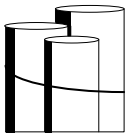
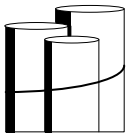
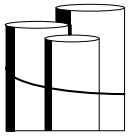
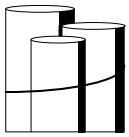
Wood Preservation Canada
Préservation du bois Canada

SPECIFIER GUIDE

No. WPC – 07-2024

Round and Sawn Wood Piles

SPECIFYING ROUND AND SAWN WOOD PILES

WPC – 07-2024

Product Introduction

Pressure treated round piles are typically used to support critical vertical loads in marine pilings, highways bridges, railroad trestles versus pressure treated sawn piles which are also used in marine applications, but more commonly used to support buildings. Treated wood piles have a long record of performance, competitive, cost-effective pricing and far greater environmental benefits compared to alternatives. Pressure treated round and sawn piles have been used to support structures for hundreds of years. In the early days, round or sawn piles were coated with a variety of vegetable and mineral based oils to preserve the wood and extend the service life of these projects. In the Roman days, timbers were coated in pitch and charred to extend the service life. Today, we rely on more modern methods a preservation that use a combination of a heavy-duty preservative along with pressure to extend the service life of these products. Even in this technology dominated era, wood piles remain the top choice for highway or railroad bridges as well as a variety of marine structures.

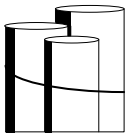
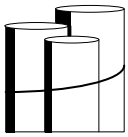
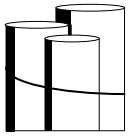
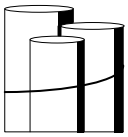
For details on the manufacturing and dimensional requirements of untreated Roundwood piles refer to CAN /CSA 056-15 Round Wood Piles© and for the details and physical requirements for untreated sawn wood piles refer to the National Lumber Grades Authority (NLGA), Standard Grading Rules for Canadian Lumber. The information in this guide focuses on the requirements for pressure treated round timbers and sawn wood piles as specified in the CAN / CSA – O80 Series – 21, Wood Preservation©.

Allowable Wood Species and Related Use Categories

Pressure treated sawn wood piles used in ground contact or freshwater typically require a use category rating of UC4.2 while round timber and sawn wood piles used in brackish or saltwater require a use category rating of UC5A. For complete details on processing and treatment of round and sawn wood piles consult CAN / CSA – O80 Series – 21, Wood Preservation©.

Preservative Systems Used in Treatment of Round Timber Piles – Marine Applications		
UC5A – Coastal waters – brackish water or saltwater and adjacent mud zone		
Chemical Name	**Abbreviation**	**Allowable Use Category**
Ammoniacal Copper Zinc Arsenate	ACZA	UC5A
Chromated Copper Arsenate	CCA	UC5A
Creosote	CR	UC5A

Preservative Treatments – Round Timber Piles – Marine Applications			
UC5A – Coastal waters – brackish water or saltwater and adjacent mud zone			
	Preservative System Retention kg/m³*		
Species Group	**ACZA**	**CCA**	**CR**
Jack pine	30.0	24.0	290
Red pine	30.0	24.0	290
Southern pine	30.0	24.0	290
Coastal Douglas fir	30.0	24.0	290
** Retention levels vary by species and preservative system – Refer to CAN / CSA O80.1 – 21 Table 23 for complete details*			

Preservative Systems Used in Treatment of Solid Sawn Products (boards, lumber, and timber) for marine (saltwater) applications		
UC5A – Coastal waters – brackish water or saltwater and adjacent mud zone		
Chemical Name	**Abbreviation**	**Allowable Use Category**
Ammoniacal Copper Zinc Arsenate	ACZA	UC5A
Chromated Copper Arsenate	CCA	UC5A
Creosote	CR	UC5A

Preservative Systems Used in Treatment of Solid Sawn Products (boards, lumber, and timber) for marine (saltwater) applications			
UC5A – Coastal waters – brackish water or saltwater and adjacent mud zone			
Species Group	Preservative System Retention kg/m³*		
	ACZA	CCA	CR
Jack pine	30.0	24.0	290
Lodgepole pine	30.0	24.0	290
Ponderosa pine	30.0	24.0	290
Red pine	30.0	24.0	290
Southern pine	30.0	24.0	290
Eastern and Western hemlock	30.0	24.0	290
Coastal Douglas fir	30.0	24.0	290
Oak	30.0	24.0	290
** Retention levels vary by species and preservative system – Refer to CAN / CSA O80.1 – 21 Table 22 for complete details*			

Preservative Systems Used in Treatment of Solid Sawn (Timber) Piles		
UC4.2 – Ground contact or freshwater – high decay hazard / critical structural components / difficult to replace		
Chemical Name	**Abbreviation**	**Allowable Use Category**
Ammoniacal Copper Zinc Arsenate	ACZA	UC4.2
Chromated Copper Arsenate	CCA	UC4.2
Creosote	CR	UC4.2
Creosote	CR-S	UC4.2
Pentachlorophenol	PCP-A / PCP-C	UC4.2

Preservative Systems Used in Treatment of Solid Sawn (Timber) Piles					
UC4.2 – Ground contact or freshwater – high decay hazard / critical structural components / difficult to replace					
Species Group	Preservative System Retention kg/m³*				
	ACZA	CCA†	CR	CR – S	PCP-A/PCP-C
Eastern white, Ponderosa and Red pine	8.0	8.0	128	128	6.4
Jack and Lodgepole pine	8.0	8.0	128	128	6.4
Southern pine	8.0	8.0	NR	NR	NR
Western white pine	8.0	8.0	NR	NR	NR
Hem-Fir North, Eastern and Western Hemlock, and True firs	8.0	8.0	160	160	8.0
Coastal Douglas fir	8.0	8.0	160	160	8.0
Western larch	NR	NR	128	NR	6.4
Beech	NR	NR	128	128	6.4
Birch	NR	NR	128	128	6.4
Maple	NR	NR	128	128	6.4
Red Oak	NR	NR	128	128	6.4
** Retention levels vary by species and preservative system - Refer to CAN / CSA O80.1 – 21 Table 10 for complete details* *† To be used only in accordance with PMRA requirements. Industrial products and permanent wood foundations are examples of allowable uses. Refer to CAN / CSA O80.1 – 21 Table 10 for complete details*					

Product registration

Wood preservatives and their uses are regulated by Health Canada's Pest Management Regulatory Agency (PMRA).

Recommended Reference Standards

National Lumber Grades Authority (NLGA), Standard Grading Rules for Canadian Lumber (2014)
CAN/CSA O56-15 Round Wood Piles©*
CAN / CSA – O80 Series – 21 Wood Preservation©
Source © 2021 Canadian Standards Association

With the permission of Canadian Standards Association, (operating as "CSA Group"), 178 Rexdale Blvd., Toronto, ON, M9W 1R3, material is reproduced from CSA Group's standard **CAN/CSA-O80 Series 15 Series – Wood Preservation**. This material is not the complete and official position of CSA Group on the referenced subject, which is represented solely by the Standard in its entirety. While use of the material has been authorized, CSA Group is not responsible for the manner in which the data is presented, nor for any representations and interpretations. No further reproduction is permitted.

For more information or to purchase standard(s) from CSA Group, please visit the store csagroup.org or call 1-800-463-6727.