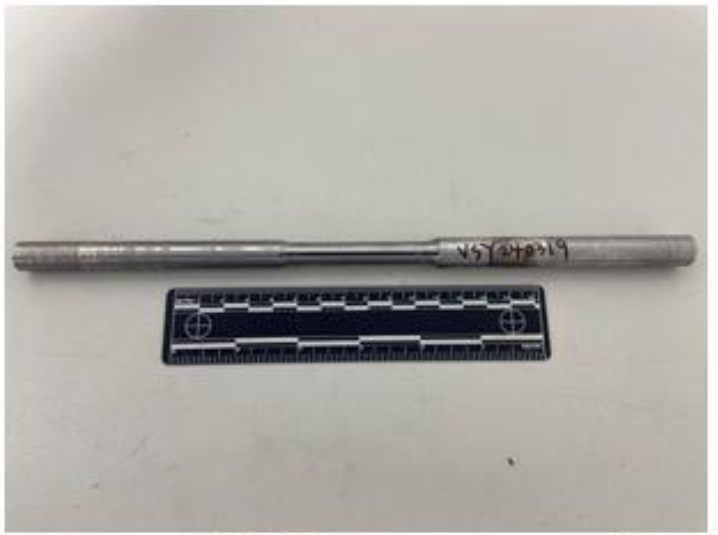
Hardness Testing & Microscopes

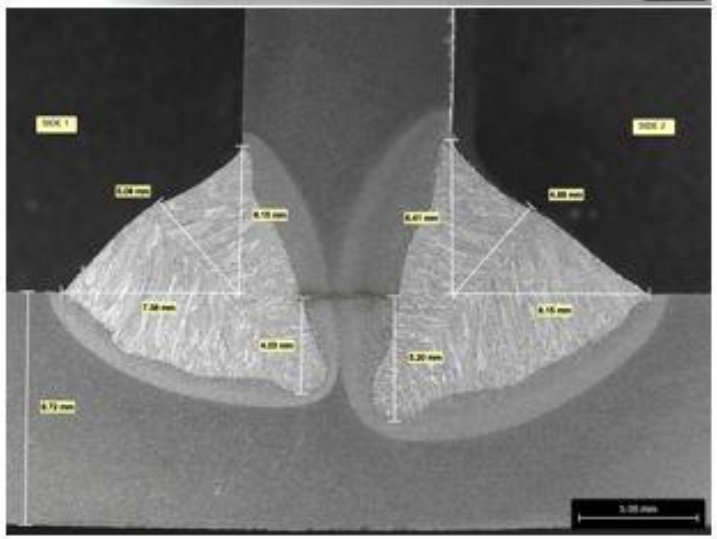
Tensile Testing

Chemical Analysis

COE – Welding and Material Testing Lab – Traceability & Accuracy of Testing

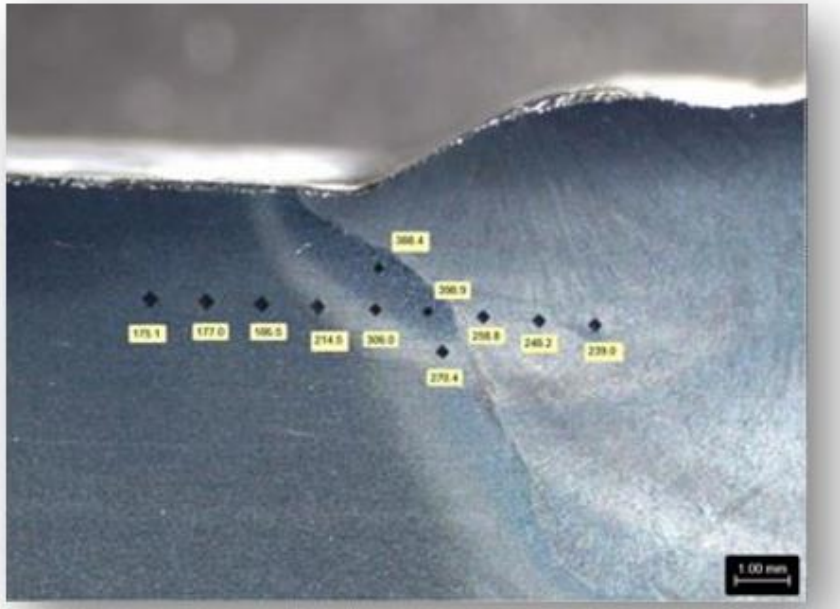




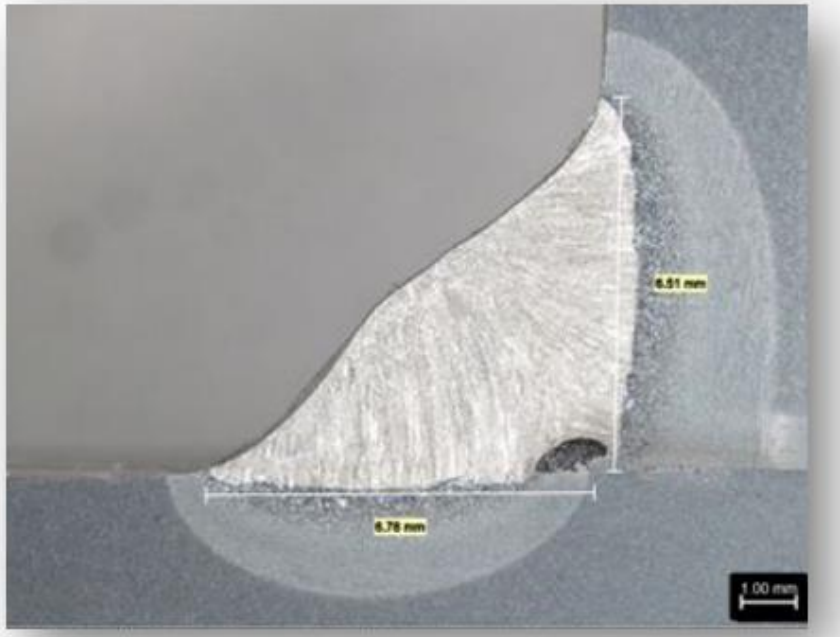


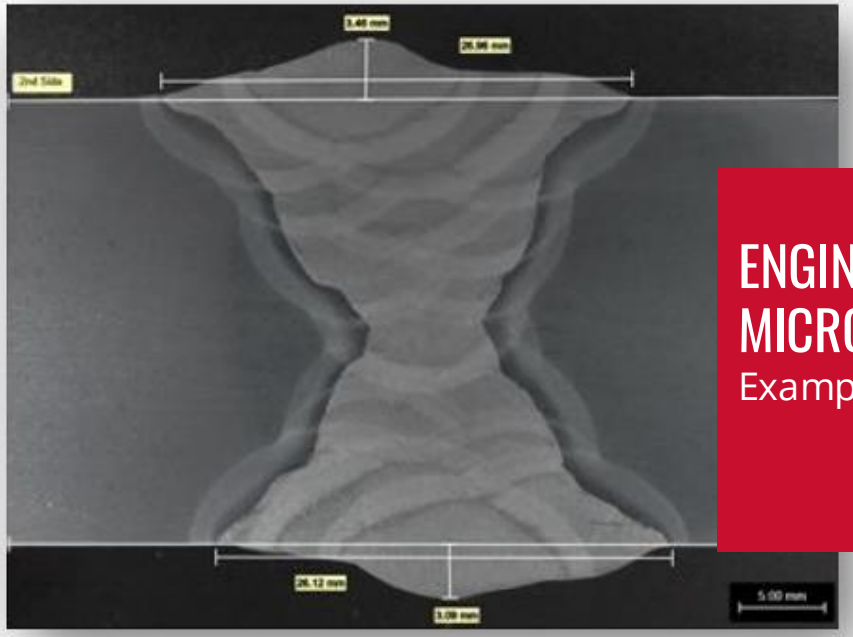
COE – Welding and Material Testing Lab Achievements Since March 2023

1. Performed over 80 Welding Procedure Qualification Testing Based on LR and DNV.
