

**EXCELLENCE
IN MARINE
WELDING**

Collaborating for Quality
in Support of NSS

How the new CSA W47.1M
Marine Annex Supports
Welding Quality

MariTech
Ottawa, April 2019

Collaborating for Quality



Key Discussion Points for Today

- Canadian Welding Bureau is committed to the success of the National Shipbuilding Strategy
- The complications of dual certification requirements for the shipyards will be addressed by the new Marine annex, W47.1M
- Acceptance of W47.1M by the class societies will maintain adherence to Canadian standards while improving quality, productivity and costs
- W47.1M meets or exceeds all class requirements
- Efforts to map out transition and implementation plans are underway with all stakeholders



CWB Group - Excellence in Welding



| **cwb**certification



| **public**safety



| **cwb**association



| **cwb**education



| **cwb**consulting



| **cwb**registration

SAFETY | QUALITY | PRODUCTIVITY

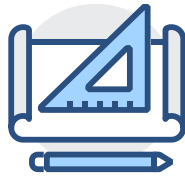


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What Happens in the Yards Today.....



Dual Requirements Required by Canadian Ship Construction



**National Shipbuilding
Strategy**

mandates

 **Canadian CSA W47.1
Standard**

In
Ship Design



SHIP BUILDERS



CLASS SOCIETIES

Mandates

International Standards IACS

For
Ship Build



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Challenges and Complications for the ShipYards



SHIP BUILDERS

Increased Testing Requirements

Fabrications Delays

Higher Manufacturing Costs

Quality Inconsistencies

Administrative Inefficiencies



CSA W47.1 supports quality and productivity in the yards



CSA W47.1 is a third-party administered comprehensive program which addresses all aspects of the welding environment to directly, explicitly support high quality. Scope of the standard includes:

- **ONSITE IMPARTIAL AUDITS**
- **WELDER SKILL QUALIFICATION**
- **WELDING ENGINEER & SUPERVISOR KNOWLEDGE QUALIFICATION**
- **WELDING PROCEDURE ASSESSMENT & APPROVAL**
- **WELDING CONSUMABLE ASSESSMENT & APPROVAL**



CSA W47.1M - Responding and Innovating



Collaborative Industry Solution

- The Canadian Standards Association's W47.1 Technical Committee formed a Technical Group
 - Broad Government & Shipbuilding Industry representation
 - Tasked with addressing challenges while maintaining the highest standards for quality and safety
- New Annex written, called W47.1 "M" , completed in late 2018
- An optional Certification standard for marine manufactures
- Becomes available to shipyards when published in Summer 2019

A New Future: CSA W47.1M Marine Annex



Guiding Principles Inherent in the Development of the
New Welding Standards Marine Annex

1. **Meet and exceed** International Association of Class Societies Unified Rules Requirements for welding (IACS UR-W)
2. **Supplement** the requirements for certification listed in W47.1
3. **Be mandated** when Canadian Standards Association (CSA) W47.1 is selected for use as a governing standard for ship construction & repair



CSA W47.1M: Developed by **Canada**, for **Canada**, in **Canada**



Committee Members Represented

- Canadian Coast Guard Vessel Procurement
- Transport Canada Marine Safety and Security
- Integrated Technical Services and Maritime Civil Infrastructures
- Department of National Defence Headquarters and Fleet Maintenance Facilities Cape Scott and Cape Breton
- Chantier Davie Canada
- Newdock St. John's Dockyard
- Irving Shipbuilding
- Seaspan Shipyards
- Canadian Welding Bureau





CSA W47.1M

Welding Procedures and Qualification (1 of 2)



Procedure Prequalification

- Does not permit prequalification for procedures

Mandatory Testing

- Same mandatory testing as IACS UR; prequalification concept will not be employed

Matrix for Joint Testing

- A similar matrix for the joints required to be tested



CSA W47.1M

Welding Procedures and Qualification (2 of 2)



Thickness Ranges

- Similar qualification thickness ranges: butt welds, by throat for fillet welds

Energy Values

- Specifies energy values required for CVN testing based on the type of material and the type of process

Position Qualification/Heat

- Qualification in one position qualifies only for that position. All position requires testing for the highest and lowest heat input



CSA W47.1M

Welding Personnel Qualification (1 of 2)



Classifications

- Welders will have same classifications in line with W47.1 but followed by letter "M"; e.g. S-M; FW-M, WT-M

