

CAN/ULC-S601-14-REV1 (Including Revision 1)

STANDARD FOR SHOP FABRICATED STEEL ABOVEGROUND TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS





Underwriters Laboratories of Canada (ULC) was established in 1920 by letters patent issued by the Canadian Government. It maintains and operates laboratories and certification services for the examination, testing A National Standard of Canada is a standard developed by a Standards and certification of appliances, equipment, materials, constructions and systems to determine their relation to life, fire and property hazards as well providing inspection services.

ULC Standards develops and publishes standards and other related publications for building construction, security and burglar protection, environmental safety, electrical equipment, fire protection equipment, gas and oil equipment, thermal insulation products, materials and systems, energy use in the built environment and electrical utility safety.

ULC Standards is a not-for-profit organization and is accredited by the Standards Council of Canada as a Standards Development Organization.

National Standards of Canada developed by ULC Standards conform to the requirements and guidance established by the Standards Council of Canada. Such standards are prepared using the consensus principle by individuals who provide a balanced representation of interests relevant to the subject area on a national basis.

National Standard of Canada

Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

For further information on ULC standards, please contact:

ULC STANDARDS

171 Nepean Street, Suite 400 Ottawa, Ontario K2P 0B4 Telephone: (613) 755-2729

To purchase ULC Standards, visit: www.ulc.ca/ulcstandards

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for the particular application.

Copies of this National Standard of Canada may be ordered from ULC Standards.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

Standard for Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids, CAN/ULC-S601-14-REV1

Fifth Edition, Dated May 2014

Summary of Topics

This March 2019 revision of CAN/ULC-S601-14 contains revisions to support the National Research Council of Canada program to address Climate Change Adaptation in Canadian Codes and Standards.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated August 24, 2018.

A "(REV1)" marker in Bold will be inserted at the start of the applicable Clause(s) and in the applicable Subsection title(s). The Subsection title markers will appear in the TOC as a result. The markers may be found by searching for the characters "(REV1)". Including the parenthesis in the search term will find the markers, without also finding every page header.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

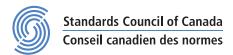




STANDARD FOR SHOP FABRICATED STEEL ABOVEGROUND TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS

ICS 23.020.10; 75.200





First Edition	May 1084
Second Edition	October 1993
Third Edition	December 2000
Fourth Edition	December 2007
FIFTH EDITION	
REVISION 1	MARCH 2019

Copyright © 2019

ULC Standards

All rights reserved. No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior permission.

This is a preview. Click here to purchase the full publication.



TABLE OF CONTENTS

U	ULC STANDARDS COMMITTEE ON STATIONARY STEEL STORAGE CONTAINERS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS					
P	REFACE	11				
1	SCOPE	1				
2	REFERENCE PUBLICATIONS	2				
3	GLOSSARY	4				
4	CONSTRUCTION – GENERAL	5				
	4.1 CAPACITIES AND DIMENSIONS	5				
	4.2 MATERIAL					
	4.3 WELDING					
	4.4 TANK JOINTS					
	4.5 TANK CONNECTIONS					
	4.6 VENTING					
	4.7 MANWAY DESIGN					
	4.8 LIFTING					
	4.9 PRODUCTION TESTS	9				
5	SINGLE WALL TANKS	9				
	5.1 GENERAL	9				
	5.2 HORIZONTAL CYLINDRICAL TANKS	9				
	5.2.1 CAPACITIES	9				
	5.2.2 CONSTRUCTION	9				
	5.3 MULTI-COMPARTMENT TANKS					
	5.4 VERTICAL CYLINDRICAL TANKS	.10				
	5.4.1 CAPACITIES					
	5.4.2 CONSTRUCTION					
	5.4.3 TAILING LUGS AND ANCHORS					
	5.5 RECTANGULAR TANKS	.11				
	5.5.1 CAPACITIES AND CONSTRUCTION					
	5.5.2 PERFORMANCE TESTS					
	5.5.2.1 Proof of Design					
	5.5.2.2 Static Load					
	5.5.2.3 Tank Support					
	5.5.2.4 Lifting					
	5.6 UTILITY TANKS					
	5.6.1.1 Capacities					
	5.6.1.2 Construction					
	5.6.1.3 Venting					
	5.6.1.4 Protective Coating					
	5.6.2 DOUBLE BOTTOM UTILITY TANKS					
	5.6.3 PERFORMANCE TESTS					
	5.6.3.1 Proof of Design					