2. Tested Plates up to 60 mm with Different Tensile Strength including Q&T HY80.
3. Tested Different Pipes including CS and SS
4. Conducted over 5 Material Test Report (MTR) Verification
5. Performing Welder Qualification
6. Over 10 Failure Analysis and Metallurgical / Microstructure Characterization Projects



COE Lab Offers Mechanical Testing Services to All Industries Across Canada



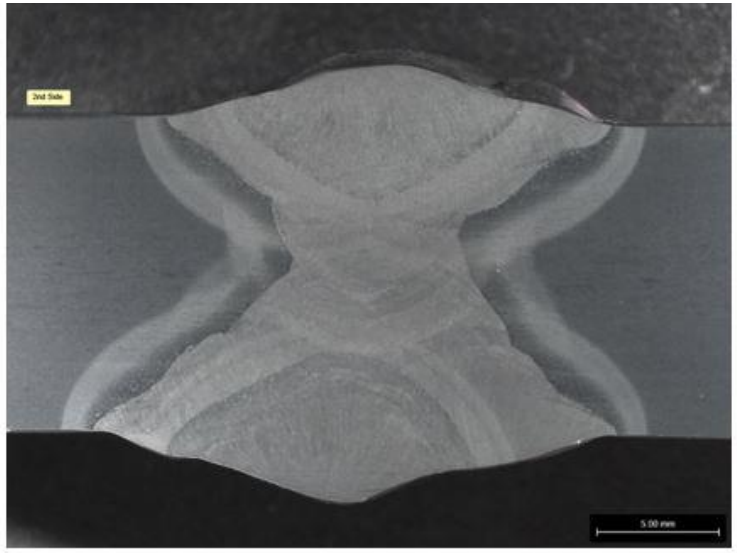


ENGINEERING SERVICES / MICROSTRUCTURE CHARACTERIZATION:

