

Workshop Locations

May 27, 2008 ***Northern Lower Michigan Session***
Cheboygan County Road Commission
5302 S. Straits Hwy.
Indian River, MI 49749-9379
(231) 238-7775

May 28, 2008 ***Central Lower Michigan Session***
MDOT Bay Region
Saginaw East Side Complex
3510 E. Washington Rd.
Saginaw, MI 48601-9622
(989) 754-0784

May 29, 2008 ***Southeastern Michigan Session***
Washtenaw County Road Commission
555 N. Zeeb Rd.
Ann Arbor, MI 48103
(734) 761-1500

May 30, 2008 ***Southwestern Michigan Session***
Kent County Road Commission
1500 Scribner Ave. NW
Grand Rapids, MI 49504-3233
(616) 242-6900

Site maps available upon request.

Acknowledgements

A special thanks to the Cheboygan County Road Commission, Washtenaw County Road Commission, the MDOT Bay Region Facility and the Kent County Road Commission who have graciously agreed to host this event and allow others to use their facilities and materials.

Registration

Registration should be received by May 20, 2008. Seating is limited, so register early to ensure participation. To register, or for more information on this workshop, contact:

Michigan's Local Technical Assistance Program
(906) 487-2102 or fax (906) 487-3409
www.MichiganLTAP.org



Local Technical Assistance Program
309 Dillman Hall
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931-1295
(906) 487-2102

**Advanced
Maintenance
Welding
Inspection, Techniques,
Applications**



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**Michigan's
Local Technical
Assistance Program**

Advanced Maintenance Welding: *Inspection, Techniques, Applications*

Background

Program Leader

Tom Cook is a welding instructor from Cornell University, and owner of a welding and fabrication shop in a rural farm area. Tom has offered this program through the United States since 1985.

Who Should Attend

Employees who do welding in their agency or highway garages, and supervisors and superintendents who desire an update. This is a “*live-action*” program, and will cover practical welding techniques to improve job safety, efficiency and productivity. Welders of all experience levels will find something of interest in this workshop to improve their welding proficiency and safety.

Topics Discussed

Each session will cover all of the *Basic Topics* and as many of the *Advanced Topics* as time allows. Participants are encouraged to guide the area of instruction to topics most suited to their particular work interests.

What Students Need to Bring

Arc and Oxy welding shields (shades 10 and 5, respectively), gloves, a challenging project or one that has been difficult (this could be a task, an equipment setup, or any welding related problem).

Cost

The registration fee is \$110.00. Coffee break refreshments, a workshop notebook, and lunch are provided. Please let us know if you have any special dietary needs.

Agenda

8:00 a.m.	Basic Welding Topics
9:45 a.m.	<i>Break</i>
10:00 a.m.	Basic Welding Topics, continued
12:00 p.m.	<i>Lunch (provided)</i>
12:45 p.m.	Advanced Welding Topics
2:00 p.m.	<i>Break</i>
2:15 p.m.	Advanced Welding Topics, continued
4:00 p.m.	Adjourn

Basic Welding Topics

Welding Safety

Covers exposures, your responsibilities, accident prevention, eye and skin protection, proper gear and clothing, extinguishers, and precautions.

Oxyacetylene Torch Uses

Reviews precautions, set-up, regulators, check valves, and other fuel gases.

Oxyacetylene Gas Welding and Cutting

Set-up and preparation, torch flames, fusion welding, steel brazing, quality cutting, aids, piercing holes, stud removal, cutting round stock, and gouging.

Metal Identification

Learn how to identify metals by using various methods such as spark, chisel, magnet, manufacturing, fracture, flame, acid tests, and others.

Advanced Welding Topics

Heat Treatment

Hardening, tempering, stress relieving, annealing, normalizing, pre- and post-heating, case hardening, and cracking.

Arc Welding

Establishing current, duty cycle, AC versus DC, electrode selection, establishing the arc, and cutting.

Out-of-Position Welding

Low hydrogen electrodes, vertical and overhead techniques.

Hard Surfacing

Methods of hardening, applications, and patterns.

Welding Defects

Factors that lead to defects, distortion, shrinkage, and straightening.

Cast Iron Repair

Identification, nickel welding, fusion, brazing, and limits of repairs.

Soldering

Solders, fluxes, and silver brazing.

Specialty Metals

Aluminum, fluxless friction, brazing, stick arc, magnesium, stainless steel, copper, and zinc die cast.

MIG, Plasma Arc

Limitations and problem solving.

Maintenance of Welding Equipment

Keeping your equipment in top shape.