Welding Positions

- Same logic for progression through welding positions as required in W47.1; e.g. F, H, V and O

Standard Test Assembly

- Allows only option 1 and 3 of Figure 8 for the standard test assembly



CSA W47.1M

Welding Personnel Qualification (2 of 2)



Matrix for Joints

- Similar matrix for the joints required to be tested

Check Testing Frequency

- Check testing required every 2 years for welders

Retesting

- No retest is required for welding operators unless a new qualification is required

Transferability

- Although qualifications are transferable a new retest may be required by the class society's surveyor



CSA W47.1M

Helping Shipbuilders & Class Societies



+ Quality

+ Productivity

+ Cost Savings

+ Efficiency

Advantages of CSA W47.1M

- No new certification is required for all certified clients
- No new exams required for the existing supervisors and engineers
- A single certification process can be used on all projects
- Reduced testing of procedures
- Led by CWB's Marine Team of marine applications specialists, providing expertise and technical support



Implementation for Success



CWB is committed to support:

- Expedited implementation
- Collaborative joint planning
- Information sharing
- Issue resolution
- Process improvement
- Best practices

CSA W47.1M Marine Annex

**Coming Soon
to A yard
Near you!**

Made in **Canada** by
Canadian Fabricators
following
Canadian Standards
funded by the
Canadian Government



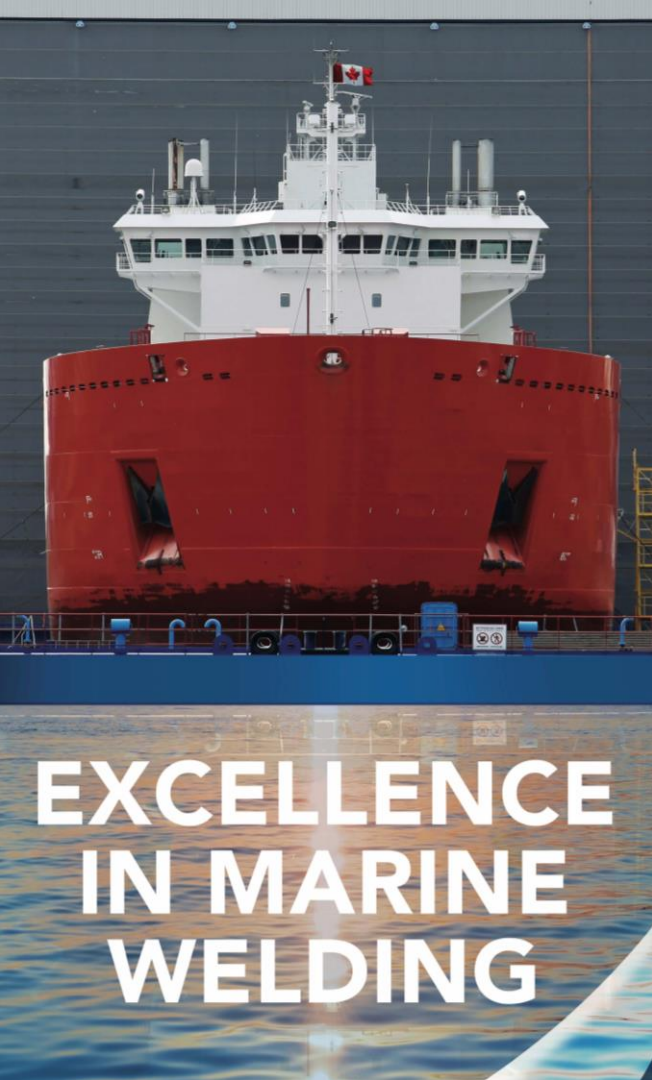
National Consortium for Welding Excellence in ShipBuilding



CWB Group will evaluate the interest and scope of a **National Consortium for Welding Excellence in ShipBuilding (NCWES)**, in support of the NSS, whose scope may include:

NCWES Scope May Include:

- Design and develop new welding solutions and techniques for shipbuilding in Canada
- Transfer knowledge and technology from global shipyards to Canada
- Build competency models to assess and upskill shipbuilding welders
- Design training programs to upskill existing Canadian welders to meet demand across the country
- Formation of partnerships and affiliations



Collaborating for Quality in Support of NSS

If you are interested in the **NCWES**
have questions,
or
would like to register to receive W47.1M updates,

reach out to us at
marineannexupdates@cwbggroup.org