Examples of completed projects in COE Lab

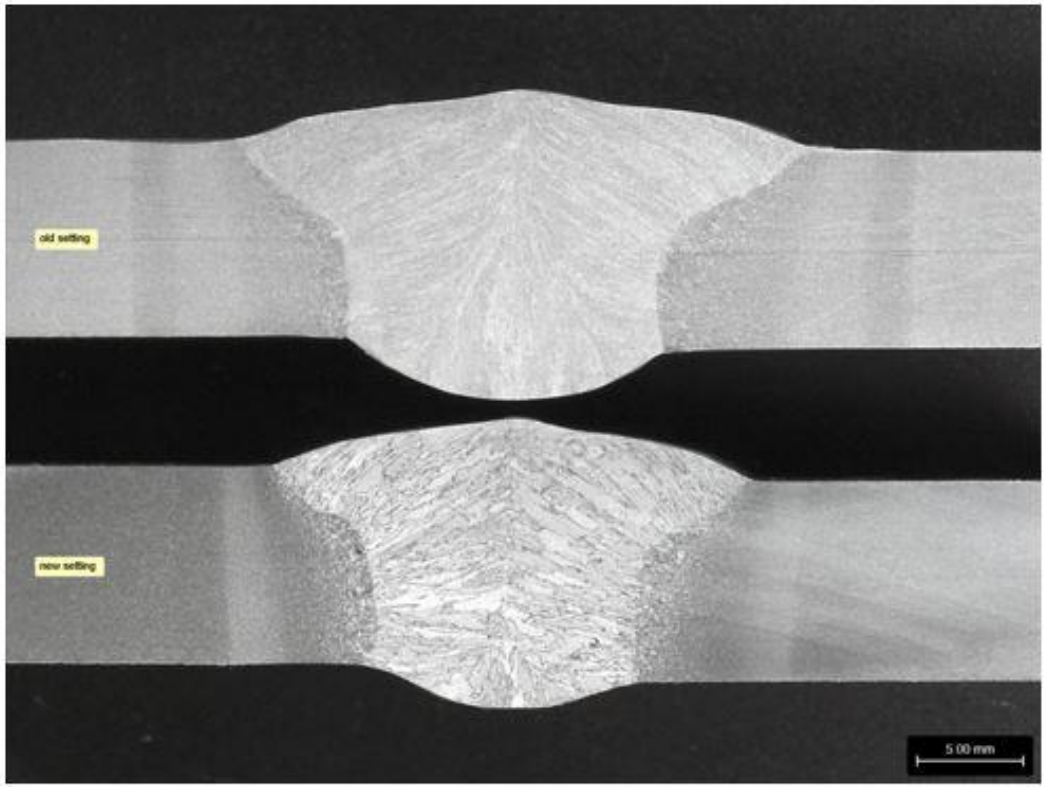
Weld Metal Impact Test & Weld Bead Number / Weaving

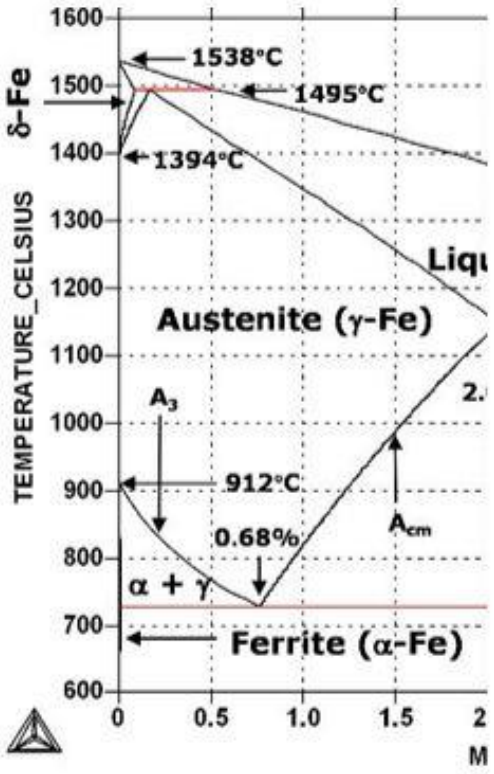
- Number of weld beads and stringer or weave have a great impact on ductility.
- Impact test at low temperature can show these effects.