		5.6.3.2 Drop Test	
		5.6.3.4 Rough Usage / Stability	
		5.6.4 PRODUCTION TEST	
_			
6	TANKS WIT	TH SECONDARY CONTAINMENT	14
	6.1	GENERAL	14
		CONSTRUCTION – ALL TANKS	
		6.2.1 MATERIALS	14
		6.2.2 CONNECTIONS	
		6.2.3 CONSTRUCTION	
		6.2.4 WELD JOINTS	
	6.3	CONSTRUCTION – DOUBLE WALL TANKS	
		6.3.1 GENERAL	
	C 4	6.3.2 JOINTS	
		PRODUCTION TEST	
		MONITORING	
		SHIPPING	
		CONSTRUCTION – INTEGRAL CONTAINED TANKS	
		6.8.1 GENERAL	
		6.8.2 VENTING	
	6.9	PERFORMANCE	
		6.9.1 PRODUCTION TESTING	16
_		N=0	
7	ACCESSOF	RIES	17
	7 1	LIFTING LUGS	17
		PROTECTIVE COATINGS	
		SADDLES AND SUPPORT STRUCTURE	
		HEATING COILS AND HOT WELLS	
	7.5	SPILL CONTAINMENT DEVICE	18
	7.6	SUPPLEMENTARY EQUIPMENT	18
_			
8	PERFORMA	ANCE TESTS	18
	8.1	PROOF OF DESIGN TEST	18
		8.1.1 GENERAL	
		8.1.2 APPARATUS	
		8.1.3 METHOD	19
		UTILITY TANK VENT EQUIVALENCY TEST	
		HANDLING TEST	
		PRESSURE LEAK TEST	
		UTILITY TANK DROP TEST	
		UTILITY TANK ROUGH USAGE / STABILITY TEST	
	8.7	STATIC LOAD TEST	20
	8.8	TAIN SUFFURT LUAD TEST	ا ک
9	PRODUCTION	ON TESTS	21
		PRODUCTION LEAK TEST	
	Q 2	VACIJIM HOLD TEST	21

10 INSTALLATION INSTRUCTIONS	22
11 MARKING	22
11.1 MARKING – ALL TANKS	22
11.2 MARKING – RECTANGULAR TANKS	
11.3 MARKING – UTILITY TANKS	
11.4 MARKING - ALL SECONDARY CONTAINMENT TANKS	25
11.5 MARKING – DOUBLE WALL TANKS	25
11.6 MARKING – INTEGRAL CONTAINED TANKS	25
11.7 MARKING – DOUBLE BOTTOM UTILITY TANKS	26
TABLES	27
FIGURES	
rigures	31
APPENDICES	61
APPENDIX A (INFORMATIVE)	61
EXPLANATORY MATERIAL	C4
EXPLANATORY WATERIAL	01
A1 DESIGN CRITERIA FOR VERTICAL CYLINDRICAL TANKS	62
A2 MAXIMUM STRUCTURAL LIMITATIONS FOR VERTICAL TANKS	62
A3 DESIGN CRITERIA FOR HORIZONTAL CYLINDRICAL TANKS	64
APPENDIX B (INFORMATIVE) ACCEPTABLE METHOD AND DESIGN CRITERIA FOR VENTS .	65
APPENDIX C (INFORMATIVE) GUIDANCE FOR PROTECTIVE COATINGS ON TANKS	70
APPENDIX D (INFORMATIVE) SADDLES FOR HORIZONTAL CYLINDRICAL TANKS	71
(REV1) APPENDIX E (INFORMATIVE) OPTIONAL CLIMATE CHANGE ADAPTAT REQUIREMENTS	
E1 GENERAL	72
E2 SNOW & ICE	72
E3 WINDS	72
E4 FLOODING	73
E5 CLIMATE CHANGE FACTORS NOT APPLICABLE TO THIS STANDARD	73