



CWA UpDate



Canadian Welding Association | Association canadienne de soudage

Issue 5- March 7th (2017/2018 season)

Hamilton and Region Chapter

Please plan to attend our next seminar

Wednesday March 7, 2018

Holiday Inn Burlington Hotel & Conference Centre

Located at 3063 South Service Road, Burlington. Attitude adjustment: 5:30 p.m. Dinner: 6:00 (Sharp) Seminar 7:00 pm Dinner entrance fees for this meeting are: \$20 for students, \$35.00 (members and \$40 for non-members

Note: "First year" basic membership is free (at present)

You **must** reserve for Dinner.

Topic

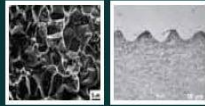
METALLURGICAL INSPECTION OF EXPLOSIVE WELDING

By: **Kusay Rafo**

This presentation will provide an overview of the explosive welding as an advanced technique and will compare that with traditional techniques. It will also discuss the testing methods, analysis and case study with own practical experiences using:

Destructive Testing:

1. Hardness and Micro Hardness
2. Light Microscope – Metallography
3. Scanning Electron Microscope



Non Destructive Testing

1. Visual Test
2. Ultrasonic Test
3. Dye Penetrants Test
4. Eddy Currents Test
5. Magnetic Particle Test
6. X-Ray & Gamma Ray Test



- Mr. Rafo is a professional engineer in three provinces Ontario, British Columbia and Alberta
- CWA (Canadian Welding Association) Executive Member/Toronto Chapter
- Master's degree in Welding/Manufacturing Engineering
- Owner/CEO of Rafail CAD Inc. experienced in Industrial Structural Engineering, Custom Machinery Design and Welding Researches
- Experienced in Welding Metallurgy, Metallography and Microstructure Analysis using Optical Microscope and SEM – Scanning Electron Microscope.
- Experienced in Welding Inspection NDT (Non-Destructive Testing)
- Taught university level courses in the department of Mechanical Engineering in various countries
- Oil painter Caricature Artists
- Toastmaster member
- CSWP – certified SOLIDWORKS member



Next meeting: Wednesday April 4/2018
Topic: Industry Education Forum
Contact any Hamilton Chapter Board Member for Tickets.

Note! You must reserve in advance

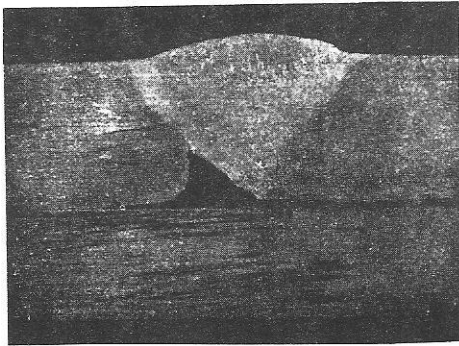
Please register
by contacting **Franco Piccoli**
(905) 317-6543
by Friday March 2, 2018
Alternate Contact:
Don Hutt (905) 548-7200 (ext.3079)

Fusion Faults

- Lack of fusion (insert)
- Lack of sidewall fusion
- Lack of root fusion
- Lack of fusion in fillet welds
- Underbead non-fusion / Cold Lap
- Incomplete penetration

Lack of Fusion

The term is used in this instance to describe the failure to fuse weld metal to the base material, or adjacent layers of weld metal to each other. Failure to effect fusion may occur at any point in the welding groove or fillet weld as illustrated in Figs. 34, 35, 36, 37, 38 and 39.



*Fig. 34 – Lack of fusion at root of open square butt on backing bar
Also lack of penetration*

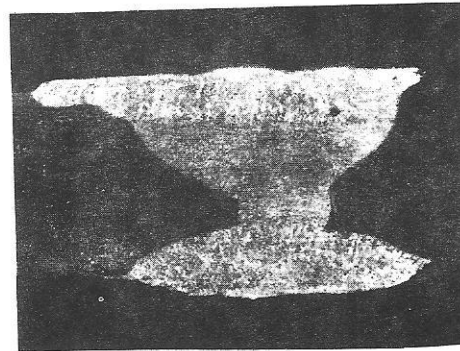
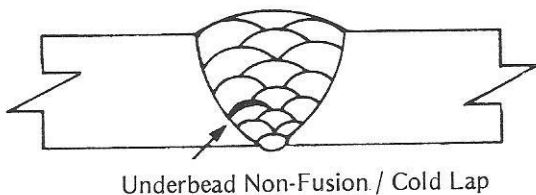
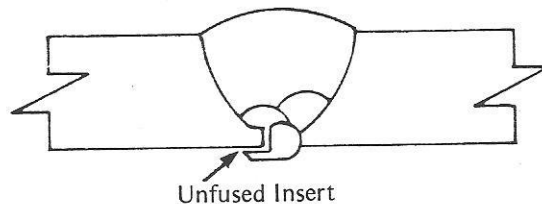


Fig. 35 – Lack of fusion at root of open square butt, welded both sides



Underbead Non-Fusion / Cold Lap

Fig. 36



Unfused Insert

Fig. 37