Heat Affected Zone (HAZ) Width Control & Carbon Steel Delivery Condition

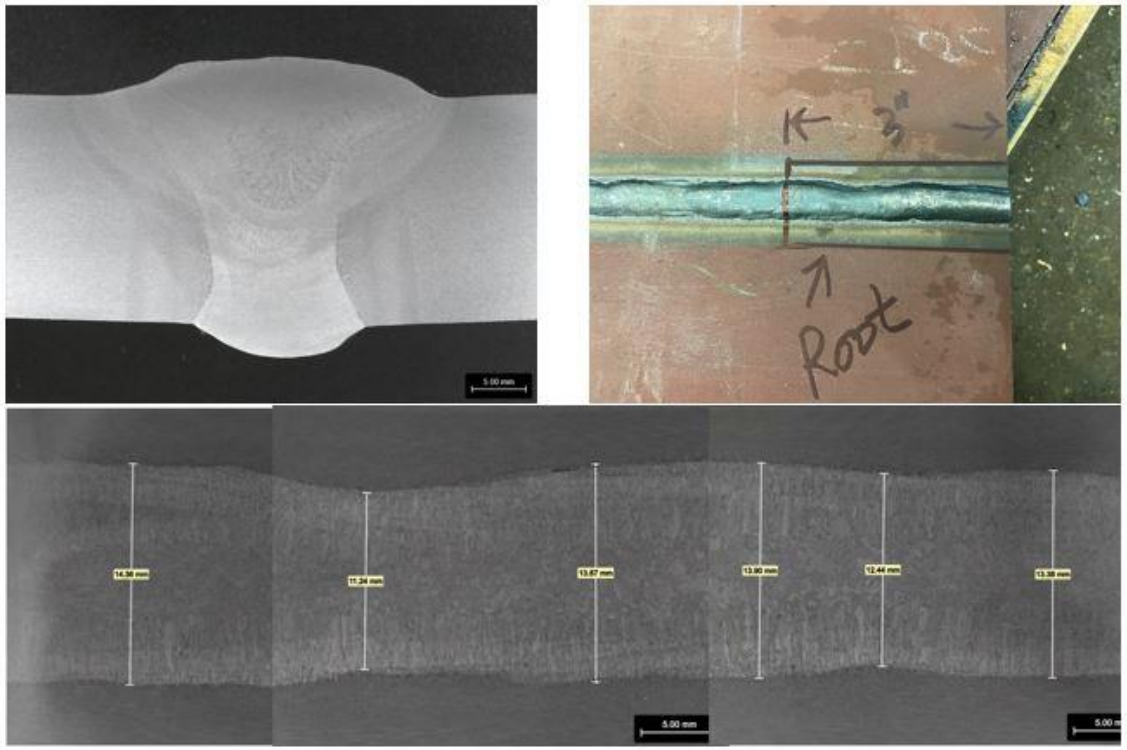
- Heat input of welding processes affect HAZ width and changes mechanical properties.
- Chemical composition and delivery condition of base metal can help HAZ width control.

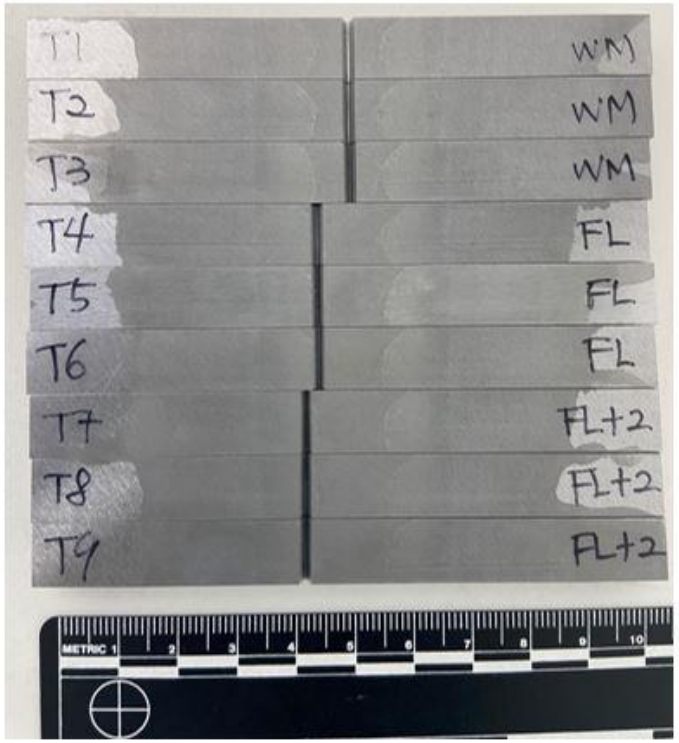




OSW Process Fusion Line Impact Test Results & Root Width

- Impact test results in FL are very scattered from 20 joules to over 400 joules.
- Microstructure characterization of weld root reveal weld width is variable.





QUESTIONS?

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June 2024